United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ventura Fish and Wildlife Office
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IN REPLY REFER TO:
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April 26, 2013

Memorandum

To: Regional Director, Pacific Southwest Region
Sacramento, California

From: Field Supervisor, Ventura Fish and Wildlife Office
Ventura, California

Subject: Biological Opinion on the Proposed Issuance of an Incidental Take Permit for the Tehachapi Uplands Multiple Species Habitat Conservation Plan (8-8-12-FW-55)

This document transmits the U.S. Fish and Wildlife Service's (Service or USFWS) biological opinion based on our review of our proposed issuance of an incidental take permit (ITP or permit) to the Tejon Ranchcorp (TRC or Applicant) and its effects on federally threatened and endangered species, species proposed for listing, and non-listed species that would be covered by the ITP. This document was prepared in accordance with section 7 of the Endangered Species Act of 1973, as amended (Act or ESA) (16 U.S.C. 1531 et seq.).

The Covered Species would include the following:

Endangered

California condor (*Gymnogyps californianus*)
Least Bell's vireo (*Vireo bellii pusillus*)
Southwestern willow flycatcher (*Empidonax traillii extimus*)

Candidate for Federal Listing

Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)

Covered, Not Listed

Western spadefoot (*Spea hammondii*)
Tehachapi slender salamander (*Batrachoseps stebbinsi*)
Yellow-blotched salamander (*Ensatina eschscholtzii crocreator*)
Coast horned lizard (*Phrynosoma coronatum*; sspp. *frontale* and *blainvillei*)

Two-striped garter snake (*Thamnophis hammondii*)
White-tailed kite (*Elanus leucurus*)
Bald eagle (*Haliaeetus leucocephalus*)
Golden eagle (*Aquila chrysaetos*)
Peregrine falcon (*Falco peregrinus anatum*)
Burrowing owl (*Athene cunicularia*)
Little willow flycatcher (*Empidonax traillii brewsteri*)
Purple martin (*Progne subis*)
Yellow warbler (*Dendroica petechia brewsteri*)
Tricolored blackbird (*Agelaius tricolor*)
Tehachapi pocket mouse (*Perognathus alticola inexpectatus*)
Fort Tejon woolly sunflower (*Eriophyllum lanatum* var. *hallii*)
Kusche's sandwort (*Arenaria macradenia* var. *kuschei*)
Round-leaved filaree (*California* (*Erodium*) *macrophyllum*)
Striped adobe lily (*Fritillaria striata*)
Tehachapi buckwheat (*Eriogonum callistum*)
Tejon poppy (*Eschscholzia lemmonii* ssp. *kernensis*)

The ITP application filed by TRC originally requested coverage for two additional species; the ringtail (*Bassariscus astutus*) and valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*). By letter of November 14, 2012 (Roberta Marshall, DMB Pacific Ventures, *in litt*. 2012), TRC requested that these two species be removed from their permit application concluding that neither species is likely to occur on the Covered Lands and, therefore, neither necessitates coverage by the ITP. The ringtail is not federally listed under the Act and is not addressed further in this biological opinion. The valley elderberry longhorn beetle is federally listed under the Act as endangered, although we have proposed to delist the species (Service 2012a) based on its current recovery status. We have determined that our issuance of the proposed ITP would have no effect on the valley elderberry longhorn beetle. We have based our determination on the following: (1) the Covered Lands are outside the range of the species; (2) focused surveys for the valley elderberry longhorn beetle have not recorded the species on the Covered Lands; (3) suitable habitat for the species on the Covered Lands is scarce; and (4) the valley elderberry longhorn beetle is not likely to be present. Critical habitat has not been designated for the species. The valley elderberry longhorn beetle is not addressed further in this biological opinion.

This biological opinion is based on information that accompanied the application for an ITP from TRC, including the Tehachapi Uplands Multiple Species Habitat Conservation Plan (TUMSHCP), information from our files, and other current scientific and commercial data. A complete record of this consultation can be made available at the Ventura Fish and Wildlife Office.

ANALYTICAL FRAMEWORK FOR THE JEOPARDY AND ADVERSE MODIFICATION DETERMINATIONS

Jeopardy Determinations

The jeopardy analysis in this biological opinion relies on four components: (1) the *Status of the Species*, which describes the range-wide condition of the covered species, the factors responsible for that condition, and the species' survival and recovery needs; (2) the *Environmental Baseline*, which analyzes the condition of the covered species in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the covered species; (3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the covered species; and (4) the *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on the covered species.

In accordance with policy and regulation, the jeopardy determination is made by evaluating the effects of the proposed Federal action in the context of the current status of the covered species, taking into account any cumulative effects, to determine if implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of the survival and recovery of the covered species in the wild.

Adverse Modification Determinations

This biological opinion does not rely on the regulatory definition of "destruction or adverse modification" of critical habitat at 50 Code of Federal Regulations (CFR) 402.02. Instead, we have relied on the statutory provisions of the Act to complete the following analysis with respect to critical habitat.

The adverse modification analysis in this biological opinion relies on four components: (1) the *Status of Critical Habitat*, which describes the physical or biological features essential to the conservation of the species that may require special management considerations or protection, the range-wide condition of designated critical habitat for the covered species, the factors responsible for that condition, and the intended recovery function of the critical habitat overall; (2) the *Environmental Baseline*, which analyzes the condition of the critical habitat in the action area, the factors responsible for that condition, and the recovery role of the critical habitat in the action area; (3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated and interdependent activities on affected critical habitat, including the physical or biological features essential to the conservation of the species, and how that will influence the recovery role of the affected critical habitat units; and (4) *Cumulative Effects*, which evaluates the effects of future non-Federal activities in the action area on critical habitat and how they will influence the ability of affected critical habitat units to serve their intended recovery roles.

For purposes of the adverse modification determinations, the effects of the proposed Federal action on the critical habitat of the covered species are evaluated in the context of the range-wide condition of the critical habitat, taking into account any cumulative effects, to determine if the critical habitat range-wide, including the physical or biological features essential to the conservation of the species, would remain functional to serve its intended recovery role for the Covered Species.

ORGANIZATION OF THE BIOLOGICAL OPINION

For clarity, the majority of this biological opinion is organized by species; however, exceptions to this organization are necessary. For the Status of the Species and Environmental Baseline sections, we must establish how information was gathered, identify the sources, and describe how the distribution of the species on the Covered Lands has been determined. Because these sources and approaches apply to all species and repeating them would be redundant and potentially confusing, aspects of the Status and Baseline sections are presented below, prior to the species-by-species analyses. Species-specific aspects of the Status and Baseline sections are repeated in the individual species' analyses. Also, because the action area includes all areas affected directly or indirectly by the proposed action (i.e., issuance of an ITP), the action area is defined for all species prior to the species-by-species analyses.

Following these general sections, for each of the 25 species, the reader will find: (1) a Status of the Species section describing the range-wide condition of the species and past and ongoing threats; (2) an Environmental Baseline section that describes the species' status, distribution, and occurrence data within the action area; (3) an Analysis of Effects of the action on the species; (4) the Conclusion regarding our jeopardy and, where applicable, adverse modification determination for that species; and (5) an Incidental Take Statement with Reasonable and Prudent Measures, and Terms and Conditions (as appropriate). By organizing the biological opinion this way, the reader should be able to follow our chain of logic in reaching the Conclusion by species, rather than having to jump from section to section to make those connections.

Other standard sections found in a biological opinion are presented after the species-by-species analyses. A discussion of any Conservation Recommendations is followed by the Reporting Requirements. For the latter, we have adopted those monitoring and reporting measures proposed by the Applicant in Section 7.0 of the TUMSHCP. The proposed monitoring and reporting measures satisfy our requirements under 50 CFR 402.14(i)(3), so they are adopted herein for all Covered Species, as appropriate. Also, pursuant to 50 CFR 402.14(i)(1)(v), we are required to provide a mechanism for the disposal and handling of dead or injured individuals of the wildlife species that would be covered by the ITP. The requirements are described below, after the species-by-species analyses, under the heading Disposition of Dead or Injured Specimens, and are applied to groups of animals (i.e., birds, mammals, reptiles, amphibians), as appropriate. Lastly, the standard Reinitiation Notice is provided that lists the criteria pursuant to 50 CFR 402.16 that would trigger the need to reinitiate consultation on the proposed action.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

The Applicant, TRC, has requested incidental take authorization for the Covered Species listed above as a result of the Covered Activities described in this section. Potential effects of any activities that are not Covered Activities on federally listed endangered or threatened species would not be covered by any permit we issue.

The following description of the activities that would be covered by the ITP is a summary of the more detailed descriptions included in the Tehachapi Uplands Multiple Species Habitat Conservation Plan (TUMSHCP or Plan). The TUMSHCP was submitted by TRC in support of their permit application, as required pursuant to the regulations implementing section 10(a)(1)(B) of the Act (50 CFR Part 13, 17.22(b), and 17.32(b)). The proposed Covered Activities are broken down into ongoing activities (Planwide Activities), proposed development (Commercial and Residential Development Activities), and measures proposed by TRC to minimize and mitigate the effects of its proposed taking. The latter are analyzed in this biological opinion as measures to avoid and minimize the adverse effects of the Covered Activities relative to their effectiveness in reducing the potential for jeopardy or adverse modification.

The permit would cover activities on 141,886 acres (the Covered Lands) of the 270,365-acre Tejon Ranch. Within the Covered Lands, Commercial and Residential Development Covered Activities would result in 5,533 acres of permanent ground disturbance. Up to an additional 1,773 acres of vegetation clearing and thinning for fuel modification associated with commercial and residential development would also be conducted. The permanent ground disturbance (5,533 acres) would occur within a total development envelope of 8,817 acres within the Tejon Mountain Village (TMV) Specific Plan Area, Oso Canyon, West of Freeway area (collectively the TMV Planning Area), the Lebec/Existing Headquarters Area, and 16 acres managed by Tejon-Castac Water District on California Department of Water Resources lands.

Planwide Activities are Covered Activities that have been occurring historically on the ranch and are planned to continue. Most of these activities would occur throughout the open space areas on Covered Lands. Under the TUMSHCP, Planwide Activities could result in up to 200 acres of permanent ground disturbance within Covered Lands (outside of proposed development areas), primarily associated with construction of new ranch roads, backcountry cabins, and ancillary ranch structures. The 200 acres of permanent ground disturbance does not include impacts from Planwide Activities to existing acreage associated with currently developed and agricultural nonnative land covers. The effects of the loss of 200 acres of undisturbed habitat on the Covered Species in areas outside of development are described in the Effects of the Action sections for each species.

The Applicant proposes to permanently protect 116,523 acres of Covered Lands as open space, including 93,522 acres of Established Open Space and 23,001 acres of TMV Planning Area Open Space. Combined, these areas comprise the TUMSHCP Mitigation Lands. An additional

12,795 acres of open space in the Covered Lands has been acquired as part of a larger 62,000-acre purchase of conservation easements over Tejon Ranch lands funded by the Wildlife Conservation Board pursuant to the Tejon Ranch Conservation and Land Use Agreement (Ranchwide Agreement (RWA), TRC et al. 2008, Appendix A to the TUMSHCP). In total, approximately 129,318 acres of land would be committed to open space within the Covered Lands and protected and managed in accordance with the Plan and the RWA as of the date of ITP issuance,[1] with conservation easements or similar legal protections placed over Mitigation Lands in accordance with the schedule set forth in the Implementing Agreement (IA)[2].

The RWA referenced above is a private agreement entered into by TRC, the Natural Resources Defense Council (NRDC), Audubon California, Sierra Club, Planning and Conservation League, and Endangered Habitats League (collectively "Resource Groups"), and the Tejon Ranch Conservancy (Conservancy) to permanently preserve up to 240,000 acres of the ranch. Conservation easements over 62,000 acres were recorded in March 2011. Conservation easements over the remaining 178,000 acres of ranch lands identified for conservation are to be recorded over a 20- to 30-year period following final approval of any one of three developments (TMV Project, Centennial, or Grapevine projects), including resolution of any lawsuits. Pending recordation of conservation easements, all lands targeted for protection must be maintained as open space in accordance with the restrictions in the RWA. On December 12, 2012, the TMV-A conservation easement required under the RWA was recorded over 37,100 acres of Covered Lands. To date, conservation easements have been recorded on approximately 100,243 acres.

As noted above, the RWA covers the entirety of Tejon Ranch, including the Covered Lands. The RWA anticipated the development of a habitat conservation plan such as the TUMSHCP, and the TUMSHCP incorporates the provisions of the RWA related to protection and management of the TUMSHCP Mitigation Lands. The TUMSHCP and Implementation Agreement further provide that in the event of a conflict between the RWA and the TUMSHCP or a conflict between conservation easements recorded over the Covered Lands pursuant to the TUMSHCP and conservation easements recorded over those same lands pursuant to the RWA, the provisions of the TUMSHCP and TUMSHCP conservation easements control. Because the

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1 The total of 129,318 acres of habitat that will be conserved under the plan does not take into account the 200 acres of permanent ground disturbance that would result from planwide activities. Nor, with the exception of the California condor, do the individual estimates of modeled habitat conserved for each Covered Species subtract the small amount of habitat loss for that species that would result from planwide activities. However, this omission does not affect our individual species analyses and conclusions because in the case of each covered species: (1) the amount of modeled habitat lost due to planwide activities represents at most a small fraction of 1 percent of total modeled habitat conserved for the species under the TUMSHCP; and (2) our calculation of modeled habitat lost due to development uses the larger development envelope of 8,817 acres rather than the smaller 5,533 acres of actual permanent land disturbance allowed under the TUMSHCP. Thus, our individual species analyses overstate the amount of modeled habitat that would be lost from development.

2 The total acreage within the exterior boundaries of the Covered Lands, 141,886 acres, is the sum of 129,318 acres of open space, 5,533 acres of development, 145 acres in the Lebeq\Existing Headquarters Area that will not be developed (but is not part of the Mitigation Lands), 3,020 acres for two land use areas that are excluded from coverage under the ITP (i.e., two mining leases and the veterans cemetery), and 3,870 acres for inholdings that are not a part of the Covered Lands and are also excluded from coverage under the ITP.

conservation goals for Covered Lands and Covered Species under the TUMSHCP are consistent with the conservation goals for Tejon Ranch lands under the RWA, management of both the TUMSHCP Mitigation Lands and management of open space lands outside of the Covered Lands are expected to be consistent. For example, like the TUMSHCP, the RWA requires a commitment to preserve the conservation values in the open space areas to be managed by the Conservancy, which include species and habitat values. The RWA requirement to protect conservation values is implemented through a Ranchwide Management Plan (RWMP) with prescribed management standards to ensure that existing natural resource and conservation values of the ranch are protected while ranch uses, including those described as the Planwide Activities in the TUMSHCP, remain ongoing. The RWMP is updated every 5 years. During the proposed ITP term, all future RWMPs (to the extent applicable to the Covered Lands), would be reviewed and approved by the Service. (All references to the "RWMP," unless otherwise indicated, refer only to those RWMP provisions that apply to Covered Lands.) An Interim Ranchwide Management Plan (Interim RWMP), which documents current ranch uses and existing Best Management Practices (BMPs) (TRC and Conservancy 2009) is currently in effect. The conservation of approximately 90 percent of Tejon Ranch collectively through the RWA and TUMSHCP is consistent with conservation biology principles calling for large, interconnected blocks of habitat that support the life history requirements of Covered Species.

A more detailed description of the various components of the proposed action, including a brief description of some of the conservation measures, follows. A complete accounting of the conservation measures is provided in Tables 1 and 2 of this biological opinion.

PLANWIDE ACTIVITIES

Livestock Grazing and Range Management

Livestock grazing and range management activities include: breeding, grazing, calving, livestock movement; construction, operation, and maintenance of watering facilities, feeding areas, fences, and corrals, consistent with the types and level of historical grazing and ranch management practices; repair, reconstruction, and relocation of roads to accommodate historical grazing and ranch management practices; and repair, maintenance, or installation of ranch management communication equipment (e.g., whip antennas) that are less than 20 feet high. Grazing levels comparable to the historical average grazing level of 14,500 cattle, or equivalent animal units, would continue on the Ranch through the permit term consistent with current practices.

The RWA requires that a RWMP that includes BMPs for grazing activities be prepared and followed. The BMPs and use restrictions currently set forth for livestock grazing and range management activities in the Interim RWMP would continue to be implemented as part of the proposed action. The conservation measures in the TUMSHCP require that future revisions to the RWMP as well as a grazing management plan that implements the objectives required by the TUMSHCP would be subject to Service review and approval for consistency with the TUMSHCP, Act, and any applicable recorded conservation easement restrictions.

(For the purposes of analyzing the effects of the proposed action, grazing is separated from range management in the individual species sections). Range management is included in the analysis of ancillary ranch structures in the species analyses because it is more closely tied to those activities than it is to grazing. The activities are organized as they are here because it reflects the organization of the TUMSHCP.)

Fuel Management

Fuel management practices would consist primarily of controlling the growth of flammable vegetation with grazing. Other fuel management activities would be limited to maintaining fuel modification zones created (1) by maintenance of existing roads, (2) through irrigation and/or vegetation clearing and mowing within 120 feet surrounding existing structures (i.e., backcountry cabins, ancillary ranch structures, and other existing structures, (3) as required by the county and State along county and State roads, and (4) through fuel management (thinning only) in accordance with the Fire Protection Plan approved by Kern County in the areas within 200 feet of development (i.e., within the 1,773-acre fuel modification zone). These fuel management practices would be reflected in the Fuel Modification Plan, which is subject to the Service's review. For the open space, the RWA requires that an RWMP that includes fire management BMPs be prepared and followed. The Interim RWMP requires grazing, in accordance with the grazing BMPs, to manage and reduce fire fuel loads across the ranch. The Interim RWMP also requires continued maintenance of the ranch's road network for emergency vehicle access and as a fuel break, as well as continued clearing of vegetation around structures. In addition, fireworks are generally prohibited and campfires are limited to designated locations to reduce potential for wildfires. The conservation measures in the TUMSHCP also require that the RWMP as well as a grazing plan that allows for fuel management be reviewed and approved by the Service, and further limit fuel modification activities near development. (Note: This is separate from the fuel modification that would occur in association with new development.)

Filming

Filming activities generally consist of temporary on-scene filming and photography-related uses, including, but not limited to the filming and staging of movies, television shows, and commercials; photo shoots; and still photography and related uses. Such activities may include the erection and dismantling of props, temporary installation of trailers and equipment for film crews, filming of on-camera action, catering, rehabilitation of disturbed areas, and the movement of film crews to and from locations. The RWA requires that an RWMP that includes BMPs for filming activities be prepared and followed. An Interim RWMP is currently in place and requires that the filming location be monitored for cleanup of microtrash, that any temporary construction is first reviewed to avoid sensitive resources, and that any areas disturbed by filming are restored to pre-filming condition, including revegetation. The conservation measures proposed as part of the TUMSHCP, subject to Service review and approval of the RWMP, require assignment of a qualified biologist to each film crew, daily cleanup to control microtrash, provision of educational materials to film crews, a prohibition on the construction of permanent structures and production facilities, and limitations on use of fireworks or explosives including

outright prohibition where necessary to avoid effects to condors. Fireworks, explosions louder than a gunshot, or other abnormally loud noises would be prohibited anywhere within the Condor Study Area.

Recreation

There are two types of recreational use that are Planwide Activities: private recreation and public recreation. Private recreation relates only to TRC and its employees and guests. Public recreation encompasses recreational activities engaged in by anyone other than TRC, its employees and guests. Both public and private recreation uses are restricted to passive recreational uses that include walking, hiking, sightseeing, climbing, limited equestrian uses, non-motorized biking on roads or trails, bird/wildlife watching and other nature study, photography, picnics, astronomy, archery and target shooting, cross-country snow skiing, snow-shoeing and sledding, camping and fishing and boating. All recreational use of the Mitigation Lands, as described below, will be subject to the terms of individual Service-approved conservation easements or other appropriately restricted conveyances placed over the Mitigation Lands.

Private Recreation

Private recreational use is restricted by BMPs in the Interim RWMP that contains access guidelines and requires that private recreational activities avoid significant impacts to all natural resources, including, for example, trail restrictions to avoid proximity to golden eagle nesting sites. In addition, the proposed conservation measures include Service review and approval of the RWMP, species-specific recreation restrictions (e.g., California condor, peregrine falcon, bald eagle, golden eagle, white-tailed kite) and development of educational material. Private recreational use, with its associated access restrictions and avoidance measures, will be incorporated into a Public Access Plan to be reviewed and approved by the Service in perpetuity.

Public Recreation

Public recreational use currently consists of Conservancy-managed, docent-led tours and is restricted by BMPs in the Interim RWMP that contains access guidelines and the requirement that it be conducted in a manner that would avoid adverse impacts to the Covered Species and their habitats or result in less than significant impacts. Public recreation would be expanded and occur as follows on the Established Open Space Mitigation Lands, TMV Planning Area Open Space Initial Mitigation Lands, and the TMV Planning Area Open Space Remaining Mitigation Lands:

(a) For Established Open Space Mitigation Lands, public access would be allowed, but would be restricted to Conservancy-managed access and docent-led tours. These restrictions are provided in the Interim RWMP, and will be included in the Public Access Plan to be reviewed and approved by the Service in perpetuity. Further, public access to

and use of the Condor Study Area authorized by the Public Access Plan will be controlled, monitored, and enforced by TRC or the Conservancy.

(b) For the TMV Planning Area Open Space, public access is restricted to TMV project residents and guests and limited, managed tours for the public, including Conservancy-managed access in the Bear Trap canyon area. Recreational use in the TMV Planning Area will include use of the Initial Mitigation Lands and use of the Remaining Mitigation Lands as follows:

- TMV project residents, guests, and managed tour groups entry onto the Initial Mitigation Lands on the TMV Planning Area Open Space will be controlled and enforced by the Tejon Staff Biologist, through the issuance of access permits. Such entry will be subject to access guidelines, including educational materials, and use restrictions and enforcement. These restrictions on the Initial Mitigation Lands will be included in the Public Access Plan to be reviewed and approved by the Service in perpetuity.
- TMV project residents, guests, and managed tour groups would also have the ability to use the Remaining Mitigation Lands on the TMV Planning Area Open Space subject to the list of restricted passive recreational uses listed above and subject to the requirement that it be conducted in a manner that would avoid adverse impacts to the Covered Species and their habitats and subject to monitoring and enforcement measures as terms of the CC&Rs. Access permits issued by the Tejon Ranch Biologist would be required for managed tour groups. Under the TMV CC&Rs, TMV residents and guests will also be provided educational material on such use restrictions, wildlife restrictions, and BMPs. The residential and resort property management company(ies) will be required to distribute the educational materials to residents and guests. These restrictions on the Remaining Mitigation Lands will be included in the Public Access Plan to be reviewed and approved by the Service in perpetuity.

In addition, the conservation measures in the TUMSHCP restrict recreational uses by requiring Service review and approval of the RWMP as well as and review and approval of a Public Access Plan in perpetuity, development of educational materials, and provision of those materials to guests as well as species-specific recreational restrictions (e.g., amphibians, American peregrine falcon, bald eagle, golden eagle, white-tailed kite). Development of any future potential recreational facilities, such as relocation of the Pacific Crest National Scenic Trail onto Covered Lands, or establishment of a State Park or University of California Natural Reserve on the Covered Lands, are not Covered Activities under the TUMSHCP. Any such additional public access use would require review and approval in writing by the Service that such use is consistent with the preservation of the conservation values of the TUMSHCP Mitigation Lands and would be required to obtain any necessary authorization under the Act.

Farming Irrigation and Water Diversions

Farming operations are located on the San Joaquin Valley floor and are not within the Covered Lands. However, approximately 232 acres have been mapped as agricultural land in the Covered Lands in the TMV Planning Area between Castac Lake and Interstate 5 (I-5). The acreage of agricultural use, if any, that extends into the TMV Planning Area Open Space after the final development disturbance area is identified would be minimal and subject to continuing local and State regulations.[3] Some creek diversions that support farming, including the valley floor farming operations, are located within and around the Covered Lands above the San Joaquin Valley. The diversion activities within and adjacent to the Covered Lands consist of the operation, maintenance, repair, replacement, and potential relocation (within the same creek) of three weir structures, with an associated water intake, conveyance pipe, and flow meter within Tejon Creek, Tunis Creek, and El Paso Creek. The proposed location of any weir structure to be relocated will be subject to Service review and approval. Water diversion activities on the Covered Lands are restricted by the RWA and the TUMSHCP, so that there will be no significant expansion of surface or groundwater extraction practices as of June 17, 2008, and no major alterations or improvements of the ranch surface for water storage, including water storage in underground aquifers (this limit on water diversion does not include water storage for existing ranch uses). Non-significant water diversions include *de minimis* ancillary ranch facilities, such as water for cattle, as defined in the TUMSHCP.

Roads

A network of generally unpaved roads used for grazing operations, fire management, and for access to hunting and other recreational activities crosses the Covered Lands. Several paved roads, including ones providing access to the California Aqueduct and to the National Cement plant, also exist in the Covered Lands. Use, repair, and maintenance of such roads would occur, and new roads may be constructed, and/or existing roads may be relocated as (1) required by local jurisdictional authorities to provide emergency vehicle or other similar access to the TMV Planning Area, (2) necessary to carry out existing ranch uses, or (3) separately approved by the Service. Per the RWA and Interim RWMP, new road construction could occur only if such activities did not significantly impair the conservation value of the affected land, and under the Interim RWMP, proposed new/relocated roads must first be evaluated, including a site assessment to avoid impacts to sensitive resources, and construction must be planned to reduce impacts on sensitive natural resources and limited to a minimal area. Road maintenance activities are subject to BMPs related to maintenance for fire prevention, maintenance of berms on dirt roads to handle minor stormwater flows, and dust control management activities on dirt roads. In addition, the conservation measures in the TUMSHCP require Service review and approval of the RWMP, and generally prohibit construction of new roads in open space to serve development, with the exception of any emergency vehicle access roads required by Kern County. Any such emergency vehicle access road, if required, would not be a general use

3 The RWA requires development of an Integrated Pest Management Plan (IPMP), which TRC will implement in conjunction with development, ranchwide operations, and management of open space. While pesticide use is not a Covered Activity under the TUMSHCP, TRC has committed to provide the Service with the option to review and comment on the IPMP.

road; it would only be accessed for emergency vehicles or emergency evacuation and would be subject to the 200-acre permanent ground disturbance limit for Planwide Activities. Any such new emergency vehicle access road would follow existing ranch roads to the extent practicable. Maintenance of existing roads and construction of new roads on the TUMSHCP Mitigation Lands would be further restricted by the specific terms of individual conservation easements placed over those lands in accordance with the TUMSHCP and ITP.

Utilities

Various utilities currently exist on or cross the Covered Lands. Utility use includes third-party utilities, development-related utilities, and ranch utilities discussed below:

(a) Third-party utilities. Various major utilities (e.g., gas pipelines, power transmission lines) currently exist on or cross the Covered Lands. Most of these utilities are owned and operated by third parties pursuant to existing easements. Such existing third-party utilities would not have incidental take authorization under the TUMSHCP, and expansion or construction of new utilities pursuant to existing easements is not a Covered Activity.

(b) Utilities to serve development. Utilities to serve development are contained solely within the TMV Planning Area, are considered a Covered Activity, and restricted as follows under the TUMSHCP:

Within the TMV Planning Area, relocation of the following existing transmission lines would be allowed, provided such relocation is within 1,000 feet of their existing alignments:

(1) A north/south 66kv aboveground transmission line located within the TMV Planning Area;

(2) A 66kv aboveground transmission line in the vicinity of the Lebec Road/ I-5 Interchange;

(3) Temporary relocation during construction of an existing aboveground 12kv transmission line that runs east from I-5, just north of Castac Lake, which must be undergrounded outside of the I-5 corridor within the TMV Planning Area after construction is complete; and

(4) Possible relocation of smaller aboveground lines during construction. Additional relocated transmission or distribution lines are prohibited unless approved by the Service following review. All transmission and distribution lines will be placed underground. The locations of transmission lines proposed for relocation will be subject to Service review and approval, with the exception that the smaller lines identified in this paragraph may be relocated without Service review and

approval, provided such smaller lines are relocated within 0.5 mile of I-5 and avoid prominent ridgelines as identified in the TUMSHCP.

(c) Within the proposed development areas, development of new and expanded utilities, other than aboveground transmission lines, would be covered under the ITP provided that such utilities must either be undergrounded (including all new power lines) or, if aboveground, such utilities, including without limitation water tanks, electrical substations, and water and sewage treatment facilities to serve development areas, must be constructed in locations, to the extent feasible, where they are not visually prominent and that minimize effects on sensitive resources.

(d) In the TMV Planning Area Open Space, construction of utilities underground may occur in existing roads or disturbed areas. In addition, a temporary, above-ground emergency water line along or adjacent to the existing ranch road that borders the Condor Study Area, may be constructed.

(e) Various minor utility facilities serve ranch uses, described under Planwide Activities (see Ancillary Ranch Activities, below). Continued use of these utilities would occur under the proposed TUMSHCP.

Where utility activities covered under the TUMSHCP involve ground disturbance, additional ground-disturbance BMPs (e.g., preconstruction surveys for special-status species and nesting birds) would be implemented consistent with the Interim RWMP. Future revisions to the RWMP, as well as revisions to the other management plans (e.g., fuel management plan), would be subject to Service review and approval for consistency with the TUMSHCP, the Act, and any applicable recorded conservation easement restrictions. In addition, conservation measures include prohibiting wind farms, except that individual wind turbine devices, which have the primary purpose to serve electrical generation needs on site, may be constructed following review and approval by the Service.

Communication Towers

The proposed TUMSHCP would cover TRC's installation of two towers - one approximately 78 feet in height (including antennae), and the other approximately 70 feet in height (including antennae) - at two separate locations in the TMV Planning Area development envelope to provide suitable radio communication coverage as required by Kern County.

Smaller cell phone antennas, radio antennas, and other similar vertical communication structures serving residential and commercial development in the TMV Planning Area would be permitted uses within the development footprint as long as such structures/antennas are (a) no higher than 10 feet above houses or buildings (taller structures shall require the review and approval of the Service), assuming the height limits for houses or buildings within the TMV Specific Plan vary between 35 and 45 feet; (b) installed within the TMV Planning Area development envelope and/or Lebec/Existing Headquarters Area; (c) outfitted with anti-perching devices on potential perching surfaces; and (d) located closer to trees where practicable and consistent with effective

operations of communication systems. In addition, conservation measures related to towers include design requirements (e.g., self-supporting, anti-perching devices) and maintenance requirements (e.g., maintained free of microtrash).

Backcountry Cabins

The eight backcountry cabins in the Covered Lands (another cabin is located outside of the Covered Lands on Tejon Ranch and is not covered by the plan) could be maintained, improved, repaired, replaced, or reconstructed in their existing location, within their existing footprint and without substantial increase in height under the proposed TUMSHCP. Expansion, construction in a new location, or removal of any of the eight cabins would only occur with the approval of the Service, if it is determined that such activity is consistent with the TUMSHCP, the Act, and any applicable recorded conservation easement restrictions, and provided that none of the six cabins currently located outside of the Condor Study Area are relocated to the Condor Study Area. No new cabins could be constructed unless one of the existing eight cabins within the Covered Lands is removed or demolished (the existing cabin within the TMV Specific Plan Development Envelope is considered demolished). Power for any cabin allowed to be relocated would be required to be undergrounded, or power may be generated on or near the cabin location so long as the Service reviews and approves the power generation and sources. The BMPs and use restrictions currently set forth in the Interim RWMP for cabins would continue to be implemented, including requiring that new or relocated cabins be first subject to a site evaluation to avoid impacts to sensitive natural resources, and that design and construction of new cabins meet or exceed applicable building code and water and energy efficiency requirements. Future revisions to the RWMP would be reviewed and approved by the Service and include provisions for implementing additional ground-disturbance BMPs (e.g., preconstruction surveys for special-status species and nesting birds), which may apply to use, maintenance, expansion, construction, relocation, or removal of backcountry cabins. In addition, the conservation measures require Service review and approval of the RWMP for consistency with the TUMSHCP, the Act, and any applicable recorded conservation easement restrictions. Additionally the TUMSHCP requires review and approval of a public access plan and limits land disturbance to 200 acres in open space, and the plan's conservation measures require pre-construction surveys and avoidance and minimization measures.

Ancillary Ranch Structures

Ancillary ranch structures that support ranching activities in existence as of June 17, 2008, the date of the RWA (TRC et al. 2008), would be preserved and maintained and ancillary ranch structures would be maintained, expanded, relocated, or constructed to support ranch needs so long as the activity is *de minimis*. Ancillary ranch structures include squeezes, loading chutes, holding and feeding fields, corrals, branding traps, barns, sewage disposal facilities, livestock and wildlife watering facilities, and utilities serving existing ranch uses. "*De minimis* activities" means maintenance, expansion, construction, relocation, or removal of structures listed above, and other, similar types of structures as necessary to support existing ranch uses at historical levels; *de minimis* activities do not include construction or relocation of barns, roads, watering

facilities that are not minor (stock ponds and modifications of springs, ponds, and other natural water bodies are not considered minor), power transmission lines and other associated facilities, oil and gas pipelines and associated facilities, and other, similar types of activities. The enlargement, expansion, or new construction of ancillary ranch structures (excluding backcountry cabins addressed above) in existing locations, within existing footprints, and without a substantial increase in height, also constitutes a *de minimis* activity; any other enlargement, expansion, or new construction is not considered *de minimis*. Non-*de minimis* activities associated with ancillary ranch structures are also allowed (1) if the activity is located in disturbed areas (e.g., undergrounding utilities in road rights-of-way), or (2) following a meet-and-confer process with the Service to ensure that the activity associated with an ancillary ranch structure avoids or adequately minimizes impacts to Covered Species and their habitats. In addition, non *de minimis* ancillary ranch activities require the prior written consent of the Conservancy, in those areas of the Covered Lands subject to the RWA. The Interim RWMP requires that the new structures first be subject to a site evaluation to avoid impacts to sensitive natural resources, that construction be planned to reduce impacts on sensitive natural resources and limited to a minimal area, and that such activities not significantly impair conservation values. Future revisions to the RWMP would be reviewed and approved by the Service for consistency with the TUMSHCP, the Act, and any applicable recorded conservation easement restrictions. The TUMSHCP limits land disturbance to 200 acres in open space and conservation measures required pre-construction surveys and avoidance and minimization measures.

Fencing

Fences exist throughout the Covered Lands. Existing fences would be maintained and new fencing could be constructed and maintained as required to support existing ranch uses at historical levels throughout the Covered Lands, and for mitigation, enhancement, or restoration, provided that new fencing may only be built to the extent that the new fencing, by design and location, would not unreasonably interfere with the movement, nesting, or foraging of, and would avoid known occurrences of, the Covered Species and any other federally listed species. The RWA requires that an RWMP that includes fencing BMPs be prepared and followed; an Interim RWMP is currently in place and requires that TRC must review requests for new fences and must first review for sensitive natural resources that could be affected, use “wildlife friendly” design to the extent feasible, and where appropriate, modify fencing to allow wildlife passage. The conservation measures in the TUMSHCP require that the Service review and approve the RWMP and further require Service review and approval of a grazing management plan that incorporates required BMPs for fencing and fencing would also be subject to any specific restrictions included in individual conservation easements placed on the TUMSHCP Mitigation Lands pursuant to the TUMSHCP and ITP.

Lebec/Existing Headquarters

TRC’s corporate headquarters are located immediately adjacent to I-5 and within the approximately 410-acre Lebec/Existing Headquarters Area. Currently, this area includes a number of corporate headquarters buildings, an antique shop, a post office, a church, and several

single-family residences for ranch employees. Existing activity in the Lebec/Existing Headquarters Area would continue to occur. Construction of additional structures within the 265-acre development envelope in this area is considered part of the commercial and residential development Covered Activities.

Mitigation, Monitoring, and Management Activities

Mitigation, monitoring, and management activities include those activities necessary to carry out identified biological goals and objectives for Covered Species included in the TUMSHCP, and terms, conditions, or mitigation requirements from resource agencies, including the Service, permit processes associated with Commercial and Residential Development Activities, as well as other mitigation or enhancement activities reviewed by the Service. The activities necessary to carry out identified biological goals and objectives for Covered Species are further discussed in Tables 1 and 2 below, and are analyzed in the individual species sections.

COMMERCIAL AND RESIDENTIAL DEVELOPMENT ACTIVITIES

Commercial and Residential Development Activities are proposed as Covered Activities. Specifically, future development within Covered Lands would be limited to the TMV Planning Area and the Lebec/Existing Headquarters Area. Permit coverage would be extended to the Tejon-Castac Water District (TCWD) through a certificate of inclusion for 16 acres used for operations and expansion of water infrastructure on a parcel owned by the California Department of Water Resources. Actual development would likely proceed as separate projects with individual entitlement and permitting requirements, and project-specific permit applications and mitigation plans would be developed as needed depending on resources affected (such as jurisdictional wetlands) and permits required.

TMV Planning Area

The 28,253-acre TMV Planning Area consists of the TMV Specific Plan Area, Oso Canyon, and the West of Freeway area. Collectively, in the TMV Planning Area, a total of 3,624 dwelling units and 464,920 square feet of commercial development could occur in approximately 5,252 acres of disturbed land as described below.

(1) <u>TMV Specific Plan Area</u> - The TMV Specific Plan Area is approximately 26,417 acres of the 28,253-acre TMV Planning Area in the southwest portion of the Covered Lands. This portion of the TMV Planning Area includes the TMV Project. The TMV Project would include up to 3,450 residences, up to 160,000 square feet of commercial development, two golf courses, an equestrian center, up to 750 hotel rooms, and up to 350,000 square feet of support uses (e.g., hotel lobby support services, food and beverage service, golf clubhouses, equestrian facilities, and private recreation facilities). The TUMSHCP includes various planning and enforcement mechanisms to minimize disturbance associated with the planned development (see Section 7.2 of the TUMSHCP (Avoidance, Minimization, and Mitigation Measures) and Tables 1 and 2 below). The net

development disturbance area in the TMV Specific Plan Area would be approximately 5,082 acres; this development could occur within a 7,860-acre development envelope.

(2) Oso Canyon - No development is currently proposed in the 1,666-acre Oso Canyon. If development were to proceed in Oso Canyon, the acreage of development disturbance within the TMV Project area would have to be reduced by the acreage of development disturbance in Oso Canyon. Therefore, in total between the TMV Specific Plan Area and Oso Canyon, no more than 5,082 acres would be disturbed. The TUMSHCP includes various planning and enforcement mechanisms to minimize disturbance associated with the planned development (see Section 7.2 of the TUMSHCP (Avoidance, Minimization, and Mitigation Measures) and Tables 1 and 2 below). Any development to occur within Oso Canyon would occur within a 506-acre development envelope. Because the development in Oso Canyon would be subject to the development yields proposed in the TMV Specific Plan Area, it would not result in additional land disturbance, dwelling units, or commercial space.

(3) West of Freeway - Development in the West of Freeway area is assumed to proceed consistent with the current General Plan designations. This small, 170-acre area consists of two subareas: (1) a 153-acre portion of the Covered Lands located west of I-5, which is assumed to be developed with 173 dwelling units and 304,920 square feet of commercial space, consistent with the Kern County General Plan land use designations in this area; and (2) a 17-acre area designated for extensive agriculture in the Kern County General Plan that could be developed with one dwelling unit; therefore, a dwelling unit and an associated 17-acre disturbance area has been included. Together, the area known as West of Freeway is considered to have a 170-acre disturbance area. No development plans currently exist for this area, but the TUMSHCP includes various planning and enforcement mechanisms to minimize disturbance associated with any future planned development (see Section 7.2 of the TUMSHCP (Avoidance, Minimization, and Mitigation Measures) and Tables 1 and 2 below for those avoidance and minimization measures).

Lebec/Existing Headquarters Area

This area is approximately 410 acres (which includes the approximately 265 acres that could be developed and 145 acres that would not be developed) located along I-5 in the northerly portion of the Covered Lands. The Lebec/Existing Headquarters Area includes the existing headquarters (corporate headquarters buildings, an antique shop, a post office, and several single-family residences) located adjacent to I-5 and General Plan 4.3 (Specific Plan Required)–designated areas east and west of I-5. TRC has no current development plans for this area; however, the TUMSHCP includes various planning and enforcement mechanisms to minimize disturbance associated with any future planned development (see Section 7.2 of the TUMSHCP (Avoidance, Minimization, and Mitigation Measures) and Tables 1 and 2 below). Development of up to eight dwelling units and 1,339,470 square feet of commercial development would be consistent with

the Kern County General Plan land use designations in this area. Although TRC has no plans to further develop this area, it is included in the TUMSHCP as a Covered Activity.

Tejon-Castac Water District Parcel

Up to 16 acres of development on a small parcel owned by the California Department of Water Resources would be conducted by the Tejon-Castac Water District (TCWD) for its Bear Trap Turnout water system infrastructure to serve development.

The total development allowed under the TUMSHCP, if all of the development described above were to occur, is 3,632 dwelling units and 1,804,390 square feet of commercial development, resulting in a net disturbance area of 5,533 acres (4 percent of the Covered Lands).

MEASURES TO AVOID, MINIMIZE, AND MITIGATE ADVERSE EFFECTS

In addition to limitations on the Covered Activities described above, the Applicant has also proposed to implement numerous measures that would serve to avoid and minimize potential adverse effects of the Covered Activities on the Covered Species. These measures are found in sections 4 and 7 of the TUMSHCP. Section 4 of the TUMSHCP provides measures to avoid and minimize effects on the California condor, while section 7 of the TUMSHCP includes those measures for the other Covered Species. Those measures are set forth below in Tables 1 and 2.

For all of the Covered Species, the primary measure proposed under the TUMSHCP to mitigate impacts to the Covered Species is the commitment to permanently preserve 116,532 acres of the Covered Lands in open space as TUMSHCP Mitigation Lands. An additional 12,795 acres of Existing Conservation Easement Areas within the Covered Lands have been separately acquired and would also be permanently protected as open space, resulting in the conservation of a total of approximately 129,318 acres or 91 percent of the Covered Lands. Both the TUMSHCP Mitigation Lands and the Existing Conservation Easement Areas would be protected and managed as open space in accordance with applicable conservation easements and, during the permit term, in accordance with the TUMSHCP.

TUMSHCP Mitigation Lands

The TUMSHCP Mitigation Lands consist of Established Open Space Lands and TMV Planning Area Open Space Lands.

Established Open Space

Established Open Space is that portion of the TUMSHCP Mitigation Lands located outside of the TMV Planning Area and consists of approximately 93,522 acres of the Covered Lands, including the entirety of the approximately 37,099-acre Condor Study Area. Consistent with the terms of the TUMSHCP and RWA, no commercial or residential development would occur in the Established Open Space. Planwide Activities as described above would be permitted and would

be subject to the avoidance, minimization, and mitigation measures described below. Commercial hunting would also continue, but is not a Covered Activity.

TMV Planning Area Open Space

Within the TMV Planning Area, planned open space represents approximately 23,001 acres of the 28,253-acre area. The 23,001 acres of TMV Planning Area Open Space includes up to 1,773 acres of fuel modification. The TMV Planning Area Open Space is required to be permanently protected through phased recording of conservation easements or equivalent legal mechanisms. Consistent with the terms of the TUMSHCP and RWA, no commercial or residential development would occur in the TMV Planning Area Open Space. Planwide Activities as described above would be permitted and would be subject to the avoidance, minimization, and mitigation measures described below. Commercial hunting would also continue, but is not a Covered Activity.

Phased Conservation of TUMSHCP Mitigation Lands

Conservation of the TUMSHCP Mitigation Lands would be phased over the permit term. Pursuant to the IA, TRC is required to place perpetual conservation easements over the Initial Mitigation Lands, which are composed of the 37,099 acre Condor Study Area and the 10,572 acre Initial TMV Planning Area Open Space Lands, prior to initiating construction of the TMV project. The conservation easements would be granted to the Conservancy and would name the Service as a third party beneficiary with rights of access and enforcement. Similar perpetual conservation easements over the 56,423 acres of Remaining Mitigation Lands located outside of the TMV Planning area would be recorded pursuant to the schedule set forth in the IA and RWA, but in any event, no later than the end of the permit term. The 12,429 acres of Remaining Mitigation Lands within the TMV Planning Area would be preserved as open space in perpetuity through conservation easements or other legally enforceable restrictions approved by the Service as the TMV Planning Area is developed, but in any event, no later than the end of the permit term. The Service retains the option to extend the obligation to record a conservation easement over the Initial TMV Planning Area Open Space Lands. If such an extension is granted, TRC must record an irrevocable offer to dedicate prior to initiation of grading of the TMV Project.

Existing Conservation Easement Areas

An additional 12,795 acres have already been acquired pursuant to the RWA and will be preserved as permanent open space within the boundary of the Covered Lands. These Existing Conservation Easement Areas are not part of the TUMSHCP Mitigation Lands but TRC has committed in the TUMSHCP to manage the lands in accordance with the TUMSHCP during the permit term.

SPECIES-SPECIFIC MEASURES TO AVOID, MINIMIZE, AND MITIGATE ADVERSE EFFECTS

While the primary mitigation measure proposed by the Applicant under the TUMSHCP is the permanent preservation of approximately 129,318 acres (91 percent) of the Covered Lands, the Applicant has also proposed specific measures to further the conservation and recovery of the California condor, conserve suitable habitat for all of the Covered Species, and to avoid and minimize the effects of the Covered Activities on individual plants and animals. The species-specific measures proposed by the Applicant are included in the following tables (Table 1 and Table 2), which are derived from the EIS (Service 2012b and 2012c) and TUMSHCP and are incorporated into this biological opinion as measures to avoid and minimize the adverse effects of the Covered Activities. Our evaluation of the likely effectiveness of these measures at avoiding and minimizing the adverse effects of the Covered Activities is provided in the Effects of the Action sections of the individual species accounts later in this document.

TABLE 1. California Condor Avoidance, Minimization, and Mitigation Measures under the Proposed TUMSHCP

Type of Measure	Avoidance, Minimization, or Mitigation Measure[1]
Measures to Address Collisions with Powerlines and Utility Structures	(1) Within the TMV Planning Area and Lebec/Existing Headquarters Area, design restrictions and review and approval processes are required for new vertical communication towers and other similar structures, as set forth below: a. TRC may install two emergency communication towers (PA-2 and DF-1 (see Figure 4.1-2 in Section 4.1, Biological Resources, SDEIS)): one at approximately 78 feet in height (including antennae), and the other at approximately 70 feet in height (including antennae), at the two separate locations in the TMV Planning Area Development Envelope to provide suitable radio communication coverage. The two proposed emergency communication towers will include design restrictions identified by the Service to minimize the potential for collisions. Such restrictions must be reviewed and approved by the Service, and include the following: (1) the towers will be self-supporting (i.e., no guide wires will be included as part of the design); (2) the tower facades will be primarily solid (e.g., through use of panels or other siding, wider or denser lattice work, or alternative tower solutions as approved by the Service) to increase their visibility to California condors, although microwave dishes and antennae will be exposed to provide appropriate system operations; and (3) the towers will incorporate Service-approved condor anti-perching devices on all potential landing surfaces. b. The placement and maintenance of any other future communication or utility tower or similar structure within the TMV Planning Area and Lebec/Existing Headquarters Area, other than the two communication towers identified in (1)(a) and the smaller cell phone towers and similar structures identified in (1)(c), is generally prohibited provided, however, that TRC may request, and the Service shall review, and may approve the construction, design and location of any new communication or utility tower or similar structure. The future placement of any new communication or utility tower or similar structure within the TMV Planning Area and Lebec/Existing Headquarters Area will trigger the need for an amendment to the TUMSHCP and ITP and further National Environmental Policy Act review if the placement or operation of such tower or structure would exceed the height restrictions or other conditions set for in (1)(c) below, or result in new, potentially significant effects on the environment, including but not limited to impacts on or take of ESA-listed species. Such factors as tower or structure height and construction design, historic and existing condor flight patterns over the ranch, and proximity to existing towers and structures would be considered as part of any future Service review. In addition, the future approval of a new tower or structure would require the tower or structure be self-supporting (i.e., no guide wires shall be included as part of the design) and be kept clean of debris, such as cable, trash, and construction materials. Any tower or structure that provided the potential for perching would be required to include Service-approved anti-perching

Type of Measure	Avoidance, Minimization, or Mitigation Measure[1]
	devices suitable to deter condors from perching on the tower or structure. c. Smaller cell phone antennas, radio antennas, and other similar vertical communication structures are a permitted use within the development footprint as long as such structures/antennas adhere to the following criteria: (a) the structures shall be no higher than 10 feet above houses or buildings (taller structures shall require review and approval by the Service), assuming the height limits for houses or buildings within the TMV Specific Plan Area vary between 35 and 45 feet; (b) the structures shall be installed within the TMV Planning Area Development Envelope and/or Lebec/Existing Headquarters Area; (c) if the structure contains surfaces suitable for perching by condors, the structure shall contain Service-approved anti-perching devices on such surfaces to deter condors from perching; and (d) the structures shall be located closer to trees where practicable and consistent with effective operations of communication systems. TRC shall confer with the Service regarding the placement of the antenna and structure during preparation of tentative tract maps and corresponding grading plans. d. All tower and similar structure sites shall be kept clean of debris, such as cable, trash and construction materials.
Measures to Address Collisions with Powerlines and Utility Structures (cont.)	(2) Within the Covered Lands, outside of the TMV Planning Area and Lebec/Existing Headquarters Area, construction or maintenance by TRC or any third party under TRC's control of any new vertical communication or utility tower or similar structure outside of existing antenna farms, excluding flexible or small antennas (e.g., whip antennas) under 20 feet in height, is generally prohibited; provided, however, that TRC may request, and the Service shall review and may approve the construction, design, and location of any new tower or similar structure. The future placement of any new communication or utility structure outside of the TMV Planning Area and Lebec/Existing Headquarters Area on the Covered Lands will trigger the need for an amendment to the TUMSHCP and ITP and further National Environmental Policy Act review if the placement of the tower or structure would result in new, potentially significant effects on the environment, including but not limited to impacts on or take of ESA-listed species. Such factors as tower or structure height and construction design, historic and existing condor flight patterns over the ranch, and proximity to existing towers and structures would be considered as part of any future Service review of a proposed communication or utility tower or structure. In addition, the future approval of a new communication or utility tower or structure would require that the tower or structure be self-supporting (i.e., no guide wires shall be included as part of the design) and shall be kept towers shall be self-supporting and shall be kept clean of debris, such as cable, trash and construction materials. Any tower or structure that provided the potential for perching would be required to include Service-approved anti-perching devices suitable to deter condors from perching on the tower or structure. (3) Within the Covered Lands, no wind farms will be constructed (and TRC agrees to expand the ban to all ranch lands) during the term of the ITP. Additionally, the prohibition on wind farms shall be maintained on the

Type of Measure	Avoidance, Minimization, or Mitigation Measure[1]
	TUMSHCP Mitigation Lands in perpetuity. Notwithstanding the foregoing, individual wind turbine devices, which have the primary purpose to serve electrical generation needs on site, may be constructed following review and approval by the Service, based on the Service's determination that the device and any associated structures and electrical lines are of a design and in a location that would not pose a threat to condors (e.g., vertical blade designs within screened cylinders may be appropriate, but open blade designs likely to cause condor fatality in the event of a collision are not appropriate). TRC also commits in perpetuity not to amend or terminate its negative easement right prohibiting wind farms on Gorman Ranch, outside the Covered Lands.
	(4) Within the Covered Lands, no new aboveground high voltage towers or transmission lines, or similar aboveground electrical transmission structures or lines, will be built by TRC. The following existing towers and lines may be relocated within 1,000 feet of existing lines as long as the potential for injury or harm to condors will be minimized with the installation of anti-perching devices: (1) a north-south 66 kv aboveground transmission line located within TMV Specific Plan Area 1 and 5; (2) a 66 kv aboveground transmission line in the vicinity of the Lebec Road-I-5 Interchange; (3) temporary relocation of an existing aboveground 12 kv transmission line that runs east from I-5, just north of Castac Lake, which will be undergrounded outside of the I-5 corridor will within the TMV Planning Area after construction is complete; and (4) possible relocation of smaller aboveground lines during construction. Additional relocated transmission or distribution lines are prohibited unless approved by the Service following review. All new transmission and distribution lines built by TRC will be placed underground. The locations of transmission lines proposed for relocation are subject to Service review and approval, with the exception that the smaller lines identified in category (4) above may be relocated without Service review and approval, provided such smaller lines are relocated within 0.5 mile of I-5 and avoid prominent ridgelines. Any relocation of the 66kv transmission lines (categories (1) and (2) above) shall also avoid prominent ridgelines.

Type of Measure	Avoidance, Minimization, or Mitigation Measure[1]	
Measures to Address Collisions with Powerlines and Utility Structures (cont.)	(5)	Within the Covered Lands, to the extent allowed by law and applicable contracts, TRC will require new agreements with entities that have the authority to place any new aboveground power, communication towers, or other utility lines on the ranch, to place any such facilities only with the consent of TRC. Additionally, TRC will seek to enter into consensual agreements with those entities that may otherwise exercise such authority, both currently and in the future, without the consent of TRC. Such agreements will provide for measures to minimize the potential for injury or harm to condors, including requiring such structures to be fitted with anti-perching devices and located within existing utility corridors to the extent practicable. TRC may also encourage such entities, including entities installing underground utilities, to seek certificates of inclusion or become "lessees" under the ITP. These activities would not be "Covered Activities" unless they are located on Covered Lands and are conducted by TRC or by entities under the direct control of TRC for purposes of implementing the TUMSHCP and ITP that have become third-party lessees as defined in the Implementing Agreement or certificate of inclusion holders, or that operate under required or consensual agreements written or modified to give TRC control, including authority to require compliance with all applicable TUMSHCP and ITP requirements. Failure to obtain an agreement with an entity over which TRC does not have control will not be considered a violation of the TUMSHCP or the ITP.
Measures to Address Microtrash	(6)	TRC or an included entity will prepare condor educational materials and implement a training program such as printed brochures or other media (e.g., video) that will include information concerning the life history of the California condor, where condors potentially occur within the TMV Planning Area, prohibited behaviors related to condors such as the feeding, pursuit, capture, and harassment of individual condors, and other potential direct interaction with condors. The information shall also identify types of microtrash that could be ingested by condors and describe measures to eliminate microtrash at and near all construction sites, recreation areas, outdoor filming projects, roads, and back-country areas where human presence occurs. The education program will include training of key personnel at TRC, appropriate signage at trailheads or entrances to open space areas, and dissemination of pertinent information at onsite nature centers and other public areas. The educational materials will be disseminated to TMV project construction and work crews, film crews, residents, guests and visitors, particularly those engaging in recreation activities that could put them in close proximity to condors. Project land managers will be empowered to take action to prevent any such activity that would pose a threat to condors. This measure will be included in implementation documentation as appropriate under the Memorandum of Permit.

Type of Measure	Avoidance, Minimization, or Mitigation Measure[1]
Measures to Address Microtrash (cont.)	(7) The following condor protection measures shall be implemented and documented as appropriate under the Memorandum of Permit: a. Master Developer's Construction Crews—All construction contracts let by the Master Developer shall include provisions requiring the general and subcontractors to provide construction workers with educational materials describing condor protection measures. b. Residential or Commercial Construction Crews—All land sale contracts issued by the Master Developer shall include provisions requiring future residential and commercial property owners to provide construction workers with educational materials describing condor protection measures. c. Film Crews—All TRC film crew contracts shall include provisions requiring the film companies to provide crew members with educational materials describing condor protection measures. d. Residents—The Master covenants, conditions, and restrictions (CC&R) shall include requirements for the property manager to distribute educational material describing condor protection measures on an annual basis. The CC&Rs shall also include enforcement language related to condor protection. e. Resort Guests—The CC&Rs included in the resort, and any land sale contract or management agreement, shall include provisions requiring the property management company to provide resort guests with educational materials describing condor protection measures. f. Ranch Visitors—All Entry Permits for back-country areas will include educational material describing condor protection measures. (8) TRC or an included entity will ensure that routine community maintenance activities include regular efforts to eliminate microtrash at and near all work sites, recreation events, filming projects, roads, and back-country areas where human presence occurs. All trash receptacles will be fitted with animal and weather-resistant lids, will be regularly emptied, and will regularly be inspected by the Service-approved Tejon Ranch Staff Biologist. This measure will be included in implementation documentation as appropriate under the Memorandum of Permit. The CC&Rs will include provisions authorizing the Master and Commercial Maintenance Associations, as relevant, to promulgate from time to time rules and regulations recommended by the Service-approved Tejon Ranch Staff Biologist to address microtrash and trash receptacles and to enforce such rules and regulations, which shall be consistent with and no less stringent than the conservation measures. (9) The Service-approved Tejon Ranch Staff Biologist, or designated TRC employees or consultant, will be assigned to all film crews to enforce rules regarding discarding of microtrash items and will require a thorough daily clean-up by the filming entity during and immediately upon completion of all film shoots to eliminate any microtrash that may have accumulated.

Type of Measure	Avoidance, Minimization, or Mitigation Measure[1]	
Measures to Address Disturbance of Condors	(10)	A condor educational curriculum, as provided above, will be created and disseminated that will include information concerning prohibited behaviors related to condors such as the pursuit, capture, harassment, and all other potential direct interaction of the species.
	(11)	Construction workers, filming crews, TRC staff, and residential and commercial occupants and their guests will be required to cease any behavior which constitutes an attractive nuisance or otherwise presents an unreasonable and avoidable danger to California condors upon direction by TRC and in coordination with the Service-approved Tejon Ranch Staff Biologist. Pursuant to the Memorandum of Permit, documentation describing this prohibition will not list such behaviors in detail, but will provide examples and authorize the Service-approved Tejon Ranch Staff Biologist, in consultation with the Service, to respond to changing California condor behaviors, human activities, and other conditions with whatever restrictions are necessary to provide the protection intended.
	(12)	Recreation activities, particularly organized events, and filming projects in areas where condors are known or expected to occur, will be closely regulated to minimize any effects that could disturb feeding or roosting condors. Such regulation can include the dissemination of information regarding condors, through access permits, or in the case of film production, filming contracts, monitoring by the Service-approved Tejon Ranch Staff Biologist, and potential setbacks for localized roosting and feeding behaviors near a carcass location.
	(13)	Fireworks, explosions (louder than gunshots) or other abnormally loud noises are prohibited in the TUMSHCP Mitigation Lands unless the Service-approved Tejon Ranch Staff Biologist determines, in consultation with the Service, that no condors are present or would otherwise be adversely affected by the fireworks, explosions, or noise. Additionally, fireworks, explosions (louder than gunshots) or other abnormally loud noises in the Condor Study Area are prohibited.
	(14)	Educational information as described above will be disseminated through access permits to guests and/or visitors to all back-country cabins regarding microtrash and appropriate behaviors if condors are encountered.
Measures to Address Habituation to Human Activities and Artificial Structures	(15)	Measures to Address Habituation to Human Activities and Artificial Structures: a. To minimize the potential for condor habituation within the TMV Specific Plan Area, measures 1-14 in this table are required under the TUMSHCP and will be incorporated into the CC&Rs governing residential and commercial development or permtting/leasing requirements in the Mitigation Lands, as relevant. Additionally, the CC&Rs shall require that development on the ridges within the TMV Specific Plan Area (the east–west ridge above Rising Canyon, the western portion of Geghus Ridge, and on Grapevine, Middle, Squirrel, Silver, and Lolas Ridges) be designed and constructed to be consistent with the design guidelines and zoning standards contained in the Tejon Mountain Village Specific Plan (35 to 45 feet above finished grade) and will be of relatively low density. b. If it is observed or otherwise determined that condors are perching on or attracted to structures located on private property within the TMV Planning Area or other Covered Lands, the Service, or other party

Type of Measure	Avoidance, Minimization, or Mitigation Measure[1]
	authorized by the Service (such as the Tejon Staff Biologist), will be allowed, after coordination with the property owner, to access the property to implement avoidance (hazing) measures, including, for example, installation of passive rooftop sprinkler systems on structures to deter condors from the property, and other hazing measures deemed appropriate by the Service. This measure will be included in CC&Rs for commercial and residential development.
Measures to Address Loss of Foraging Habitat	(16) The following conservation measures will be provided to offset the direct and indirect loss of foraging habitat in the Covered Lands. a. Approximately 66,117 acres of suitable foraging habitat within the TUMSHCP Mitigation Lands and within Established Open Space will be preserved as functional and viable foraging habitat for California condors. b. The approximate 37,000-acre Condor Study Area, including 23,040 acres of suitable foraging, will be preserved in perpetuity. The Condor Study Area has historically been a core habitat area for foraging and roosting by condors on Tejon Ranch and continues to be used, to a large degree, by released condors. c. Grazing at approximately the historic average level of 14,500 head of cattle (with yearly variation to account for rangeland conditions) will continue on the ranch through the permit term to provide a potential food source for the condor. d. Hunting within open space areas on the ranch will continue through the permit term to provide a potential food source for the condor.
Measures to Contribute to Conservation and Recovery of the California Condor	(17) <u>Permanent Protection of TUMSHCP Mitigation Lands</u>. The TUMSHCP Mitigation Lands shall be permanently protected by conservation easement or other appropriate deed restriction as follows: a. Dedicated conservation of the Initial Mitigation Lands will be phased according to the terms of the Implementing Agreement as follows. A conservation easement is required to be recorded on the 47,671 acres of Initial Mitigation Lands, which include the 37,099-acre Condor Study Area portion of the Established Open Space and a 10,572-acre portion of the TMV Planning Area Open Space, prior to grading of the TMV Project. TRC may increase the acreage of the Initial TMV Planning Area Open Space Lands to coordinate easement boundaries with the State conservation requirements. The obligation to record a conservation easement over the TMV Planning Area Open Space portion of the Initial Mitigation Lands will be extended up to five years provided that a Memorandum of Permit and a Memorandum of Agreement to record a conservation easement is recorded prior to the grading of the TMV Project. b. The Remaining Mitigation Lands will be permanently conserved in accordance with the terms of the Implementing Agreement as follows. Dedicated conservation easements are required to be recorded over

Type of Measure	Avoidance, Minimization, or Mitigation Measure[1]
	the 56,423 acres of Established Open Space following the schedule set forth in the Ranchwide Agreement, but in no event shall the recording of easements extend beyond the permit term. The 12,429 acres of the TMV Planning Area Open Space within the Remaining Mitigation Lands shall be conveyed by conservation easement or otherwise restricted in a form approved by the Service as the TMV Planning Area is developed and tentative maps are approved, but in no event shall the recording of easements extend beyond the permit term.
Condor Study Area Management Measures	(18) <u>Condor Study Area Management</u> a. The Condor Study Area will be managed by the Tejon Ranch Conservancy in accordance with the TUMSHCP and under the guidance of the RWMP, which will be subject to Service review and approval for consistency with the TUMSHCP, any recorded conservation easements, and the ESA. Public access to and use of the Condor Study Area authorized by the public access plan will be controlled, monitored, and enforced by TRC or the Tejon Ranch Conservancy. Two back-county cabins exist in the Condor Study Area. Those cabins may be maintained, improved, repaired, replaced, or reconstructed in their existing locations, within their existing footprints and without substantial increase in height. No other back-country cabins may be constructed or relocated to the Condor Study Area. b. Access to the Condor Study Area in the public access plan will be developed in consultation with, and must be approved by, the Service. The public access plan will be subject to Service review and approval in perpetuity and include parameters for human use of the Condor Study Area, including but not limited to the type of uses allowed and disallowed, the level of use intensity, and any seasonal restrictions, if warranted. Measures likely to be incorporated into the program include requiring visitors to register before entering, restricting the number of visitors per day/week/month depending upon California condor use of the Condor Study Area as determined by the Service-approved Tejon Ranch Staff Biologist and the Service, and prohibiting future access by those persons who do not follow the rules or comply with the program. TRC or the Tejon Ranch Conservancy will be responsible for implementing the program and measures.
Measures Associated with Establishment of Supplemental Feeding/Trap and Release Sites	(19) There is a possibility that supplemental feeding sites within preserved areas of the ranch will be needed in the future in support of the California Condor Recovery Plan, as determined by the Service. Currently no such feeding site is planned. If such supplemental feeding sites are determined to be needed by the Service, the Service will consult with TRC on the location, design and operation of such feeding sites.
Measures Associated with the Establishment and	(20) <u>Establishment/Enforcement of Perpetual Ranchwide Ban on Lead Ammunition</u> a. The use of lead ammunition on Tejon Ranch has been banned since January 1, 2008. The ban applies to all

Type of Measure	Avoidance, Minimization, or Mitigation Measure[1]
Enforcement of Perpetual Ranchwide Ban on Lead Ammunition	hunters registering with TRC's Wildlife Management Operation for hunting access licenses, whether they hunt through a hunting membership, a group hunt, or a guided hunt. California subsequently enacted the Ridley-Tree Condor Preservation Act, which bans lead ammunition in the range of the California condor effective July 1, 2008.
Measures Associated with the Establishment and Enforcement of Perpetual Ranchwide Ban on Lead Ammunition (cont).	b. To ensure that the ban on lead ammunition will successfully contribute to reducing the incidence of lead poisoning to condors, TRC shall continue to implement the hunter awareness and enforcement program. The components of the program include the following: 1) All hunting permittees must acknowledge and sign a notice and agreement that addresses the lead ammunition ban and the protection of the California condor. By signing the agreement, hunting permittees acknowledge that the possession or use of ammunition containing lead is prohibited and that violation of this prohibition will result in immediate expulsion from the ranch, permanent termination of all future hunting privileges, and liability to TRC and State and Federal governments. The agreement also clarifies protections that the condor has under State and Federal laws, penalties for violations of these laws, and the application of these laws to all hunting permittees. 2) All hunting permittees must acknowledge and sign an agreement that defines hunting rules and regulations on Tejon Ranch. The agreement reiterates that the possession or use of ammunition containing lead is prohibited and that violation of this prohibition will result in immediate expulsion from the ranch, permanent termination of all future hunting privileges, and liability to TRC and State and Federal governments. The agreement includes rules and regulations that among other things, prohibit shooting at large birds; require that gut piles and carcasses, unless transported off the ranch or are suspected to contain lead, shall remain in place on the ranch; require the removal of all litter, trash, and microtrash; and that prohibit any behavior that could be construed as a "take" of the condor. 3) All hunting permittees must acknowledge and sign a hunting permit that reiterates that the possession or use of ammunition containing lead is prohibited and that violation of this prohibition will result in immediate expulsion from the ranch, permanent termination of all future hunting privileges, and liability to TRC and State and Federal governments, and that states that the permit is not valid unless the notice and agreement regarding lead ammunition and protection of condors and the hunting rules and regulations agreement have been acknowledged and signed. The permit also notices that the hunting permittee is bound to all conditions within each of these agreements. The education and enforcement program is also expected to include workshops and/or seminars that educate hunters with respect to the effects of lead on condors and that will give hunters an opportunity to experiment with non-lead ammunition alternatives. The hunter education and enforcement program will be implemented by the Wildlife Management Operation at

Type of Measure	Avoidance, Minimization, or Mitigation Measure[1]	
		Tejon Ranch. The ban on use of lead ammunition applies not only to hunters, but also to all TRC employees or third parties who are engaged in any animal damage control or nuisance abatement activities on the ranch. In other words, except for law enforcement, the ban is universal as to all persons who enter the ranch. To ensure that the lead ammunition ban remains in place and effective in perpetuity, the conservation easement required for the TUMSHCP Mitigation Lands will require implementation of the lead ban after expiration of the ITP term.
Implementation Measures	(21)	<u>Funding for Additional Global Positioning Systems (GPS) Transmitters for Condors</u> a. TMV LLC will provide funding to install additional GPS satellite tracking transmitters on condors currently not carrying such transmitters to allow for the continuous, real-time monitoring of the location of wild, free-flying California condors. Specifically, $156,000 will be provided to purchase GPS transmitters prior to the issuance of any grading permits affecting suitable condor foraging or roosting habitat and then $26,000 will be provided to assist in funding operations, maintenance, and/or replacement every year afterwards for a total of 10 years. This system will enable the immediate location of birds that are not moving relative to the ground, which usually indicates that an injury or illness has occurred. The prompt retrieval of injured or sick birds will allow for the rapid implementation of appropriate medical care or rehabilitation, actions that have saved the life of several condors in the past.

Type of Measure	Avoidance, Minimization, or Mitigation Measure[1]
Implementation Measures (cont.)	(22) <u>Hiring of a Full-Time Biologist</u> a. Prior to initiating construction of the TMV Project in the Covered Lands, and for the duration of the ITP term, TRC will retain the service of a full-time biologist (i.e., Service-approved Tejon Ranch Staff Biologist) to perform the functions described in this section. The hiring will occur no later than 30 days prior to initiation of the start of construction for which all entitlements have been secured and any litigation that might impede or prevent the construction has been concluded without such a result. Promptly after issuance of the ITP, TRC will contract with a qualified third party, whose qualifications are approved by the Service, to perform these functions until the Service-approved Tejon Ranch Staff Biologist is retained. b. The Service-approved Tejon Ranch Staff Biologist's primary function will be to assist in minimizing and mitigating any interactions between humans and California condors within the Covered Lands and in administering the avoidance, minimization, and mitigation measures pertaining to condors in the TUMSHCP. The Service-approved Tejon Ranch Staff Biologist will not be required or allowed to handle or interact with California condors other than incidentally or in emergency situations and only if he or she has been issued by the Service a scientific permit under Section 10(a)(1)(A) of the ESA, and is permitted to do so by applicable Federal and State law. The Service-approved Tejon Ranch Staff Biologist will be responsible for performing, either directly or through direct supervision of assigned staff, the following functions related to California condors: 1) Perform the monitoring and reporting responsibilities of TRC in the TUMSHCP. 2) Perform the enforcement responsibilities. 3) For the purpose of minimizing contact and interaction between humans and California condors, (i) coordinate with retained environmental education specialists, to prepare guidelines and educational programs, reviewed and approved by the Service, for proper behavior by persons who buy real estate or visit the developments constructed within Covered Lands, or who are permitted to use the Condor Study Area, and (ii) include descriptions of such guidelines and programs in pamphlets or other documents which are to be distributed to such persons. 4) Monitor use of the Condor Study Area by adjacent home buyers and lessees and facilitate communication and coordination among the Service, TRC and the Master Owner Association to ensure that allowed uses of the Condor Study Area do not compromise the value of that area as a California condor safe zone and for traditional and historic ranch uses. 5) Conduct educational programs, and disseminate educational materials, concerning the California condor to home buyers and visitors to any mountain development.

Type of Measure	Avoidance, Minimization, or Mitigation Measure[1]
	6) Coordinate with TRC's Wildlife Management Operation on implementation of the hunter education/enforcement program regarding the lead ammunition ban and condor protection. 7) Assist the Service with assessment and implementation methods to discourage California condors' use and visitation of human communities and dwellings on the Covered Lands. The Service-approved Tejon Ranch Staff Biologist will contact the Service immediately if habituation behavior by California condors is witnessed or reported and will assist the Service, as necessary and as requested by the Service, by providing additional monitoring of condors determined to be exhibiting behaviors with the potential to result in habituation, and/or of areas within the Covered Lands determined to be attractive to condors. The discouragement, including "hazing," measures, will be implemented by the Service, in consultation with TRC. However, the Service-approved Tejon Ranch Staff Biologist will not undertake any hazing activity under this paragraph unless and until he or she has applied for and received a scientific permit from the Service under ESA Section 10(a)(1)(A) that covers such activity, and any incidental take that may result, and the Service and TRC have determined that he or she may do so in accordance with all applicable Federal and State law (including approval for inclusion in a Memorandum of Understanding - if and to the extent required - between the Service and CDFW that allows such interactions with California condors despite their status as a Fully Protected Species under State law). 8) Assist in communications with the Service regarding potential violations with the TUMSHCP, ESA or any recorded conservation easement or CC&Rs. c. The Service may propose specific, additional functions of the Service-approved Tejon Ranch Staff Biologist that it believes would be appropriate and consistent with the concepts set forth above and applicable legal requirements.
Measures to Support Service Recovery Actions	(23) Translocation of a habituated California condor. Should any ESA nonlethal incidental take (habituation) of a California condor occur from a Covered Activity on the Covered Lands, TRC commits to payment of the full costs of capture, monitoring, relocating, or removal of the habituated bird. (24) Care of a California condor. Should any such ESA nonlethal incidental take (habituation) of a California condor occur from a Covered Activity on the Covered Lands that results in a physical injury of a California condor, TRC will pay the full cost of its care, including any veterinary treatment for any injury to it, and its removal to and continuing care at a breeding center or receiving facility.

Source: Dudek 2011
Notes:
RWMP = Ranchwide Management Plan
CDFW = California Department of Fish and Wildlife (formerly California Department of Fish and Game)

Type of Measure	Avoidance, Minimization, or Mitigation Measure[1]

[1] As set forth in the Implementing Agreement attached as Appendix A to the TUMSHCP, many of the Condor avoidance, minimization, or mitigation measures listed in this table shall apply in perpetuity and shall be recorded in a Memorandum of Permit over the Covered Lands. The Memorandum of Permit shall be referenced in the TMV Master CC&Rs, TMV Commercial CC&R's, TMV and TRC access permits, certificates of inclusions, land sale documents, easements, lease agreements, and filming contracts within the Covered Lands.

TABLE 2. Avoidance, Minimization, and Mitigation Measures for Other Covered Species under the Proposed TUMSHCP

Species	Covered Activity	Other Covered Species Conservation Measure
Tehachapi slender salamander		Suitable Habitat and General Conservation Measures
	All	1. 3,921 acres (96 percent) of modeled habitat for Tehachapi slender salamander will be conserved within Established Open Space, TMV Planning Area Open Space, and Existing Conservation Easement Areas.4 2. All currently known occurrences will be conserved in Monroe Canyon and Bear Trap Canyon.
		Other Conservation Measures
	Commercial and Residential Development Activities (Construction)	3. Construction in modeled habitat in riparian/wetlands areas will be avoided to the extent practicable (generally anticipated to be limited to road crossings and culverts. 4. BMPs will be implemented to protect surface water quality (pollutants, erosion, dust control, sedimentation) as required by applicable CWA and Porter-Cologne Water Quality Control Act requirements and air district requirements. 5. Disturbance/grading perimeters will be flagged or fenced to limit construction activities to designated areas and avoid unauthorized incursions into adjacent areas. 6. Contractor/construction personnel will complete meetings for training on TUMSHCP compliance and recognition/reporting protocols for the Covered Species prior to grading. 7. Prior to grading, activities in or immediately adjacent to suitable habitat will be monitored. Exclusion fencing will be erected if appropriate, to prevent Tehachapi slender salamanders from entering construction zones.

4 For several covered species, the acreage of modeled suitable habitat lost when added to the acreage of modeled suitable habitat conserved as Mitigation Lands does not sum to 100 percent. This may occur for one or more of the following three reasons: (1) Rounding error. (2) Modeled suitable habitat for some species includes riparian habitat. The TUMSHCP conservatively estimates that 25 percent of riparian habitat could be lost under the TUMSHCP. (This estimate likely overstates the amount of riparian habitat loss, because in its Clean Water Act Section 404 permit application to the U.S. Army Corps of Engineers, the applicant proposes avoidance of almost all riparian habitat.). Because some riparian habitat that will in fact be avoided is within the development envelope of Covered Residential and Commercial Development and not within the Mitigation Lands, it is not counted as conserved habitat under the Plan. (3) Modeled suitable habitat for some species includes lands within the Lebec/Existing Headquarters Area, a 145-acre area that will not be developed but is also not included in the Mitigation Lands. The species that have modeled suitable habitat affected by one or both of the latter two circumstances, and for which, therefore, the amount of lost habitat and conserved habitat does not add up to 100 percent resulting in a conserved habitat acreage figure that understates the amount of habitat that will be avoided, are the American peregrine falcon, bald eagle, least Bell's vireo, little willow flycatcher, southwestern willow flycatcher, tricolored blackbird, yellow billed cuckoo, white-tailed kite, yellow warbler, two-striped garter snake, and striped adobe lily..

Species	Covered Activity	Other Covered Species Conservation Measure
		8. To ensure that diseases are not conveyed between work sites by the Service-approved Tejon Staff Biologist or his or her assistants, the fieldwork code of practice developed by the Declining Amphibian Populations Task Force (2009) will be followed at all times.
		9. Surveys prior to grading will be conducted in suitable habitat. The Service-approved Tejon Ranch Staff Biologist will make reasonable efforts to capture and relocate any observed individuals to suitable habitat (e.g., on north-facing slopes containing talus) that is the closest distance to the Disturbance Area from where the individuals were removed. The Service-approved Tejon Ranch Staff Biologist conducting the capture and relocation of Tehachapi slender salamanders will have a scientific collecting permit and a Memorandum of Understanding or letter permit from CDFW to carry out these activities.
	Commercial and Residential Development Activities (Long-term Operational)	10. Design features for Commercial and Residential Development Activities will be incorporated at the boundary between modeled habitat and development areas that are adequate to avoid and minimize the introduction of exotic plant and animal species, such as Argentine ant (*Linepithema humile*), and urban runoff in adjacent natural areas.
		11. Lighting for Commercial and Residential Development Activities adjacent or near open space will be directed away from modeled habitat.
		12. Within occupied or modeled habitat for Tehachapi slender salamander within the TMV Planning Area, and for all hard surface roads within open space, culverts shall be placed under road connections and the roads shall be designed, in coordination with the Service-approved Tejon Ranch Staff Biologist, to prevent this species from entering the on-site roads from areas where this species occurs within or adjacent to the Disturbance Area.
		13. Public recreation shall be regulated through the public access plan, which shall be reviewed and approved by the Service, per Condor Measure 18 (Table 2-3).
	Plan-Wide Activities (Construction)	Compliance with Other Covered Species Measures 4, 7, 8, and 9.
		14. The installation of infrastructure (and trails) or other ground-disturbing activity within open space areas will include efforts to minimize the footprint and use BMPs for the design and installation of any such infrastructure, including surveys prior to grading, contractor education, staking and temporary construction fencing.
		15. Management and planning of non-grazing activities in open space shall incorporate the final baseline surveys required in Section 7.3.2 of the TUMSHCP and results of annual monitoring and any such activities (with the exception of passive recreation activities) will be preceded by a pre-activity site evaluation by the Tejon Staff Biologist and, when appropriate given the site conditions, pre-activity surveys for the covered species by the Tejon Staff Biologist.

Species	Covered Activity	Other Covered Species Conservation Measure
	Plan-Wide Activities (Other)	Compliance with Other Covered Species Measures 13. 16. A grazing management plan for open space will be prepared that regulates livestock grazing and range management activities to continue to maintain existing modeled habitat for Tehachapi slender salamander while continuing to provide for commercial ranching and fire protection. 17. TRC guests, contractors and licensees and visitors through the public access plan will be provided with educational information regarding acceptable activities in open space areas, including recreational activities, pet restrictions, and wildlife restrictions, including prohibition on collecting individuals. 18. Selection of any new public access trails shall be made in consultation with the Service-approved Tejon Ranch Staff Biologist and the selection of appropriate locations for access, trails, and facilities will minimize effects on open space areas. 19. Home Owner's Association(s) will be provided with educational information regarding acceptable activities in open space areas as reviewed and approved by the Service-approved Tejon Ranch Staff Biologist, including recreational activities, pet restrictions, and wildlife restrictions, including prohibition on collecting individuals.
Western spadefoot		Suitable Habitat and General Conservation Measures
	All	20. 1,145 acres (97 percent) of modeled suitable habitat for western spadefoot will be conserved within Established Open Space, TMV Planning Area Open Space, and Existing Conservation Easement Areas.
		Other Conservation Measures
	Commercial and Residential Development Activities (Construction)	Compliance with Other Covered Species Measures 4, 5, and 6. 21. Construction in modeled habitat in riparian/wetlands areas will be avoided to the extent practicable (generally anticipated to be limited to road crossings and culverts). 22. Surveys prior to grading will be conducted in suitable habitat. The Service-approved Tejon Ranch Staff Biologist will make reasonable efforts to capture and relocate any observed individuals to suitable habitat that is the closest distance to the Disturbance Area from where the individuals were removed. If western spadefoots are detected (including egg masses, larvae), activities will be avoided until larvae have metamorphosed. A 300-foot setback will be established from occupied areas if work must continue in or immediately adjacent to sites with egg masses and/or larvae. The Service-approved Tejon Ranch Staff Biologist may reduce the 300-foot setback at his or her discretion depending on the suitability of site conditions. A western spadefoot toad relocation plan, which will include, at a minimum, the timing and methods for capturing and releasing adults, will be prepared prior to the initiation of grading activities. The relocation plan will be submitted to CDFW for review.

Species	Covered Activity	Other Covered Species Conservation Measure
		23. Prior to grading, activities in or immediately adjacent to suitable habitat will be monitored. Exclusion fencing may be erected, if appropriate, to prevent western spadefoots from entering construction zones.
		24. To ensure that diseases are not conveyed between work sites by the authorized Service-approved Tejon Ranch Staff Biologist or his or her assistants, the fieldwork code of practice developed by the Declining Amphibian Populations Task Force (2009) will be followed at all times.
	Commercial and Residential Development Activities (Long-term Operational)	Compliance with Other Covered Species Measures 10, 11, and 13.
	Plan-Wide Activities (Construction)	Compliance with Other Covered Species Measures 4, 14, 15, 21, 22, and 23.
	Plan-Wide Activities (Other)	Compliance with Other Covered Species Measures 13, 15, 16. 17, 18, and 19.
		25. Surveys will be conducted to determine presence/absence of western spadefoot prior to ranch activities that could adversely affect breeding habitat for western spadefoot, such as eliminating stockponds.
Yellow-blotched salamander		Suitable Habitat and General Conservation Measures
	All	26. 34,034 acres (97 percent) of modeled habitat will be conserved for yellow-blotched salamander within Established Open Space, TMV Planning Area Open Space, and Existing Conservation Easement Areas.
		27. All currently known occurrences of yellow-blotched salamander will be conserved generally north of Rising Canyon and south of Pastoria Canyon, east of Grapevine Peak in the vicinity of Silver, Monroe, and Squirrel canyons, and along tributaries to Bear Trap Canyon.
		Other Conservation Measures
	Commercial and Residential Development Activities (Construction)	Compliance with Other Covered Species Measures 4, 5, and 6.
		28. Construction in modeled habitat in riparian/wetland areas will be avoided to the extent practicable (generally anticipated to be limited to road crossings and culverts).

Species	Covered Activity	Other Covered Species Conservation Measure
		29. Surveys prior to grading will be conducted in suitable habitat. The Service-approved Tejon Ranch Staff Biologist will make reasonable efforts to capture and relocate any observed individuals to suitable habitat that is the closest distance to the Disturbance Area from where the individuals were removed. A yellow-blotched salamander relocation plan, which will include, at a minimum, the timing and methods for capturing and releasing adults, will be prepared prior to the initiation of grading activities. The relocation plan will be submitted to CDFW for review.
		30. Prior to grading, activities in or immediately adjacent to suitable habitat will be monitored. Exclusion fencing will be erected, if appropriate, to prevent yellow-blotched salamanders from entering construction zones.
		31. To ensure that diseases are not conveyed between work sites by the Service-approved Tejon Ranch Staff Biologist or his or her assistants, the fieldwork code of practice developed by the Declining Amphibian Populations Task Force (2009) will be followed at all times.
	Commercial and Residential Development Activities (Long-term Operational)	Compliance with Other Covered Species Measures 10, 11, and 13.
	Plan-Wide Activities (Construction)	Compliance with Other Covered Species Measures 4, 14, 15, 28, 29, and 30.
	Plan-Wide Activities (Other)	Compliance with Other Covered Species Measures 13, 15, 17, 18, and 19.
		32. A grazing management plan for open space will be prepared that regulates livestock grazing and range management activities to continue to maintain existing modeled habitat for yellow-blotched salamander while continuing to provide for commercial ranching and fire protection.
American peregrine falcon		Suitable Habitat and General Conservation Measures
	All	33. 23,862 acres (89 percent) of modeled foraging habitat for American peregrine falcon will be conserved within Established Open Space, TMV Planning Area Open Space, and Existing Conservation Easement Areas.
		34. 79 acres (99 percent) of modeled breeding habitat for American peregrine falcon will be permanently conserved within Established Open Space, TMV Planning Area Open Space, and Existing Conservation Easement Areas.
		35. All lethal take of American peregrine falcons will be avoided.

Species	Covered Activity	Other Covered Species Conservation Measure
		Other Conservation Measures
	Commercial and Residential Development Activities (Construction)	Compliance with Other Covered Species Measure 4. 36. Construction in riparian/wetland modeled foraging and wintering habitat will be avoided in open space areas to the extent practicable (generally anticipated to be limited to road crossings and culverts). 37. Surveys prior to grading in suitable breeding habitat will be conducted during the breeding season (March through August) to determine if nesting American peregrine falcons are present. 38. If active American peregrine falcon nests are detected during preconstruction surveys, a 0.25-mile protection zone will be established around each active nest and grading and land-altering activities within the 0.25-mile protection zone will be prohibited as long as the nest is active. Active nests and 0.25-mile protection zones will be mapped on appropriate planning maps. The 0.25-mile protection zone may be reduced at the discretion of the Service-approved Tejon Ranch Staff Biologist depending on site viewshed characteristics. 39. The Service-approved Tejon Ranch Staff Biologist will monitor construction activities in suitable habitat to assure avoidance of any harm to individuals and will have the authority to direct the cessation of field activities likely to cause any such harm.
	Commercial and Residential Development Activities (Long-term Operational)	Compliance with Other Covered Species Measure 10.
	Plan-Wide Activities (Construction)	Compliance with Other Covered Species Conservation Measures 4, 14, 15, 36, 37, and 39. 40. If active American peregrine falcon nests are detected in open space during preconstruction surveys, a 1,000-foot protection zone will be established around each active nest and recreation and other activities will be prohibited within the 1,000-foot zone until all the young have fledged and are no longer dependent upon the nest for survival to minimize the potential for nest abandonment by adults. The Service-approved Tejon Ranch Staff Biologist may reduce the 1,000-foot protection zone at his or her discretion depending on the suitability of site conditions. Active nests and the 1,000-foot protection zones will be mapped on appropriate planning maps.
	Plan-Wide Activities (Other)	Compliance with Other Covered Species Measures 13, 15, 17, 18, and 19.

Species	Covered Activity	Other Covered Species Conservation Measure
		41. A grazing management plan for open space will be prepared that regulates livestock grazing and range management activities to continue to maintain existing modeled habitat for American peregrine falcon while continuing to provide for commercial ranching and fire protection.
Bald eagle		Suitable Habitat and General Conservation Measures
	All	42. 604 acres (42 percent) of modeled wintering habitat for bald eagle will be conserved within Established Open Space, TMV Planning Area Open Space, and Existing Conservation Easement Areas. 43. 499 acres (96 percent) of modeled foraging habitat for bald eagle will be conserved within Established Open Space, TMV Planning Area Open Space, and Existing Conservation Easement Areas. 44. Subject to Kern County Fire Department approval, removal of preferred diurnal perches and high-quality roost trees from fuel modification zones within 1 mile of Castac Lake, as identified by the Service-approved Tejon Ranch Staff Biologist, will be prohibited.
	Commercial and Residential Development Activities (Construction)	45. Prior to grading, the Service-approved Tejon Ranch Staff Biologist will conduct focused surveys for wintering (October through March) bald eagles within the proposed project phase and, if present, their preferred diurnal perches and roosting areas will be mapped and avoided. Management standards will be applied to preferred diurnal perches and high-quality roost trees (those trees with greater than 12-inch diameter at breast height) for bald eagle that are within 100 feet of the shoreline of Castac Lake in designated open space. The following presents options for bald eagle management: Diurnal perch areas will be selectively thinned to stimulate the growth of existing trees and enhance perching habitat by creating openness in these areas. New large tree species will be planted within 100 feet of the shoreline of Castac Lake in areas preserved for bald eagle, at a 1:1 ratio to replace large trees affected within 100 feet of the shoreline of Castac Lake. A small percentage of trees will be girdled within 100 feet of the shoreline of Castac Lake in areas preserved for bald eagle to create snags for perching; the percentage of trees girdled will be determined by the Service-approved Tejon Ranch Staff Biologist. Girdling will kill the trees by destroying the cambial layer, therefore, creating roosts and snags. 46. Snags and large trees will be avoided within 100 feet of the shoreline of Castac Lake to the maximum extent practicable.

Species	Covered Activity	Other Covered Species Conservation Measure
		47. Identified preferred roosting areas that are well-protected from wind (e.g., in a canyon, or blocked by trees) will be preserved, including an adequate setback from preserved roosting areas. The setback will be determined by the Service-approved Tejon Ranch Staff Biologist using data collected during the focused surveys for wintering bald eagles, which will be conducted prior to the approval of the grading plan for each phase of development within 1 mile of the edge of Castac Lake. Between October 15 and March 15, uses within the roost areas and the setback will be limited to those approved by the Service-approved Tejon Ranch Staff Biologist but will exclude activities such as hunting (starting November 1 through March) and other recreation uses. 48. All lethal take of bald eagles will be avoided.
		Other Conservation Measures
	Commercial and Residential Development Activities (Construction)	Compliance with Other Covered Species Measures 4, 5, 6, and 39. 49. Construction in wetland habitat associated with Castac Lake and woodland habitat within 1 mile of Castac Lake will be avoided October through March.
	Commercial and Residential Development Activities (Long-term Operational)	Compliance with Other Covered Species Measures 10 and 11.
	Plan-Wide Activities (Other)	Compliance with Other Covered Species Measures 13, 15, 17, 18, and 19. 50. A grazing management plan for open space will be prepared that regulates livestock grazing and range management activities to continue to maintain existing modeled foraging and wintering habitat for bald eagle while continuing to provide for commercial ranching and fire protection. 51. Intentional feeding of bald eagles will be prohibited on the Covered Lands, and language will be included in the CC&Rs that prohibits the feeding of this species and other wildlife species on the Covered Lands. The Service-approved Tejon Ranch Staff Biologist will install signage adjacent to Castac Lake indicating that feeding bald eagles is prohibited. Such signage will indicate that prohibitions will be enforceable for all residents and guests.

Species	Covered Activity	Other Covered Species Conservation Measure
		52. Maintain a minimum 300-foot setback from preferred diurnal perches and high-quality roost trees in the TMV Planning Area between October and March in order to limit human disturbance. The Service-approved Tejon Ranch Staff Biologist may reduce the 300-foot setback at his or her discretion depending on the suitability of site conditions.
		53. Hunting will be limited within the TMV Planning Area to guided hunts under the direction of a designated project conservation manager for the purpose of population management. All participants in any such on-site population management efforts will be educated in the identification and behavior of the bald eagle and supervised by the designated project conservation manager to avoid any accidental encounter with bald eagle. Pursuant to the perpetual lead ammunition ban, only non-lead ammunition will be used at all times within the Covered Lands during hunts of any kind.
		54. Interpretive and educational signage will be installed at Castac Lake, informing the public about bald eagles, their habitat requirements, and their sensitivity to human disturbance during the wintering season for the species (late October through March).
	Plan-Wide Activities (Construction)	Compliance with Other Covered Species Measures 4, 14 and 15.
Burrowing owl		Suitable Habitat and General Conservation Measures
	All	55. 22,406 acres (90 percent) of modeled primary breeding/foraging habitat for burrowing owl will be conserved within Established Open Space, TMV Planning Area Open Space, and Existing Conservation Easement Areas.
		56. 7,521 acres (93 percent) of modeled secondary breeding/foraging habitat for burrowing owl will be conserved within Established Open Space, TMV Planning Area Open Space, and Existing Conservation Easement Areas.
		Other Conservation Measures
	Commercial and Residential Development Activities (Construction)	57. Avoidance/minimization measures will be implemented adjacent to modeled primary breeding/foraging habitat for burrowing owl, including fencing/flagging of disturbance/grading perimeters, contractor/construction personnel meetings prior to grading, and discretionary biological monitoring.
		58. Surveys prior to grading for burrowing owls will be conducted 30 days prior to scheduled construction activity in suitable habitat to determine if burrowing owls are present on site and, if present, their breeding status (breeding season is March through August).

Species	Covered Activity	Other Covered Species Conservation Measure
		59. If non-nesting burrowing owls are observed on site, construction work will proceed after owls are evacuated from site using a CDFW-approved burrow closure procedure and after alternative burrow sites have been provided in accordance with the California Department of Fish and Game (CDFG) Staff Report on Burrowing Owl Mitigation (CDFG 2012a). The results of surveys and relocation efforts will be submitted to CDFW.
		60. If nesting burrowing owls are observed on site, construction work within 300 feet of active nest burrows will be delayed until fledglings have left or are independent of the nest, as determined by the Service-approved Tejon Ranch Staff Biologist. The Service-approved Tejon Ranch Staff Biologist may reduce the 300-foot setback at his or her discretion depending on the suitability of site conditions. Nests that become active within designated construction zones after initiation of construction will be avoided (i.e., active nests would not be directly disturbed), and an appropriate setback will be provided as required by the project biologist consistent with the Staff Report on Burrowing Owl Mitigation (CDFG 2012a). The results of survey and avoidance efforts for nesting burrowing owl will be submitted to CDFW.
	Commercial and Residential Development Activities (Long-term Operational)	Compliance with Other Covered Species Measures 10 and 11.
	Plan-Wide Activities (Other)	Compliance with Other Covered Species Measures 13, 15, 17, 18, and 19.
		61. A grazing management plan for open space will be prepared that regulates livestock grazing and range management activities to continue to maintain existing modeled primary and secondary breeding/foraging habitat for burrowing owl while continuing to provide for commercial ranching and fire protection.
	Plan-Wide Activities (Construction)	Compliance with Other Covered Species Measures 4, 14 and 15.
Golden eagle		Suitable Habitat and General Conservation Measures
	All	62. 45,357 acres (94 percent) of modeled primary breeding habitat for golden eagle will be conserved within Established Open Space, TMV Planning Area Open Space, and Existing Conservation Easement Areas.

Species	Covered Activity	Other Covered Species Conservation Measure
		63. 30,972 acres (94 percent) of modeled breeding/foraging habitat for golden eagle will be conserved within Established Open Space, TMV Planning Area Open Space, and Existing Conservation Easement Areas. 64. 30,791 acres (91 percent) of modeled foraging habitat for golden eagle will be conserved within Established Open Space, TMV Planning Area Open Space, and Existing Conservation Easement Areas. 65. All lethal take of golden eagles will be avoided.
		Other Conservation Measures
	Commercial and Residential Development Activities (Construction)	Compliance with Other Covered Species Conservation Measure 39. 66. Avoidance/minimization measures will be implemented adjacent to modeled primary breeding, breeding/foraging, and foraging habitat for golden eagle, including fencing/flagging of disturbance/grading perimeters, dust control, contractor/construction personnel meetings prior to grading, and biological monitoring. 67. Surveys for active primary golden eagle nests and active alternative nests will be conducted during the breeding season (January through August) prior to approval of the grading plan for each phase of development in modeled primary breeding and breeding/foraging habitat. 68. If active golden eagle nest sites (primary and/or alternate) are observed on site during the survey, a nest-specific analysis will be prepared to identify the primary nest and establish its viewshed. Because golden eagles typically build primary and alternate nests in relative close proximity to each other, often within the same tree groves, active alternate nest sites will generally be protected by the same viewshed analysis as applied to the primary nest site. A complete viewshed analysis will be conducted for the primary nests determined to be in active use, and the following standards to avoid/minimize disturbance to active nests will apply: No development, new trails, or recreation activities will occur within 0.25 mile of an active golden eagle nest, within or outside of the viewshed. No development will occur within the viewshed that is also within 0.5 mile of an active nest. Between 0.25 and 1.0 mile from the active primary golden eagle nest and outside of the nest viewshed, and between 0.5 and 1.0 mile of the golden eagle nest and within the nest viewshed, development will be restricted to low-density development (e.g., mountain residential) and homes must be sited to minimize visibility to golden eagle nests. Between 0.5 and 1.0 mile from the active golden eagle nest, siting and design criteria will be established to avoid/minimize loss of modeled foraging habitat, including preserving larger, contiguous blocks of modeled foraging habitat through clustering development (i.e., higher density development).

Species	Covered Activity	Other Covered Species Conservation Measure
		69. Active primary golden eagle nest sites and active alternate nest sites observed prior to approval of the grading plan for each phase of development in the Covered Lands will be conserved.
	Commercial and Residential Development Activities (Long-term Operational)	Compliance with Other Covered Species Measures 10 and 11.
	Plan-Wide Activities (Other)	Compliance with Other Covered Species Measures 13, 15, 17, 18, and 19.
		70. Active golden eagle nest sites detected during baseline surveys (or surveys prior to grading, as applicable) will be conserved; if active golden eagle nest sites are observed on site, a nest-specific viewshed analysis and the following standards to avoid/minimize disturbance to active primary nests will apply: No development, new trails, or recreation activities will occur within 0.25 mile of an active golden eagle nest, within or outside of the viewshed.
		71. A grazing management plan for open space will be prepared that regulates livestock grazing and range management activities to continue to maintain existing suitable primary breeding, breeding/foraging, and foraging habitat for golden eagle while continuing to provide for commercial ranching and fire protection.
		72. Trail use will be restricted between 0.25 and 0.5 mile from an active primary or active alternate golden eagle nest during the nesting season (February 1 through June 1). Trail use may be allowed during the nesting season, if the Service-approved Tejon Ranch Staff Biologist has determined that the nest has become inactive and trail use would not affect nesting golden eagle.
	Plan-Wide Activities (Construction)	Compliance with Other Covered Species Measures 4, 14, 15, and 70.
Least Bell's vireo		Suitable Habitat and General Conservation Measures
	All	73. 582 acres (95 percent) of modeled breeding/foraging habitat for least Bell's vireo will be conserved within Established Open Space, TMV Planning Area Open Space, and Existing Conservation Easement Areas.
		Other Conservation Measures
	Commercial and Residential Development Activities (Construction)	Compliance with Other Covered Species Measures 4, 5, and 6.
		74. Construction in modeled breeding/foraging habitat in riparian/wetlands areas will be avoided to the extent practicable (generally anticipated to be limited to road crossings and culverts).

Species	Covered Activity	Other Covered Species Conservation Measure
		75. Nesting bird surveys for breeding least Bell's vireo will be conducted, pursuant to accepted protocol for this species, prior to grading for construction activities that would occur in or immediately adjacent to suitable breeding/foraging habitat, and that are scheduled for the breeding season (May 15 through September 15) for this species. The results of the surveys will be submitted to CDFW. 76. If breeding least Bell's vireos are observed on site, construction activities will be avoided during the breeding season, or, if construction must take place during the breeding season, a 500-foot no disturbance buffer will be established around active nests. CDFW will be consulted regarding any variance to this buffer distance. The buffer will be maintained until young have fledged and are no longer dependent on the nest or nest territory.
	Commercial and Residential Development Activities (Long-term Operational)	Compliance with Other Covered Species Conservation Measures 10 and 11.
	Plan-Wide Activities (Other)	Compliance with Other Covered Species Conservation Measures 13, 15, 17, 18, and 19. 77. A grazing management plan for open space will be prepared that regulates livestock grazing and range management activities to continue to maintain existing suitable breeding/foraging habitat for least Bell's vireo while continuing to provide for commercial ranching and fire protection.
	Plan-Wide Activities (Construction)	Compliance with Other Covered Species Measures 4, 15, 74, 75, and 76 The installation of infrastructure (and trails) or other permanent ground-disturbing activity in open space areas will include efforts to minimize the footprint and use BMPs for the design and installation of any such infrastructure, including nesting bird surveys prior to grading, contractor education, staking, and temporary construction fencing. Nesting bird surveys for breeding least Bell's vireo will be conducted, pursuant to accepted protocols for this species, prior to grading for construction activities that would occur in or immediately adjacent to suitable breeding/foraging habitat and that are scheduled to occur during the breeding season (May 15 through September 15) of this species. The results of the surveys will be submitted to CDFW. If breeding least Bell's vireos are observed on site, construction activities will be avoided during the breeding season, or, if construction must take place during the breeding season, a 500-foot no-disturbance buffer will be established around active nests. CDFW will be consulted regarding any variance to this buffer distance. The buffer will be maintained until young have fledged and are no longer dependent on the nest or nest territory.
Little willow flycatcher		Suitable Habitat and General Conservation Measures

Species	Covered Activity	Other Covered Species Conservation Measure
	All	78. 954 acres (97 percent) of modeled foraging/winter stopover habitat for little willow flycatcher will be conserved within Established Open Space, TMV Planning Area Open Space, and Existing Conservation Easement Areas.
		Other Conservation Measures
	Commercial and Residential Development Activities (Construction)	Compliance with Other Covered Species Conservation Measures 4, 5, and 6. 79. Construction in modeled foraging/stopover habitat in riparian/wetlands areas will be avoided to the extent practicable (generally anticipated to be limited to road crossings and culverts).
	Commercial and Residential Development Activities (Long-term Operational)	Compliance with Other Covered Species Measures 10 and 11.
	Plan-Wide Activities (Other)	Compliance with Other Covered Species Measures 13, 17, 18, and 19. 80. A grazing management plan for open space will be prepared that regulates livestock grazing and range management activities to continue to maintain existing suitable foraging/winter stopover habitat for little willow flycatcher while continuing to provide for commercial ranching and fire protection.
	Plan-Wide Activities (Construction)	Compliance with Other Covered Species Measures 4, 14, 15, and 79.
Purple martin		Suitable Habitat and General Conservation Measures
	All	81. 81,015 acres (94 percent) of modeled breeding/foraging habitat for purple martin will be conserved within Established Open Space, TMV Planning Area Open Space, and Existing Conservation Easement Areas.
		Other Conservation Measures
	Commercial and Residential Development Activities (Construction)	Compliance with Other Covered Species Measures 4, 5, and 6. 82. Construction in riparian/wetland modeled breeding/foraging habitat in riparian/wetlands areas will be avoided to the extent practicable (generally anticipated to be limited to road crossings and culverts).

Species	Covered Activity	Other Covered Species Conservation Measure
		83. Surveys for breeding purple martin will be conducted during the breeding season (April through August) for construction activities within suitable breeding/foraging habitat scheduled for the breeding season.
		84. If breeding purple martins are observed in the project disturbance zone or within 500 feet of the disturbance zone, construction activities will be avoided within 500 feet of the breeding location during the breeding season (April through August).
	Commercial and Residential Development Activities (Long-term Operational)	Compliance with Other Covered Species Measures 10 and 11.
	Plan-Wide Activities (Other)	Compliance with Other Covered Species Measures 13, 15, 17, 18, and 19.
		85. A grazing management plan for open space will be prepared that regulates livestock grazing and range management activities to continue to maintain existing suitable breeding/foraging habitat for purple martin while continuing to provide for commercial ranching and fire protection.
		86. European starling monitoring, removal, and management methods will be implemented if determined necessary by the Service-approved Tejon Ranch Staff Biologist. Prior to implementation, the Service-approved Tejon Ranch Staff Biologist will develop a management plan that will specify, at a minimum: the methods for capturing European starlings, and the process for euthanizing captured European starlings (e.g., humane euthanasia according to American Veterinary Medical Association [2001] guidelines). The plan will be implemented based upon the abundance of the species within 500 feet of modeled breeding/foraging habitat for purple martin during the breeding season or the presence of large winter flock sizes; however, the setback may not be less than 300 feet.
	Plan-Wide Activities (Construction)	Compliance with Other Covered Species Measures 4, 14, 15, 82, 83, and 84.
Southwestern willow flycatcher		Suitable Habitat and General Conservation Measures
	All	87. 954 acres (97 percent) of modeled breeding/foraging habitat for southwestern willow flycatcher will be conserved within Established Open Space, TMV Planning Area Open Space, and Existing Conservation Easement Areas.
		Other Conservation Measures
	Commercial and Residential	Compliance with Other Covered Species Measures 4, 5 and 6.

Species	Covered Activity	Other Covered Species Conservation Measure
	Development Activities (Construction)	88. Construction in modeled breeding/foraging habitat in riparian/wetlands areas will be avoided to the extent practicable (generally anticipated to be limited to road crossings and culverts).
		89. Nesting bird surveys for breeding southwestern willow flycatcher will be conducted, pursuant to accepted protocols for this species, prior to grading for construction activities that would occur in or immediately adjacent to suitable breeding/foraging habitat and that are scheduled to occur during the breeding season (May 1 through September 15) for this species. The results of the surveys will be submitted to CDFW.
		90. If breeding southwestern willow flycatchers are observed on site, construction activities will be avoided during the breeding season, or, if construction must take place during the breeding season, a 500-foot no-disturbance buffer will be established around active nests. TRC will consult with CDFW regarding any variance to this buffer distance. The buffer will be maintained until young have fledged and are no longer dependent on the nest or nest territory.
	Commercial and Residential Development Activities (Long-term Operational)	Compliance with Other Covered Species Measures 10 and 11.
	Plan-Wide Activities (Other)	Compliance with Other Covered Species Measures 13, 15, 17, 18, and 19.
		91. A grazing management plan for open space will be prepared that regulates livestock grazing and range management activities to continue to maintain existing suitable breeding/foraging habitat for southwestern willow flycatcher while continuing to provide for commercial ranching and fire protection.
	Plan-Wide Activities (Construction)	Compliance with Other Covered Species Measures 4, 15, 89, 90, and 91. The installation of infrastructure (and trails) or other permanent ground-disturbing activity in open space areas will include efforts to minimize the footprint and use BMPs for the design and installation of any such infrastructure, including nesting bird surveys prior to grading, contractor education, staking, and temporary construction fencing. Nesting bird surveys for breeding southwestern willow flycatchers will be conducted, pursuant to accepted protocols for this species, prior to grading for construction activities that would occur in or immediately adjacent to suitable breeding/foraging habitat and that are scheduled to occur during the breeding season (May 1 through September 15) of this species. The results of the surveys will be submitted to CDFW. If breeding southwestern willow flycatchers are observed on site, construction activities will be avoided during the breeding season, or, if construction must take place during the breeding season, a 500-foot no-disturbance buffer will be established around active nests. CDFW will be consulted regarding any variance to this buffer distance. The buffer will be maintained until young have fledged and are no longer dependent on the nest or nest territory.

Species	Covered Activity	Other Covered Species Conservation Measure
Tricolored blackbird		Suitable Habitat and General Conservation Measures
	All	92. 17,373 acres (94 percent) of modeled foraging habitat for tricolored blackbird will be conserved within Established Open Space, TMV Planning Area Open Space, and Existing Conservation Easement Areas.
		93. 198 acres (69 percent) of modeled primary breeding habitat for tricolored blackbird will be conserved within Established Open Space, TMV Planning Area Open Space, and Existing Conservation Easement Areas.
		Other Conservation Measures
	Commercial and Residential Development Activities (Construction)	Compliance with Other Covered Species Measures 4, 5, and 6.
		94. Construction in modeled primary breeding and foraging habitat within riparian and wetland areas will be avoided to the extent practicable (generally anticipated to be limited to road crossings and culverts).
		95. Surveys for breeding tricolored blackbird will be conducted for construction activities in or immediately adjacent to suitable primary breeding habitat resulting in permanent ground disturbance and scheduled for the breeding season (April through mid-August).
		96. If breeding tricolored blackbirds are observed on site, construction activities will be avoided during the breeding season, or, if construction must take place during the breeding season, a 500-foot setback will be provided or noise-attenuating measure(s) will be implemented, until nesting has been completed in the colony. The Service-approved Tejon Ranch Staff Biologist may reduce the 500-foot setback at his or her discretion depending on the suitability of site conditions; however, the setback may not be less than 300 feet.
	Commercial and Residential Development Activities (Long-term Operational)	Compliance with Other Covered Species Conservation Measures 10 and 11.
		97. An IPMP will be developed and implemented in conjunction with development, ranchwide operations, and management of open space. Measures should address avoiding exposure of tricolored blackbird to pesticides and can include, for example, the storage of pesticides in secure containers and facilities, and the use of pesticides that target specific pests in place of broad spectrum pesticides.
	Plan-Wide Activities (Other)	Compliance with Other Covered Species Measures 13, 15, 17, 18, and 19.
		98. A grazing management plan for open space will be prepared that regulates livestock grazing and range management activities to continue to maintain existing suitable habitat for tricolored blackbird while continuing to provide for commercial ranching and fire protection.

Species	Covered Activity	Other Covered Species Conservation Measure
	Plan-Wide Activities (Construction)	Compliance with Other Covered Species Conservation Measures 4, 14, 15, 95, and 96.
Western yellow-billed cuckoo		Suitable Habitat and General Conservation Measures
	All	99. 954 acres (97 percent) of modeled breeding/foraging habitat for western yellow-billed cuckoo will be conserved within Established Open Space, TMV Planning Area Open Space, and Existing Conservation Easement Areas.
		Other Conservation Measures
	Commercial and Residential Development Activities (Construction)	Compliance with Other Covered Species Measures 4, 5 and 6.
		100. Construction in modeled breeding/foraging habitat in riparian/wetlands areas will be avoided to the extent practicable (generally anticipated to be limited to road crossings and culverts).
		101. Focused surveys for breeding western yellow-billed cuckoo will be conducted prior to grading for construction activities that would occur in or immediately adjacent to suitable breeding/foraging habitat and that are scheduled to occur during the breeding season (May 15 through September 15) for this species. The results of the focused surveys will be submitted to CDFW.
		102. If breeding western yellow-billed cuckoos are observed on site, construction activities will be avoided during the breeding season, or, if construction must take place during the breeding season, a 500-foot no-disturbance buffer will be established around active nests. CDFW will be consulted regarding any variance to this buffer distance. The buffer will be maintained until young have fledged and are no longer dependent on the nest or nest territory.
	Commercial and Residential Development Activities (Long-term Operational)	Compliance with Other Covered Species Measures 10 and 11.
	Plan-Wide Activities (Other)	Compliance with Other Covered Species Measures 13, 15, 17, 18, and 19.
		103. A grazing management plan for open space will be prepared that regulates livestock grazing and range management activities to continue to maintain existing suitable breeding/foraging habitat for western yellow-billed cuckoo while continuing to provide for commercial ranching and fire protection.

Species	Covered Activity	Other Covered Species Conservation Measure
	Plan-Wide Activities (Construction)	Compliance with Other Covered Species Conservation Measures 4, 15, 101, and 102. The installation of infrastructure (and trails) or other permanent ground-disturbing activity within open space areas will include efforts to minimize the footprint and use BMPs for the design and installation of any such infrastructure, including nesting bird surveys prior to grading, contractor education, staking, and temporary construction fencing. Nesting bird surveys for breeding western yellow-billed cuckoo will be conducted, pursuant to accepted protocols for this species, prior to grading for construction activities that would occur in or immediately adjacent to suitable breeding/foraging habitat and that are scheduled to occur during the breeding season (May 15 through September 15) for this species. The results of the focused surveys will be submitted to CDFW. If breeding western yellow-billed cuckoos are observed on site, construction activities will be avoided during the breeding season, or, if construction must take place during the breeding season, a 500-foot no-disturbance buffer will be established around active nests. CDFW will be consulted regarding any variance to this buffer distance. The buffer will be maintained until young have fledged and are no longer dependent on the nest or nest territory.
White-tailed kite		Suitable Habitat and General Conservation Measures
	All	104. 7,130 acres (77 percent) of modeled foraging habitat for white-tailed kite will be conserved within Established Open Space, TMV Planning Area Open Space, and Existing Conservation Easement Areas. 105. All lethal take of white-tailed kites will be avoided.
		Other Conservation Measures
	Commercial and Residential Development Activities (Construction)	Compliance with Other Covered Species Conservation Measures 4, 5, 6, and 39. 106. Although white-tailed kites are not expected to breed on site, construction in potential breeding habitat in riparian/wetland habitat areas will be avoided to the extent practicable (generally anticipated to be limited to road crossings and culverts). 107. Preconstruction survey will be conducted for active white-tailed kite nests during the breeding season (March through September) prior to development in or immediately adjacent to the suitable habitat. 108. All active nest sites detected during surveys prior to grading will be conserved.

Species	Covered Activity	Other Covered Species Conservation Measure
		109. If active white-tailed kite nest sites are detected during preconstruction surveys, a protection zone of 500 feet around each nest will be established and no grading or land-altering activities will be allowed within this zone to protect the viability of the nest territory as long as the nest is active. The Service-approved Tejon Ranch Staff Biologist in coordination with the Service may reduce the 500-foot setback at his or her discretion depending on the suitability of site conditions; however, the setback may not be less than 300 feet.
	Commercial and Residential Development Activities (Long-term Operational)	Compliance with Other Covered Species Conservation Measures 10 and 11.
	Plan-Wide Activities (Other)	Compliance with Other Covered Species Conservation Measures 13, 15, 17, 18, and 19.
		110. A grazing management plan for open space will be prepared that regulates livestock grazing and range management activities to continue to maintain existing modeled foraging habitat for white-tailed kite while continuing to provide for commercial ranching and fire protection.
		111. Covered recreation activities within 500 feet of an active nest during the white-tailed kite breeding season (March through September) will be prohibited until all young have fledged and are no longer dependent on the nest for survival. The active nest will be mapped on appropriate maps. The Service-approved Tejon Ranch Staff Biologist in coordination with the Service may reduce the 500-foot setback at his or her discretion depending on the suitability of site conditions; however, the setback may not be less than 300 feet.
	Plan-Wide Activities (Construction)	Compliance with Other Covered Species Conservation Measures 4, 14, 15, 106, 107, 108, and 109.
Yellow warbler		Suitable Habitat and General Conservation Measures
	All	112. 954 acres (97 percent) of modeled breeding/foraging habitat for yellow warbler will be conserved within Established Open Space, TMV Planning Area Open Space, and Existing Conservation Easement Areas.
		113. 49,008 acres (95 percent) of modeled secondary foraging habitat for yellow warbler will be conserved within Established Open Space, TMV Planning Area Open Space, and Existing Conservation Easement Areas.
		Other Conservation Measures
	Commercial and Residential	Compliance with Other Covered Species Conservation Measures 4, 5, and 6.

Species	Covered Activity	Other Covered Species Conservation Measure
	Development Activities (Construction)	114. Construction in modeled breeding/foraging habitat in riparian/wetlands areas will be avoided to the extent practicable (generally anticipated to be limited to road crossings and culverts).
		115. Surveys for breeding yellow warbler will be conducted during the breeding season (April through August) for construction activities in or immediately adjacent to suitable breeding/foraging habitat scheduled for the breeding season.
		116. If breeding yellow warblers are observed in the project disturbance zone, construction activities will be avoided where detected and appropriate setbacks will be established during the breeding season.
	Commercial and Residential Development Activities (Long-term Operational)	Compliance with Other Covered Species Conservation Measures 10 and 11.
	Plan-Wide Activities (Other)	Compliance with Other Covered Species Conservation Measures 13, 15, 17, 18, and 19.
		117. A grazing management plan for open space will be prepared that regulates livestock grazing and range management activities to continue to maintain existing modeled breeding/foraging habitat for yellow warbler while continuing to provide for commercial ranching and fire protection.
	Plan-Wide Activities (Construction)	Compliance with Other Covered Species Conservation Measures 4, 14, 15, 114, 115, and 116.
Tehachapi pocket mouse5		Suitable Habitat and General Conservation Measures
	All	118. 1,874 acres (97 percent) of modeled habitat for Tehachapi pocket mouse will be conserved within Established Open Space, TMV Planning Area Open Space, and Existing Conservation Easement Areas.

5 Note that measure 119 for the Tehachapi pocket mouse reflects the clarification provided by TRC in a letter dated March 1, 2013, and further clarified in an electronic mail on March 22, 2013..

Species	Covered Activity	Other Covered Species Conservation Measure
		119. In conducting any grading or construction activities (including grading or construction related to development or Planwide Activities), TRC shall avoid all Tehachapi pocket mouse modeled habitat and occurrences. In addition, TRC shall avoid (as defined in consultation with the Service) all Tehachapi pocket mouse modeled habitat and the two known occurrences of Tehachapi pocket mouse in the Oso Canyon Area subject to the following exception. If TRC pursues development within the Oso Canyon Area that proposes to impact modeled suitable habitat or either of the two occurrences, TRC shall implement the following mitigation and minimization measures prior to such development:: (a) Research shall be conducted throughout suitable habitat on Tejon Ranch to better determine species distribution and habitat preferences. The study plan used to inform the research effort shall be reviewed and approved by the Service. Research shall be conducted in conjunction with any Kern County land use application for development in Oso Canyon. (b) For the westerly occurrence area in the Oso Canyon Area as described at Section 5.2.4.2.3 of the TUMSHCP, TRC shall demonstrate the presence of a minimum of four Tehachapi pocket mouse occurrences in conserved open space on Tejon Ranch through field survey work and a written survey report filed with the Service, upon Service approval of which, development of the westerly occurrence area (including modeled suitable habitat) may proceed; and (c) For the easterly occurrence area in the Oso Canyon Area as described at Section 5.2.4.2.3 of the TUMSHCP, TRC shall (i) demonstrate a minimum of two additional Tehachapi pocket mouse occurrences in conserved open space on Tejon Ranch through field survey work and a written survey report filed with and approved by the USFWS; and (ii) minimize effects by limiting development activities to a road and subsurface infrastructure within 150 feet of the mapped known occurrence trap line location. Prior to commencing ground disturbance activities, TRC shall consult with the Service to identify and implement design features (e.g., culverts beneath the road) to minimize effects in this occurrence area. Upon compliance with the measures in this paragraph, development of the easterly occurrence areas (including modeled suitable habitat) may proceed.
		Other Conservation Measures
	Commercial and Residential Development Activities (Construction)	120. Avoidance/minimization measures will be implemented, including fencing/flagging of disturbance/grading perimeters, contractor/construction personnel meetings prior to grading, and discretionary biological monitoring.

Species	Covered Activity	Other Covered Species Conservation Measure
		121. Depending on the existence of essential habitat elements, the Service-approved Tejon Ranch Staff Biologist will conduct a live-trapping program for Tehachapi pocket mouse in suitable habitat in the project disturbance zone and within 100 feet of the disturbance zone no earlier than 7 days prior to commencement of activities resulting in permanent ground disturbance. To minimize direct effects on individuals to the extent feasible, prior to grading, a trapping program will be conducted for 5 nights in suitable habitat to trap and remove as many individuals as possible from the disturbance zone and release them in suitable habitat away from the project disturbance zone (approximately 60 percent of the population within the disturbance zone is estimated to be salvaged based on a 5-night trapping program). A Tehachapi pocket mouse relocation plan, which will include, at a minimum, the timing and methods for capturing and releasing adults, will be prepared prior to the initiation of grading activities. The relocation plan will be submitted to CDFW for review.
		122. Construction activities will be monitored in proximity or immediately adjacent to suitable habitat. Exclusion fencing will be erected, if appropriate, to prevent Tehachapi pocket mice from entering construction zones.
	Commercial and Residential Development Activities (Long-term Operational)	Compliance with Other Covered Species Measures 10 and 11.
		123. An IPMP will be developed and implemented in conjunction with development, ranchwide operations, and management of open space. Measures should address avoiding exposure of Tehachapi pocket mouse to rodenticides and can include, for example, the storage of rodenticides in secure containers and rodent-proofed facilities.
	Plan-Wide Activities (Other)	Compliance with Other Covered Species Measures 13, 15, 17, 18, and 19.
		124. A grazing management plan for open space will be prepared that regulates livestock grazing and range management activities to continue to maintain existing modeled suitable habitat for Tehachapi pocket mouse while continuing to provide for commercial ranching and fire protection.
	Plan-Wide Activities (Construction)	Compliance with Other Covered Species Measures 4, 14, 15, 120, 121, and 122.
Coast horned lizard		Suitable Habitat and General Conservation Measures
	All	125. 37,074 acres (90 percent) of modeled primary habitat for coast horned lizard will be conserved within Established Open Space, TMV Planning Area Open Space, and Existing Conservation Easement Areas.
		126. 51 acres (82 percent) of modeled secondary habitat for coast horned lizard will be conserved within Established Open Space, TMV Planning Area Open Space, and Existing Conservation Easement Areas.

Species	Covered Activity	Other Covered Species Conservation Measure
		127. Eight currently known occurrences of coast horned lizard will be conserved in the southwestern portion of the TMV Planning Area, southeast of Dry Field Canyon and north of Oso Canyon, where the majority of occurrences were found during surveys.
		Other Conservation Measures
	Commercial and Residential Development Activities (Construction)	128. Construction in wash, riparian woodland, and riparian/wetland habitat will be avoided to the extent practicable (generally anticipated to be limited to road crossings and culverts).
		129. Avoidance/minimization measures in modeled primary and secondary habitat will be implemented, including fencing/flagging of disturbance/grading perimeters, contractor/construction personnel meetings prior to grading, and biological monitoring.
		130. Surveys prior to grading will be conducted in suitable habitat. The Service-approved Tejon Ranch Staff Biologist will make reasonable efforts to capture and relocate any observed individuals to suitable habitat that is the closest distance to the Disturbance Area from where the individuals were removed. A coast horned lizard relocation plan, which will include, at a minimum, the timing and methods for capturing and releasing adults, will be prepared prior to the initiation of grading activities. The relocation plan will be submitted to CDFW for review.
		131. Construction activities in suitable habitat will be monitored. Exclusion fencing will be erected, if appropriate, to prevent coast horned lizards from entering construction zones.
	Commercial and Residential Development Activities (Long-term Operational)	Compliance with Other Covered Species Measure 10.
	Plan-Wide Activities (Other)	Compliance with Other Covered Species Measures 13, 15, 17, 18, and 19.
		132. A grazing management plan for open space will be prepared that regulates livestock grazing and range management activities to continue to maintain existing modeled primary and secondary habitat for coast horned lizard while continuing to provide for commercial ranching, fire protection.
	Plan-Wide Activities (Construction)	Compliance with Other Covered Species Measures 4, 14, 15, 129, 130, and 131.
Two-striped garter snake		Suitable Habitat and General Conservation Measures
	All	133. 254 acres (70 percent) of modeled habitat for two-striped garter snake will be conserved within Established Open Space, TMV Planning Area Open Space, and Existing Conservation Easement Areas.

Species	Covered Activity	Other Covered Species Conservation Measure
		134. All currently known occurrences of two-striped garter snake in the southwestern and central portions of the TMV Planning Area east of Rising Canyon, in Dry Field Canyon, and in Bear Trap Canyon will be conserved.
		Other Conservation Measures
	Commercial and Residential Development Activities (Construction)	Compliance with Other Covered Species Measures 4, 5 and 6. 135. Construction in modeled habitat in riparian/wetland habitat areas will be avoided to the extent practicable (generally anticipated to be limited to road crossings and culverts and not anticipated to exceed 9 percent of modeled suitable habitat). 136. The construction project manager will be provided two alternative options to avoid and minimize effects on two-striped garter snake individuals: (a) Prior to grading, the Service-approved Tejon Ranch Staff Biologist will conduct daily surveys by walking through suitable habitat to be disturbed that day to clear the area of garter snakes. The Service-approved Tejon Ranch Staff Biologist will make reasonable efforts to capture and relocate any observed individuals to suitable habitat that is the closest distance to the Disturbance Area from where the individuals were removed. A two-striped garter snake relocation plan, which will include, at a minimum, the timing and methods for capturing and releasing adults, will be prepared prior to the initiation of grading activities. The relocation plan will be submitted to CDFW for review. (b) The project construction manager will erect exclusion fencing around the work zone in lieu of a daily monitor. After erection of the fence or other device(s), the Service-approved Tejon Ranch Staff Biologist will perform an initial clearance survey, followed by periodic checks to verify that the fencing/device(s) are intact and functioning. Once an area has been cleared completely, additional daily monitoring and fencing/device(s) will not be required.
	Commercial and Residential Development Activities (Long-term Operational)	Compliance with Other Covered Species Measures 10 and 11.
	Plan-Wide Activities (Other)	Compliance with Other Covered Species Measures 13, 15, 17, 18, and 19. 137. A grazing management plan for open space will be prepared that regulates livestock grazing and range management activities to continue to maintain existing modeled habitat for two-striped garter snake while continuing to provide for commercial ranching and fire protection.

Species	Covered Activity	Other Covered Species Conservation Measure
	Plan-Wide Activities (Construction)	Compliance with Other Covered Species Measures 4, 14, 15, and 136.
Fort Tejon woolly sunflower		Suitable Habitat and General Conservation Measures
	All	138. 52,046 acres (91 percent) of modeled habitat for Fort Tejon woolly sunflower will be conserved within Established Open Space, TMV Planning Area Open Space, and Existing Conservation Easement Areas. 139. Thirty-six locations, representing 3,000 to 8,500 individuals of Fort Tejon woolly sunflower, will be conserved within TMV Planning Area Open Space.
		Other Conservation Measures
	Commercial and Residential Development Activities (Construction)	Compliance with Other Covered Species Measures 4, 5 and 6. 140. Surveys prior to grading will be conducted in suitable habitat within 150 feet of the project disturbance zone for presence/absence of Fort Tejon woolly sunflower during the appropriate survey season and when the species is detectable. 141. Fort Tejon woolly sunflower locations will be marked with a protective barrier during construction activities occurring in proximity to known occurrences (no known occurrences exist within the Development Envelope) and, as deemed appropriate by the Service-approved Tejon Ranch Staff Biologist, construction activities will be monitored to minimize the potential for disturbance.
	Commercial and Residential Development Activities (Long-term Operational)	Compliance with Other Covered Species Measure 10.
	Plan-Wide Activities (Other)	Compliance with Other Covered Species Conservation Measures 13, 15, 17, 18, and 19. 142. A grazing management plan for open space will be prepared that regulates livestock grazing and range management activities to continue to maintain existing modeled habitat for Fort Tejon woolly sunflower while continuing to provide for commercial ranching and fire protection.
	Plan-Wide Activities (Construction)	Compliance with Other Covered Species Measures 4, 14, 15, 140, and 141.
Kusche's sandwort		Suitable Habitat and General Conservation Measures
	All	143. 28,407 acres (93 percent) of modeled habitat for Kusche's sandwort will be conserved within Established Open Space, TMV Planning Area Open Space, and Existing Conservation Easement Areas.

Species	Covered Activity	Other Covered Species Conservation Measure
		144. Seven known occurrences, representing approximately 24 individuals, of Kusche's sandwort will be conserved within TMV Planning Area Open Space.
		Other Conservation Measures
	Commercial and Residential Development Activities (Construction)	Compliance with Other Covered Species Conservation Measures 4, 5 and 6.
		145. Surveys prior to grading will be conducted in suitable habitat within 150 feet of the project disturbance zone for presence/absence of Kusche's sandwort during the appropriate survey season and when the species is detectable.
		146. Kusche's sandwort locations will be marked with a protective barrier during construction activities occurring in proximity to known occurrences, and, as deemed appropriate by the Service-approved Tejon Ranch Staff Biologist, construction activities will be monitored to minimize the potential for disturbance.
	Commercial and Residential Development Activities (Long-term Operational)	Compliance with Other Covered Species Conservation Measure 10.
	Plan-Wide Activities (Other)	Compliance with Other Covered Species Measures 13, 15, 17, 18, and 19.
		147. A grazing management plan for open space will be prepared that regulates livestock grazing and range management activities to continue to maintain existing modeled habitat for Kusche's sandwort while continuing to provide for commercial ranching and fire protection.
	Plan-Wide Activities (Construction)	Compliance with Other Covered Species Conservation Measures 4, 14, 15, 145, and 146.
Round-leaved filaree		Suitable Habitat and General Conservation Measures
	All	148. 53,076 acres (91 percent) of modeled habitat for round-leaved filaree will be conserved within Established Open Space, TMV Planning Area Open Space, and Existing Conservation Easement Areas.
		149. Known or future detected populations of the round-leaved filaree will be conserved under two alternative scenarios: (a) Three known occurrences, representing approximately 220 to 420 individuals of round-leaved filaree will be conserved within TMV Planning Area Open Space; or (b) At least three occurrences will be conserved in TMV Planning Area Open Space, including two known occurrences representing approximately 120 to 220 individuals and any new occurrence(s) documented within TMV Planning Area Open Space prior to development, such that the new occurrence(s) total(s) at least 100 individuals.

Species	Covered Activity	Other Covered Species Conservation Measure
		Other Conservation Measures
	Commercial and Residential Development Activities (Construction)	Compliance with Other Covered Species Measures 4, 5 and 6.
		150. Surveys prior to grading will be conducted in suitable habitat within 150 feet of the project disturbance zone for presence/absence of round-leaved filaree during the appropriate survey season and when the species is detectable.
		151. Round-leaved filaree locations will be marked with a protective barrier during construction activities occurring in proximity to known occurrences and, as deemed appropriate by the Service-approved Tejon Ranch Staff Biologist, construction activities will be monitored to minimize the potential for disturbance.
	Commercial and Residential Development Activities (Long-term Operational)	Compliance with Other Covered Species Measure 10.
	Plan-Wide Activities (Other)	Compliance with Other Covered Species Measures 13, 15, 17, 18, and 19.
		152. A grazing management plan for open space will be prepared that regulates livestock grazing and range management activities to continue to maintain existing modeled habitat for round-leaved filaree while continuing to provide for commercial ranching and fire protection.
	Plan-Wide Activities (Construction)	Compliance with Other Covered Species Measures 4, 14, 15, 150, and 151.
Striped adobe lily		Suitable Habitat and General Conservation Measures
	All	153. 29,476 acres (91 percent) of modeled habitat for striped adobe lily will be conserved within Established Open Space, TMV Planning Area Open Space, and Existing Conservation Easement Areas.
		154. Three known occurrences of striped adobe lily will be conserved within Existing Conservation Easement Areas.
		Other Conservation Measures
	Commercial and Residential Development Activities (Construction)	Compliance with Other Covered Species Conservation Measures 4, 5 and 6.
		155. Surveys prior to grading will be conducted in suitable habitat within 150 feet of the project disturbance zone for presence/absence of adobe striped lily during the appropriate survey season and when the species is detectable.

Species	Covered Activity	Other Covered Species Conservation Measure
		156. The following avoidance measure will be implemented in locations where striped adobe lily is known to occur, or was observed during preconstruction surveys. Grading/ ground-disturbing activity will be designed to avoid permanent effects on potential pollinators by avoiding effects on habitat within 325 feet of known striped adobe lily occurrences. The Service-approved Tejon Ranch Staff Biologist may reduce the 325-foot setback at his or her discretion depending on the suitability of site conditions. 157. Striped adobe lily locations will be marked with a protective barrier during construction activities occurring in proximity to known occurrences and, as deemed appropriate by the Service-approved Tejon Ranch Staff Biologist, construction activities will be monitored to minimize the potential for disturbance.
	Commercial and Residential Development Activities (Long-term Operational)	Compliance with Other Covered Species Conservation Measure 10.
	Plan-Wide Activities (Other)	Compliance with Other Covered Species Conservation Measures 13, 15, 17, 18, and 19. 158. A grazing management plan for open space will be prepared that regulates livestock grazing and range management activities to continue to maintain existing modeled habitat for striped adobe lily while continuing to provide for commercial ranching and fire protection.
	Plan-Wide Activities (Construction)	Compliance with Other Covered Species Measures 4, 14, 15, 155, 156, and 157.
Tehachapi buckwheat		Suitable Habitat and General Conservation Measures
	All	159. 2,562 acres (99 percent) of modeled habitat for Tehachapi buckwheat will be conserved within Established Open Space, TMV Planning Area Open Space, and Existing Conservation Easement Areas. 160. All known occurrences of Tehachapi Buckwheat (i.e., the approximately 500 to 600 known individuals located in the vicinity of Poleline Ridge) will be conserved within TMV Planning Area Open Space.
		Other Conservation Measures
	Commercial and Residential Development Activities (Construction)	Compliance with Other Covered Species Measures 4, 5, and 6. 161. Surveys prior to grading will be conducted in suitable habitat within 325 feet of the project disturbance zone for presence/absence of Tehachapi buckwheat during the appropriate survey season and when the species is detectable.

Species	Covered Activity	Other Covered Species Conservation Measure
		162. The following avoidance measure will be implemented in locations where Tehachapi buckwheat is known to occur, or was observed during preconstruction surveys. The activity will be designed to avoid permanent edge effects by restricting Covered Activities within 325 feet of known Tehachapi buckwheat occurrences. The Service-approved Tejon Ranch Staff Biologist may reduce the 325-foot setback at his or her discretion depending on the suitability of site conditions; however, the setback would not be less than 100 feet unless approved by the Service. The land on which the avoided occurrences of Tehachapi buckwheat and the buffer around the occurrences will be incorporated into Established or TMV Planning Area Open Space and these areas will be managed for the benefit of the species. To preclude the invasion of Argentine ants, within the 325-foot buffer, controls will be implemented using an integrated pest management approach. The controls include (1) providing “dry zones” between development activities and buckwheat populations; (2) ensuring that dry zone container plants installed within 325 feet of buckwheat are ant free prior to installation; (3) maintaining natural hydrological conditions near the buckwheat occurrences; and (4) using drought-resistant plants in fuel modification zones to minimize irrigation requirements.
		163. Tehachapi buckwheat locations will be marked with a protective barrier during construction activities occurring in proximity to known occurrences, and, as deemed appropriate by the Service-approved Tejon Ranch Staff Biologist, construction activities will be monitored to minimize the potential for disturbance.
		164. If construction is proposed within 325 feet of Tehachapi buckwheat occurrences (i.e., if the buffer is reduced the by the Service-approved Tejon Ranch Staff Biologist), the Service-approved Tejon Ranch Staff Biologist will perform weekly construction monitoring. The Service-approved Tejon Ranch Staff Biologist’s construction monitoring tasks will include reviewing and approving protective fencing, dust control measures, and erosion control devices before construction work begins; conducting a contractor education session at the preconstruction meeting; and reviewing the site weekly (minimum) during construction to ensure the fencing, dust control, and BMP measures are in place and functioning correctly and that work is not directly or indirectly impacting the plants. Monitoring reports will include remedial recommendations and issue resolution discussions when necessary.
	Commercial and Residential Development Activities (Long-term Operational)	Compliance with Other Covered Species Measures 10.
	Plan-Wide Activities (Other)	Compliance with Other Covered Species Measures 13, 15, 17, 18, and 19.

Species	Covered Activity	Other Covered Species Conservation Measure
		165. A grazing management plan for open space will be prepared that regulates livestock grazing and range management activities to continue to maintain existing modeled habitat for Tehachapi buckwheat while continuing to provide for commercial ranching and fire protection.
	Plan-Wide Activities (Construction)	Compliance with Other Covered Species Measures 4, 14, 15, 161, 162, 163, and 164.
Tejon poppy		Suitable Habitat and General Conservation Measures
	All	166. 12,533 acres (99 percent) of modeled habitat for Tejon poppy will be conserved within Established Open Space, TMV Planning Area Open Space, and Existing Conservation Easement Areas.
		Other Conservation Measures
	Commercial and Residential Development Activities (Construction)	Compliance with Other Covered Species Conservation Measures 4, 5, and 6.
		167. Surveys prior to grading will be conducted in suitable habitat within 150 feet of the project disturbance zone for presence/absence of Tejon poppy during the appropriate survey season and when the species is detectable.
		168. Tejon poppy locations will be marked with a protective barrier during construction activities occurring in proximity to known occurrences and, as deemed appropriate by Service-approved Tejon Ranch Staff Biologist, construction activities will be monitored to minimize the potential for disturbance.
	Commercial and Residential Development Activities (Long-term Operational)	Compliance with Other Covered Species Conservation Measures 10.
	Plan-Wide Activities (Other)	Compliance with Other Covered Species Measures 13, 15, 17, 18, and 19.
		169. A grazing management plan for open space will be prepared that regulates livestock grazing and range management activities to continue to maintain existing modeled habitat for Tejon poppy while continuing to provide for commercial ranching and fire protection.
	Plan-Wide Activities (Construction)	Compliance with Other Covered Species Conservation Measures 4, 14, 15, 167, and 168.

Species	Covered Activity	Other Covered Species Conservation Measure
All Covered Bird Species (breeding on Covered Lands)	Fuel Modification (Planwide and Commercial and Residential Development)	170. Prior to implementing any non-grazing fuel modification measures in the Covered Lands during the breeding season of covered bird species (typically March through August in the project region), the Applicant will conduct pre-activity surveys for nesting birds during the breeding season. Any active nests of covered bird species will be mapped. The fuel modification zones will be modified to create a 300-foot buffer around these nests (and a 500-foot buffer for raptors and tricolored blackbird colonies) and non-grazing fuel modification activities will not be conducted within these buffer areas while the nest is active.

Tejon Staff Biologist

In addition to (and in support of) the measures described above, the Applicant would provide a permanent staff member or contracted consultant to carry out duties including the condor-specific measures described below and in Section 4 of the TUMSHCP; the project-specific duties related to development, described as "project biologist duties" in Section 7 of the TUMSHCP; and the duties related to changed circumstances in Section 8 of the TUMSHCP. The Tejon Staff Biologist would be responsible for activities, including but not limited to maintaining and updating baseline data, mapping, implementing condor-specific measures, monitoring, coordinating education, and enforcing and preparing the annual report as discussed in Section 4.4.3.5 of the TUMSHCP. All Tejon Staff Biologist duties identified in the TUMSHCP would be carried out by either the Tejon Staff Biologist, or by a "qualified third party" until such time as the Tejon Staff Biologist is hired in accordance with the TUMSHCP. Both the Tejon Staff Biologist and the qualified third party would be subject to prior approval by the Service. The term "Tejon Staff Biologist" and "qualified third party" includes all additional "project biologists" assigned to carry out any of the duties assigned to the Tejon Staff Biologist under the TUMSHCP. All such additional project biologists would be under the direct control of the Tejon Staff Biologist or the "qualified third party" for purposes of implementing the TUMSHCP and ITP. All additional project biologists would be required to have experience in biology, botany, or a similar field; be familiar with the local vegetation communities; and have verifiable experience performing similar types of environmental monitoring and reporting. All duties performed by such personnel would be submitted to the Tejon Staff Biologist for inclusion in the annual report. The Applicant would be legally responsible for implementation of the TUMSHCP, including all activities assigned to the Tejon Staff Biologist under the TUMSHCP. Take authorization under the ITP would become effective upon the hiring of the Tejon Staff Biologist or qualified third party.

Changed Circumstances

The TUMSHCP includes measures to address Changed Circumstances as defined in 50 CFR 17.3, including drought, fire, and the listing of a new species or designation of critical habitat. Planned responses to drought and fire include revisions to management plans, such as grazing and integrated pest management plans, and adaptive management, which could include providing artificial water sources for covered species in the event of drought and monitoring of fire impacts and potential reseeding of burned areas in the event of short interval return fires (see Section 8 of the TUMSHCP). With regard to listing of new species or designation of critical habitat, the plan requires evaluation of the impacts of the Covered Activities on the species or critical habitat and modifications as necessary to avoid jeopardy to or take of a newly listed species or adverse modification of newly designated critical habitat.

GENERAL INFORMATION ON THE STATUS OF ALL COVERED SPECIES

The information on the status of the Covered Species is derived principally from the TUMSHCP and the EIS. The approach to prepare these accounts was a methodology implemented by TRC

and reviewed by the Service during development of the TUMSHCP and DEIS. In many cases, we do not have any additional information, but where more recent data are available, we have updated these accounts. The updated Status of the Species sections are found in the individual sections for each species that follow.

GENERAL INFORMATION ON THE ENVIRONMENTAL BASELINE FOR ALL COVERED SPECIES

Action Area

We define the action area here so that the concept is uniformly applied to all 25 species. The implementing regulations for section 7(a)(2) of the Act define the "action area" as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR 402.02). The action area also defines the area within which cumulative effects that are reasonably certain to occur are considered. The Federal action under review is an ESA Section 10(a)(1)(B) permit authorizing the incidental take of "Covered Species" resulting from implementation of identified "Covered Activities" on the "Covered Lands" as each of those terms is defined in the TUMSHCP. The external boundaries of the "Covered Lands" have been configured under the TUMSHCP to encompass the area where the Covered Activities will occur and where the direct and indirect effects of the Covered Activities that may result in take of the Covered Species will occur. Thus the Covered Lands are coextensive with "action area" and the terms are used interchangeably throughout this biological opinion.

The action area covers 141,886 acres in Kern County; part of the 270,365-acre Tejon Ranch. The Covered Lands are generally bounded to the north by the San Joaquin Valley floor, generally above 2,000 feet above mean sea level (amsl), and to the south by the Antelope Valley floor, where the elevation ranges from about 3,200 feet amsl to about 4,700 feet amsl, following the Los Angeles County line, with an average elevation of 4,100 feet amsl. From east to west, the proposed Covered Lands include the most mountainous portion of Tejon Ranch, stretching from I-5 at Lebec to Tejon Ranch's eastern boundary at White Oak Road. Additionally, a small portion of the area on the northern tip of Tejon Ranch, known as White Wolf (above 2,000 feet amsl), is included. This area includes montane areas of known historic and current importance to the California condor, as well as to several other Covered Species. The Covered Lands are depicted in Figure 1-2 of the TUMSHCP.

While the action area is coextensive with the Covered Lands for purposes of analyzing the direct, indirect, and cumulative effects of the TUMSHCP on the Covered Species, the "Status of the Species" section for each species, including "Threats," encompasses the ongoing effects of past and current activities outside of the Covered Lands, where such activities are relevant to our jeopardy evaluation of the effects of the proposed ITP on a Covered Species across its range, and, if critical habitat has been designated and will be affected, to our adverse modification evaluation of the effects of the proposed ITP on critical habitat. For the California condor, a species capable of traversing hundreds of miles within and beyond the Covered Lands in a single day, we specifically address existing activities and, to the extent they are known, anticipated

future activities that may affect the condor across its range in California under Threats in the Status of the Species section and in our Conclusion section for this species.

The definition of the action area has substantial importance for the analysis of the effects of the proposed action on the Covered Species, perhaps most significantly when considering the cumulative effects of the action and how they relate to whether the proposed action is likely to jeopardize the continued existence of the species or result in the destruction or adverse modification of critical habitat. Pursuant to the regulations that implement section 7(a)(2) of the Act (50 CFR 402), we note that the action area is defined to include only those areas that would be directly and indirectly affected by the Federal action (50 CFR 402.02), and that the same section of the regulations defines cumulative effects as "the effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur in the action area of the Federal action subject to consultation." These definitions were intended to avoid expansive analysis of the cumulative effects during formal consultation (Service 1986a), especially when compared to that undertaken under the National Environmental Policy Act, which defines cumulative effects as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions" (40 CFR 1508.7). Therefore, while the cumulative effects analysis for the EIS (Service 2012c) for the proposed project is expansive in scope, especially when analyzing the cumulative effects of the action (and the alternatives) on the California condor, the action area in this biological opinion is defined to comply with the ESA section 7 regulations at 50 CFR 402.

Climate Change

Our analyses under the ESA include consideration of ongoing and projected changes in climate. The terms "climate" and "climate change" are defined by the Intergovernmental Panel on Climate Change (IPCC). The term "climate" refers to the mean and variability of different types of weather conditions over time, with 30 years being a typical period for such measurements, although shorter or longer periods also may be used (IPCC 2007a). The term "climate change" thus refers to a change in the mean or variability of one or more measures of climate (e.g., temperature or precipitation) that persists for an extended period, typically decades or longer, whether the change is due to natural variability, human activity, or both (IPCC 2007a).

Scientific measurements spanning several decades demonstrate that changes in climate are occurring, and that the rate of change has been faster since the 1950s. Examples include warming of the global climate system, and substantial increases in precipitation in some regions of the world and decreases in other regions. (For these and other examples, see IPCC 2007a, and Solomon et al. 2007). Results of scientific analyses presented by the IPCC show that most of the observed increase in global average temperature since the mid-20th century cannot be explained by natural variability in climate, and is "very likely" (defined by the IPCC as 90 percent or higher probability) due to the observed increase in greenhouse gas (GHG) concentrations in the atmosphere as a result of human activities, particularly carbon dioxide emissions from use of fossil fuels (IPCC 2007a, Solomon et al. 2007). Further confirmation of the role of GHGs comes

from analyses by Huber and Knutti (2011), who concluded it is extremely likely that approximately 75 percent of global warming since 1950 has been caused by human activities.

Scientists use a variety of climate models, which include consideration of natural processes and variability, as well as various scenarios of potential levels and timing of GHG emissions, to evaluate the causes of changes already observed and to project future changes in temperature and other climate conditions (e.g., Meehl et al. 2007, Ganguly et al. 2009, Prinn et al. 2011). All combinations of models and emissions scenarios yield very similar projections of increases in the most common measure of climate change, average global surface temperature (commonly known as global warming), until about 2030. Although projections of the magnitude and rate of warming differ after about 2030, the overall trajectory of all the projections is one of increased global warming through the end of this century, even for the projections based on scenarios that assume that GHG emissions will stabilize or decline. Thus, there is strong scientific support for projections that warming will continue through the 21st century, and that the magnitude and rate of change will be influenced substantially by the extent of GHG emissions (IPCC 2007a, Meehl et al. 2007, Ganguly et al. 2009, Prinn et al. 2011). (See IPCC 2007b for a summary of other global projections of climate-related changes, such as frequency of heat waves and changes in precipitation. Also see IPCC 2011 for a summary of observations and projections of extreme climate events.)

Various changes in climate may have direct or indirect effects on species. These effects may be positive, neutral, or negative, and they may change over time, depending on the species and other relevant considerations, such as interactions of climate with other variables (e.g., habitat fragmentation) (IPCC 2007a). Identifying likely effects often involves aspects of climate change vulnerability analysis. Vulnerability refers to the degree to which a species (or system) is susceptible to, and unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the type, magnitude, and rate of climate change and variation to which a species is exposed, its sensitivity, and its adaptive capacity (IPCC 2007a; see also Glick et al. 2011). There is no single method for conducting such analyses that applies to all situations (Glick et al. 2011). We use our expert judgment and appropriate analytical approaches to weigh relevant information, including uncertainty, in our consideration of various aspects of climate change.

The contribution of the Covered Activities to future climate change generally, or specifically to future climate changes on Tejon Ranch, cannot be reasonably predicted. While the EIS generally discusses greenhouse gas emissions likely to result from the Covered Activities, we are unable to draw a causal link between those emissions and future climate change in general, or specifically, climate change on Tejon Ranch. The Service is not aware of any other available information regarding potential effects of greenhouse gas emissions resulting from the proposed action on Tejon Ranch, or more specifically, on the Covered Species within the action area. In the absence of this information, we are unable to draw a causal connection between greenhouse gas emissions from the proposed action and effects to the covered species, nor are there sufficient data to establish that such impacts are reasonably certain to occur.

The Service acknowledges that global climate change in general poses a potential threat to many species, including the Covered Species, and while future climate change effects on Tejon Ranch, and specifically the Covered Lands, cannot be predicted with any certainty, we generally expect that Tejon Ranch will experience warmer temperatures, altered precipitation, seasonal shifts, and lengthening of the growing season in the coming years. However, our current knowledge about likely future climate change impacts, particularly with regard to future conditions within the action area, is too speculative and uncertain to enable the Service to meaningfully analyze and predict its future effects on the Covered Species. Therefore, we do not further address potential future climate change effects on the covered species in this biological opinion.

Species Occurrence Data

Species occurrence data were reviewed and used to develop various sections of the TUMSHCP that require an understanding of the general distribution and relative abundance of species covered in the TUMSHCP. Two primary sources of data were used: (1) species occurrence data collected during various surveys in portions of the Covered Lands by TRC's biological consultants between 2007 and 2011; and (2) the California Natural Diversity Database (CNDDB) occurrence data generated from the CDFG data base between 2007 and 2011. Further information on these two data sets is provided in the TUMSHCP.

Two other resources related to species occurrences were also used to determine general distribution patterns, including geographic and elevation ranges, of the species covered in the Plan: (1) the California Native Plant Society's (CNPS) online inventory (CNPS 2007 and 2008) and (2) CDFG's *Life History Accounts and Range Maps - California Wildlife Habitat Relationships System*. Historical data on locations and movements of California condors in Southern California were obtained from Meretsky and Snyder (1992), and Snyder and Johnson (1985). The Service also provided GPS data from between 2002 and 2011 that tracked condor movements within Southern California. In addition, the results of a U.S. Geological Survey (USGS) analysis of individual California condor use patterns within six management units in Southern California from 2004 to 2009 was evaluated (Johnson et al. 2010).

Additional scientific literature and related information that were reviewed are provided in the Literature Cited section of this biological opinion. Additional occurrence data and range maps were reviewed for individual species and the citations are included in the species accounts in this section.

Habitat Suitability Analysis

The Applicant generated suitable habitat models for each of the covered species, in consultation with the Service. The Applicant consulted five data sources to inform the model: water features and drainages, a digital terrain model (Intermap Technologies 2005), soils data (USDA 1999), aerial imagery (AirPhotoUSA 2006), and USGS quadrangle maps, and published and unpublished literature. TRC used the data sources described above, as applicable, to develop data and input parameters used for each species' suitable habitat model. The parameters varied

depending on species-specific habitat requirements and the resolution of each dataset. More information on the five data sources, as well as a complete list of data and input parameters for each suitable habitat model, is provided in Appendix D of the TUMSHCP.

In combination with independent literature research the Service conducted in preparation and support of the analyses in this biological opinion, we also contracted with the USGS to conduct a study to identify probable use by California condors of six management units identified by the Condor Recovery Program. In addition, the Service performed a geographic information system (GIS)-based analysis of the extent and types of foraging habitat available on the Covered Lands for the California condor. These two studies are described in detail in the Environmental Baseline section of the California condor analysis below. In combination with these studies, the data sources, models, and habitat suitability analysis summarized in the previous paragraph are the best available information regarding covered species and habitat in the Covered Lands.

INDIVIDUAL SPECIES ANALYSES

The discussions of each of the 25 Covered Species follow. All of the Conclusions are made based upon the Analytical Framework for the Jeopardy and Adverse Modification Determinations presented earlier.

CALIFORNIA CONDOR

STATUS OF THE SPECIES AND ITS CRITICAL HABITAT

The California condor was federally listed as endangered on March 11, 1967 (Service 1967), and listed by the State of California as endangered on June 27, 1971. The California condor is also a fully protected species under California law (see California Fish and Game Code, Section 3511(b)(5)).

Critical habitat for the California condor was designated on September 24, 1976 (Service 1976), and consists of nine critical habitat units scattered throughout the species range in California totaling approximately 570,400 acres. A population of California condors, designated as experimental, “non-essential”, under section 10(j) of the Act was introduced in northern Arizona in 1996.

The California condor is a member of the family Cathartidae or New World vultures, a family of seven species, including the closely related Andean condor (*Vultur gryphus*) and the sympatric turkey vulture (*Cathartes aura*). Although the family has traditionally been placed in the Order Falconiformes, most contemporary taxonomists believe that New World vultures are more closely related to storks (Ligon 1967, Rea 1983, Sibley and Ahlquist 1990).

California condors are among the largest flying birds in the world. Adults weigh approximately 17 to 22 pounds and have a wing span up to 9.5 feet. Plumage is black, with prominent white under-wings and naked skin on the head and neck that ranges from gray to shades of yellow, red, and orange. Males and females cannot be distinguished by size or plumage.

During the Pleistocene Era (10,000 to 100,000 years ago) the California condor ranged from British Columbia, Canada, to Baja California, Mexico, and through the southwest to Florida and north to New York State (one record). With the extinction of the large Pleistocene Era mammals, condors declined in range and numbers. Another large decline in the population occurred when European settlers arrived on the West Coast, and accelerated during the gold rush of 1849 when condors were wantonly shot and poisoned, and eggs and adults were collected. By 1940, the condors’ range was reduced to a horseshoe-shaped area in southern California that generally included the coastal mountain ranges and foothills of Monterey, San Benito, San Luis Obispo, Santa Barbara, Ventura, and northern Los Angeles counties; a portion of the Transverse Range in Kern and Los Angeles Counties; and the southern Sierra Nevada Mountains in Tulare County. By the 1980s, the species’ range was generally restricted to the area from San Luis Obispo County south and east through the Tehachapi Mountains and north to Tulare County. In the 1980s, a captive breeding program was commenced, and by 1987 all condors were removed from the wild. Reintroduction efforts and current populations are described in the "Conservation Efforts" section of this biological opinion below.

Nesting

California condors nest in various types of rock formations including caves, crevices, overhung ledges, and potholes, and, more rarely, in cavities in giant sequoia trees (*Sequoiadendron giganteum giganteus*) (Snyder et al. 1986). Beginning in 2006, California condors were documented nesting in large coast redwoods (*Sequoia sempervirens*) with cavities or broken out tops (Ventana Wildlife Society 2011).

All but one of the nest sites used between 1979 to 1986 were in a narrow belt of chaparral and coniferous forested mountains from central Santa Barbara County across northern and central Ventura County to northwestern Los Angeles County. The nest sites were located within a total area spanning approximately 56 miles from west to east and about 15 miles from north to south. During this period, the only nest outside this area was located in a giant sequoia (*Sequoiadendron giganteum*) located in Tulare County in 1984. The only other known nest in a giant sequoia was found by Carl Koford in 1950 (Koford 1953).

The first nesting attempt in the wild by reintroduced California condors occurred in Southern California in 2001 in the southern Los Padres National Forest. Nesting now occurs in all wild California condor populations. As of November 2012, there are 126 wild-fledged condors in California.

Foraging

California condors are opportunistic scavengers, feeding only on the carcasses of dead animals. Typical foraging behavior includes long-distance reconnaissance flights, lengthy circling flights over a carcass, and occasionally hours of waiting at a roost or on the ground near a carcass. Seasonal foraging behavior shifts perhaps are the result of climatic cycles or due to changes in food availability. Condors maintain wide-ranging foraging patterns throughout the year, an important adaptation for a species that may be subjected to unpredictable food supplies (Meretsky and Snyder 1992).

Prior to the arrival of Europeans, California condor food items within interior California probably included mule deer (*Odocoileus hemionus*), tule elk (*Cervus elaphus nannoides*), pronghorn antelope (*Antilocapra americana*), and smaller mammals. Along the Pacific shore, the diet of the California condor has included whales, sea lions, and other marine species (Koford 1953, Emslie 1987, Service 1996a). Koford (1953) estimated that 95 percent of the California condor diet after the arrival of European settlers consisted of cattle, domestic sheep, ground squirrels (*Spermophilus beecheyi*), mule deer, and horses. More recently, as introduced wild pigs (*Sus scrofa*) have expanded their range in California, they have provided an additional food source for California condors.

Most California condor foraging occurs in open terrain of foothill grassland and oak savannah habitats that allow unrestricted access to food (Snyder and Snyder 2000, Service 1974, Service 1996a, Wilbur 1978, Koford 1953). While it has often been portrayed that California condors

need wide open spaces in which to feed, they have been observed feeding under the tree canopy, including canyon bottoms, where open areas for take-off and landing are accessible.

The principal foraging regions used by California condors from the late 1970s to 1987 were the foothills bordering the southern San Joaquin Valley and axillary valleys in San Luis Obispo, Santa Barbara, Kern, and Tulare Counties. After 1982, most observations of feeding by the small remaining wild population of California condors occurred in the Elkhorn Hills-Cuyama Valley-Carrizo Plain complex, and in the foothills of the southern San Joaquin Valley, extending north into Tulare County (Meretsky and Snyder 1992).

Foraging in southern California currently occurs in the vicinity of the Hopper Mountain and Bitter Creek National Wildlife Refuges, Los Padres National Forest, Tehachapi Mountains (including Tejon Ranch), and into the southern Sierra Nevada. In Central California, foraging occurs in the Coast Range and on beaches, where condors feed on marine mammal carcasses, and on forest and ranchland in the vicinity of Pinnacles National Park.

Movements

California condors are highly dependent on topography, which dictates prevailing wind patterns (Service 1996a). Their large body size and broad wings require California condors to soar rather than constantly flap their wings to cover long distances. Most flights by California condors follow mountains and foothills where they use topography and associated thermal updrafts to generate lift. The recent historical range of the species was restricted to a horseshoe-shaped portion of the Coast Range, Tehachapi and southern Sierra Nevada mountains surrounding the San Joaquin Valley. Only one California condor has been documented crossing over the San Joaquin Valley from the Coast Range to the southern Sierra Nevada (Snyder and Snyder 2000). California condors are able to freely cross flat agricultural regions that are much less extensive, such as the Cuyama and Salinas Valleys in California.

Roosting

California condors often use traditional (repeatedly used) roosting sites near important foraging grounds (Service 1996a). Although California condors usually remain at roosts until mid-morning, and generally return in mid- to late afternoon, it is not unusual for a bird to stay perched throughout the day, particularly if it has fed recently. While at a roost, California condors devote considerable time to preening and other maintenance activities. Roosting sites and nesting sites are susceptible to similar disturbance threats, and their preservation requires isolation from human intrusion. Cliffs and tall conifers, including snags, are generally utilized as roost sites in nesting areas. Although most roost sites are near nesting or foraging areas, scattered roost sites are located throughout the species' range.

Reasons for Decline

Causes of the decline in the California condor population have probably been numerous and variable through time. Condors were wantonly shot and poisoned, and eggs and adults were collected, through the early to middle 1900s. As an early conservation measure, the locations of condor nest sites were sometimes inaccurately recorded to discourage collection (Koford 1953). Shooting and lead poisoning may have contributed disproportionately to the decline of the species in recent years. Lead poisoning in California condors was first documented in the 1980s. Current information regarding the association of lead poisoning in condors with spent lead ammunition (Finkelstein et al. 2012, Cade 2007) indicates that widespread exposure to lead from ammunition across all wild condor populations is inhibiting the species recovery. It is likely that many historical condor mortalities were probably also caused by lead, as well as other types of poisoning. It is widely known that California condors fed on hunter-killed carcasses and gut piles, prior to the removal of the species from the wild, and following its reintroduction. Condors were known to congregate in the Tehachapi Mountains during the fall deer hunting season and were known to feed on the remains of deer carcasses (Wilbur 1978, Snyder and Snyder 2000).

Conservation Efforts

The California condor population declined over the past century such that only 22 individuals existed in 1982. This same year a wild condor chick was captured and brought into captivity. Double-clutching in California condors was conclusively documented in 1982, leading to permits to collect the first-laid eggs of wild breeding condors for use in a captive breeding program. Between 1983 and 1984 three more chicks were brought into captivity, and 10 eggs that had been collected from the wild hatched successfully in captivity. The wild population continued to decline and by the fall of 1984 the wild population consisted of 15 individuals, including a total of five breeding pairs. At this point it was still thought that the growing captive population could produce releasable offspring in a sufficient length of time to forestall the extirpation of the wild population. However, during the winter of 1984-85 six more birds were lost from the wild population. The remaining nine wild condors included only one breeding pair. In early 1986, another wild condor died and lead poisoning was determined to be the cause. The contentious decision to remove the remaining condors from the wild was finally made in 1986. The last free-flying California condor was removed from the wild in 1987 and brought into the captive breeding program.

Following several years of increasingly successful captive breeding, captive-bred California condors were first released back to the wild in southern California in early 1992. The Service established an experimental, non-essential population of California condors in northern Arizona and began releases of condors into that area in 1996. This population has since expanded its range into Utah. Additional releases have been made in the Ventana Wilderness of the Los Padres National Forest along California's central coast, Pinnacles National Park in central California, and in the Sierra San Pedro de Martir in Baja California, Mexico.

As of November 30, 2012, the total world population of free flying California condors was 407 (including California, Baja California, and Arizona/Utah). The Arizona/Utah population is listed as experimental, non-essential under section 10(j) of the Act. In California, as of November 30, 2012, there were 126 condors in the wild population.

Threats

Lead Poisoning

Currently the most serious source of human-related condor mortality is lead poisoning (Finkelstein et al. 2012). Post-mortem examinations performed on four wild dead California condors found between 1983 and 1986 indicated that three of the birds died from the effects of lead poisoning (Janssen et al. 1986, Wiemeyer et al. 1988) and one died of cyanide poisoning when a California condor triggered an M-44 cyanide gun set out for coyotes (Wiemeyer et al. 1988). Elevated lead levels in the blood, resulting from the ingestion of fragments of lead bullets in shot mammal carcasses, is a pervasive problem throughout the historical foraging range of the California condor. Wiemeyer et al. (1988) concluded that lead exposure was the major factor having an adverse impact on the wild California condor population from 1982 to 1986.

Blood lead levels have been monitored in California condors since the start of the reintroduction program in 1992. Throughout the reintroduction program, condors have suffered from lead poisoning. Many individuals have died as a result of lead poisoning and more would likely have died without treatment. The most important mortality factor for the combined free-ranging populations from 1992-2009 was lead toxicosis (Rideout et al. 2012).

Recent peer-reviewed research findings have confirmed the severity of threat that lead poisoning poses to the recovery of the California condor. Finkelstein et al. (2012) and Church et al. (2006) documented elevated blood lead levels, with lead isotope ratios matching those found in lead ammunition, in the tissues of free-flying California condors, while blood lead levels in pre-release juvenile California condors was low and isotopically similar to background environmental lead in California. Additionally, Finkelstein et al. (2012) found that lead isotopes matching lead paint from an inactive fire lookout tower with deteriorating lead-based paint, were documented in the blood of several condors observed perched on the same fire lookout, and that the lead isotope ratio from this lead paint was clearly distinct from that of lead ammunition and the lead istotope ratio of pre-release condors. This incident confirms the use of stable lead isotope tracer methods to assess lead poisoning sources in California condors and clarifies that lead ammunition is the primary source.

Cade (2007) presents a clear summary of the role that lead exposure has played in the mortality and morbidity of condors based on the experiences of the four reintroduction programs: two in southern and central California, one in Arizona/ Utah, and one in Baja California, Mexico. Condors in all of the release programs continue to suffer from lead poisoning, and without direct intervention and treatment many more condors would likely have died from lead poisoning.

Finkelstein et al. (2012) found that condors in California remain chronically exposed to harmful levels of lead that cause significant subclinical health effects, each year approximately 20 percent of free-flying condors have high enough blood lead levels (at least 450 ng/mL) that clinical intervention to avert morbidity and mortality is necessary. Although California condors have begun to reproduce in the wild naturally, mortality rates of condors in the wild continue to exceed natural reproduction in the wild. Population models based on condor demographic data show that the condor's apparent recovery is solely because of intensive ongoing management, with the only hope of achieving true recovery dependent on the elimination or substantial reduction of lead poisoning rates (Finkelstein et al. 2012).

In spring 2007, TRC announced a total ban on the use of lead shot and bullets for hunting purposes on Tejon Ranch that took effect on January 1, 2008. In cooperation with the Service, TRC also voluntarily implemented a 30-day ban on all hunting on the ranch from June 9, 2008, to July 9, 2008, as a result of reported elevated lead levels discovered by the Service in condors in Southern California.

With the passage of AB 821, the Ridley-Tree Condor Preservation Act, effective January 1, 2008, lead ammunition is currently regulated within the present and recent historical range of the condor in California. While this law restricts the use of lead ammunition in hunting, it does not restrict its use for other purposes (e.g., for depredation of nuisance animals). Comparisons of California condor blood lead levels prior to, and following the passage of the 2007 lead ban in California, suggest that so far, these regulations have not been effective in reducing lead exposure in condors (Finkelstein et al. 2012). In the Arizona/Utah experimental population, lead poisoning is the principal cause of condor mortality in the wild (Cade 2007). There is currently no legislation restricting the use of lead ammunition within the range of this population.

The California condor recovery plan (Service 1996a) advocates a supplemental feeding program as an integral component of the condor release program to reduce exposure to lead and other poisoning from contaminated carcasses. However, as California condor populations have matured, and older, more experienced birds are foraging across larger portions of their range, and despite the ongoing presence of supplemental food, condors continue to find their own sources of carrion, including carcasses that contain lead ammunition fragments. Consequently, supplemental feeding has not proven to be an effective management tool to eliminate exposure to lead in California condors. The California condor recovery field programs continue to use supplemental food as a management tool, but it is generally no longer the primary food source for free-flying condors as it was earlier in the reintroduction program. Instead, supplemental food is used to assist in trapping condors for routine health checkups, including blood tests for lead and inoculations for West Nile Virus, as well as to replace global positioning system (GPS) and radio transmitters. Supplemental feeding is also used as a food source for recently released juvenile, captive-bred condors that would naturally be fed by their parents prior to learning how to find food. However, supplemental food continues to provide lead-free feeding opportunities for condors and until lead poisoning is no longer a threat, every supplemental feeding event is one less opportunity for condors to be exposed to lead.

In summary, the California condor recovery program has been successful in saving the species from extinction through intensive management efforts. The captive breeding program has been successful in producing captive-bred California condors for release into the wild. Released California condors have begun reproducing in the wild. However, mortality rates currently exceed the rate of natural reproduction in the wild, requiring the continued release of captive-bred condors into the wild to maintain positive growth. Lead toxicosis, resulting from spent lead ammunition, is the primary cause of mortality in wild California condors (Finkelstein et al. 2012).

Collisions

Condors have not evolved to look directly ahead while flying, making them susceptible to collisions. The visual fields of *Gyps* vultures contain a small binocular region and large blind areas above, below and behind the head, and the head positions typically adopted by foraging vultures suggest that these visual fields provide comprehensive visual coverage of the ground below. However, vultures will often be blind in the direction of travel (Martin et al. 2012). At least two deaths from collisions with manmade objects, including power lines, were known historically for condors (Koford 1953). Eleven of the California condors released since 1992 have been killed in collisions with or, electrocution from, power lines (Rideout et al. 2012). Several condors that collided with power lines in Big Sur, California, were documented to have died from electrocution following mid-air collisions (Rideout et al. 2012). Since their reintroduction into the wild, California condor populations have been affected by collisions with power lines and high-voltage transmission lines (Meretsky et al. 2000, Grantham 2007a, Mee and Snyder 2007). At least seven individuals were killed by collisions with lines between 1988 and 1999 (Meretsky et al. 2000), and such collisions remain a threat to released condors (Snyder and Snyder 2000, 2005; Snyder 2007). Condors are given power pole aversion training prior to release, which may deter birds from sitting on power poles where they are also at risk of electrocution.

The Tehachapi Renewable Transmission Project (TRTP) involves the installation by Southern California Edison (SCE) of 173-mile transmission line, a new substation, expansion of existing substations, and access roads from San Bernardino County to Kern County, California. This project requires a special use permit from the Angeles National Forest, so the U.S. Forest Service (USFS) was the lead for NEPA and consultations under section 7 of the Act, with the Service. In a July 31, 2010, biological opinion issued by the Carlsbad Fish and Wildlife Office (Service 2010a), we concurred with the U.S. Forest Service's determination that the TRTP project was "not likely to adversely affect" California condors. This project is currently under construction.

Collisions with wind turbines are a potential threat as condors move into areas where there is increasing wind energy development. The Service has established a Wind Energy Working Group, a recovery team appointed by the Services' Regional Director under section 4(f)(2) of the Act, which includes representation from State and Federal agencies, non-governmental organizations, and the wind industry, to assess potential minimization and avoidance strategies for addressing this issue. In addition, Memoranda of Understanding (MOUs) between the

Department of Interior and the State of California were signed in 2009 and 2012, confirming the joint commitment of the Department of Interior and the State to cooperate on renewable energy work. As a result, the Service, Bureau of Land Management (BLM), California Department of Fish and Wildlife (CDFW, formerly California Department of Fish and Game (CDFG)), and the California Energy Commission closely collaborate as the Renewable Energy Action Team (REAT) to address issues related to renewable energy, including the effects of wind turbines on condors.

A number of proposed wind energy projects overlap with or are in close proximity to the occupied and historical range of the California condor, including but not limited to, the Tehachapi Mountains, the Sierra Nevada mountain range, and the Salinas River Valley. Wind energy facilities pose a lethal threat to condors from collisions with wind turbine blades. This threat is magnified by the fact that the rotating turbines create a continuous potential for fatality events during standard facility operations. The Service anticipates that if a single condor should enter the risk zone (rotor swept area) within a wind energy facility, wind currents would continue to promote similar movements by other individuals during the life of the project, resulting in ongoing fatality events. Furthermore, because of their communal feeding strategy, a single feeding event within a wind energy facility could result in the death of many individual condors.

To date, there have been no documented condor collisions with wind turbines. However, several California condors have been documented flying over and near areas where wind energy facilities have been proposed, are operating, or are under construction (Service in litt 2009a.). In addition, there are records of condors being on the ground within or near proposed wind turbine project sites. It is anticipated that as condors continue to reoccupy their known prior range, and wind energy facilities encroach on the currently occupied range, an increasing number of condors could be exposed to the turbine strike hazard. The relative fatality risk to condors from any wind energy facility will be dependent on siting and specific avoidance measures proposed to prevent mortality.

The EIS (Service 2012a, b) broadly considered the effects of 15 reasonably foreseeable wind projects in the Tehachapi Wind Resource Area of Kern County, California. It also considered additional wind projects east of this area, but within the range of the condor. Several of these projects have been approved by the county and, because additional lands within this area are zoned for wind energy development, it is likely that future wind projects will be proposed and approved in the Tehachapi Wind Resource Area during the TUMSHCP permit term. Some of these projects, and/or their associated transmission facilities, are proposed on or cross land managed by the BLM; others are located on private land. Currently, the Service is working closely with the REAT agencies and wind companies to identify measures to avoid take of condors in the form of collisions with turbines, and minimize the effects to condor habitat. Any wind energy project that may adversely affect condors and has Federal agency involvement (i.e., a Federal nexus), will be required to undergo consultation pursuant to Section 7 of the Act. Any wind energy project without a Federal nexus that is likely to result in take of a condor is required to obtain a Section 10(a)(1)(B) ITP under the Act. To date, the Service has not completed any section 7 consultations on wind energy projects that authorize take of condors, or issued any

section 10(a)(1)(B) permits permitting take of condors for wind energy projects. In either instance, the Service must determine that the proposed project, including any incidental take, is not likely to jeopardize the continued existence of the condor. In the absence of a completed consultation or a section 10(a)(1)(B) permit, any take of condors is prohibited pursuant to section 9 of the Act. Any future biological opinions issued by the Service with regard to wind and other energy development projects, including proposed transmission lines and facilities, will take into account the effects of other projects affecting condors, including any incidental take of condors previously authorized by the Service under Section 7 or Section 10(a)(1)(B) of the Act.

Habituation

The Service has defined habituation in California condors as the point at which condors that are attracted to human activity and/or structures no longer respond effectively to hazing (i.e., Service-approved methods for deterring such behavior, including but not limited to yelling, hand clapping, use of leashed dogs, and automated water sprinklers) and must be removed from the wild to avoid physical injury or death to the habituated condor or, potentially, other nearby condors likely to mimic the habituated behavior. Capture and removal of a habituated condor would be a recovery action under our section 10(a)(1)(A)permit.

Even without the risk of subsequent physical injury or death discussed below, the habituation of condors to human presence itself injures condors because it significantly disrupts essential behavioral patterns of individual birds, impairing their ability to survive in the wild. For instance, a habituated bird may seek out and become dependent on humans for proffered food rather than forage in the wild for carrion. The ability to successfully forage is an essential feeding behavior of condors that is necessary for the survival of a condor in the wild.

In many cases, human structures are inherently hazardous to condors, which can become entangled or entrapped on or in structures, or ingest poisonous household or industrial items associated with human structures, leading to injury or death. An example of the hazards of human structures occurred in 2010 when a wild-fledged condor in southern California became entangled in a line attached to a communication tower. This resulted in an injury so severe that the wing needed to be amputated and the condor euthanized. In another case, a condor approached a structure and became oiled after finding a bucket filled with motor oil. Fortunately, this bird was able to be trapped and the oil was cleaned from its head, feet, and feathers. Habituation interferes with feeding and other essential behaviors and compels capture of the bird for its own safety and the safety of other condors.

The threat of habituation was addressed in a biological opinion to the Army Corps of Engineers addressing their issuance of Clean Water Act permit for the Newhall Ranch Development Project. This project includes the construction of residential and commercial development, public facilities, and preservation of open space in an approximately 13,651-acre area in Los Angeles and Ventura counties, California. About 5,722 of those 13,651 acres would be preserved under permanent conservation easements as suitable condor foraging habitat. The Service determined that the project may result in the habituation of one condor during the Corps'

25-year permit period, and that the project is not likely to jeopardize the species. The approval of this project by the California Department of Fish and Wildlife is currently in litigation in State court (Center for Biological Diversity et al. v. California Dept. of Fish and Game et al, BS131347 (Sup.Ct. Los Angeles Cty.)). No lawsuit was filed challenging the biological opinion.

Another project that may result in the habituation of condors is the Oil and Gas Lease Expansion Project on the Los Padres National Forest in Santa Barbara, Ventura, and Los Angeles Counties, California. The U.S. Forest Service has delineated specific high oil and gas potential areas within the Los Padres National Forest that would be subject to oil and gas exploration, development, and production on the forest. Surface disturbance will be limited to 4,277 acres on forest lands, of which 135 acres were deemed suitable habitat for condors. The Service completed a biological opinion on this project on September 7, 2011. This opinion addressed the effects of geophysical exploration and oilfield development activities to nesting, roosting, perching, and/or foraging habitat; project-related noise; general human activity, which could discourage condor use of habitat that may otherwise be suitable for nesting, perching, roosting, or foraging; the potential for collisions with exposed power lines; and exposure to microtrash or habituation to human activity necessitating removal from the wild. As currently proposed, the project will not result in surface disturbance to California condor critical habitat. The U.S. Forest Service has reinitiated formal consultation with the Service, so a new biological opinion will be issued.

The Centennial and Grapevine development projects are two projects that could be proposed on Tejon Ranch under the RWA (TRC et al. 2008). The Centennial project is the subject of a pending local development application for commercial and residential development on approximately 12,000 acres on the southeast side of Tejon Ranch, in the Antelope Valley. The Grapevine project site, a portion of which could be in California condor critical habitat, could, under the RWA, potentially result in 15,700 acres of commercial and residential development on the north side of Tejon Ranch, in the San Joaquin Valley. No development application has been filed for a Grapevine project. Suitable foraging habitat for the California condor occurs on both project sites. Because no applications or consultations are underway for either project, we have not formally analyzed impacts to condors or critical habitat that may result from either project. In our future review of either project, we will take into account the effects of these and other projects that may result in habituation of condors, including any incidental take of condors previously authorized by the Service under Section 7 or Section 10(a)(1)(B) of the Act.

Microtrash

Breeding condors sometimes ingest small foreign man-made materials (microtrash) and feed these items to their nestling (Grantham 2007a, Mee et al. 2007b, Rideout et al. 2012). Trash items have included nuts, bolts, washers, copper wire, plastic, bottle caps, glass, and spent ammunition cartridges (Mee et al. 2007a, Walters et al. 2008). While nestlings are able to tolerate these items in small amounts, large quantities can result in digestive tract impaction, evisceration, internal lesions, and death (Grantham 2007a, Snyder 2007, and Rideout et al. 2012).

Mee et al. (2007b) compared the number and mass of foreign trash items collected from historical nests to those from nests of reintroduced condors and found that trash was significantly more prevalent and numerous in the latter. The occurrence of trash items also tends to be more common in the California population, with the most impacted nests in the southern California region. There have been two documented deaths in Arizona caused by the ingestion of trash items. In these cases, adult condors ingested coins, which led to zinc toxicosis (Rideout et al. 2012).

Microtrash ingestion has predominantly impacted nestlings in California, where it is the leading cause of death in nestlings (Table 3) and has been the major cause of nest failure in the breeding population (Mee et al. 2007a, Rideout et al. 2012). Trash ingestion appears to be common and problematic in some populations of Old and New World vulture species other than condors (Mundy et al. 1992, Snyder and Snyder 2000, Mee et al. 2007b, Grantham 2007a) and in a variety of other avian species (e.g., albatross, gulls). The reason that California condors ingest trash items is unknown; however, Snyder and Snyder (2000) suggested trash ingestion might be related to the misdirected search for calcium and food sources needed for egg-laying and chick growth and development, as documented in other vultures. Other researchers have proposed that trash ingestion may fill a need for roughage that aids in digestion (gastroliths). Overall, the presence of trash is a reflection of increased human use and impact within the condor range, particularly in southern California (Mee et al. 2007b).

The threat of microtrash ingestion is currently being reduced and the impacts of microtrash ingestion are currently being minimized through two methods. The first, known as nest guarding, involves periodically climbing into each active nest, cleaning the nest floor of any microtrash, and assessing the nestling for consumption-related distress, including stunted growth. Cleaning trash from nests has been effective in preventing impactions from forming. Chicks that are found to have impactions despite the nest cleaning can be treated by temporarily removing them from the nest to surgically remove the impaction. Nestlings can be absent from the nest for 24 hours and successfully returned. While the nestling is absent, a human presence is maintained to keep the parent from accessing the nest until the chick can be returned. Though not always successful, temporary evacuations have been successful on three occasions; they are rarely required (Service 2012d).

The second method for reducing microtrash is by identifying and cleaning up the locations where microtrash is collected by the parent birds. Many of the actively breeding condors have been fitted with GPS transmitters that broadcast hourly locations and speed during daylight hours. It is possible to identify potential sources of trash by investigating the locations where parent birds spend time on the ground. Microtrash sites tend to be roadside pullouts or overlooks where people discard bottles or other refuse that eventually breaks into coin-sized pieces, which are then ingested by condor parents and transported to the nest. There is anecdotal evidence that cleanups have reduced the amount of trash collected by pairs with a propensity to use a particular site for collecting microtrash (Service 2012d). In order to minimize the impact of microtrash on condors, field managers have made it a common practice to litter bait stations with bone chips.

Breeding condors have been observed collecting these chips, and biologists have regularly found bone in condor nests while cleaning microtrash from nests. One theory on why condors collect microtrash is they could be mistaking microtrash for small pieces of bone or other sources of calcium to provide their chicks.

West Nile Virus

West Nile Virus has caused deaths in both captive and wild California condor populations (Rideout et al. 2012). Two types of vaccines have been used since the threat was identified. The first was developed by the Centers for Disease Control and prevention (CDC) specifically for condors (Chang et al. 2007). This vaccine is no longer being produced and the recovery program has switched to RECOMBITEK® Equine West Nile Virus Vaccine. To ensure efficacy, an annual booster is required. To date, all captive and free-flying condors are vaccinated for West Nile Virus and provided with a booster annually. The efficacy of the vaccine is thought to be high, which is demonstrated by the low rate of infection in the population. There has been one death of a vaccinated free-flying bird; another appeared to be infected but recovered from the disease. Condor chicks are also susceptible to West Nile Virus infection. While they are believed to be protected by maternal immunity, one wild chick died of West Nile Virus prior to being vaccinated. As a result, any chick that is handled in the nest prior to fledging is vaccinated. Chicks that are not handled are vaccinated the first time they are trapped.

Shooting

Illegal shooting of condors remains a potentially significant threat to free-flying birds. Since the reintroduction, there have been two condor deaths attributed to shooting in California (Rideout et al. 2012). Nonlethal shooting of condors has also been documented in California. An adult female condor (#155) required capture and permanent detention after being shot. Additionally, two other birds radiographed during treatment for elevated lead levels were found to have shotgun pellets embedded in the soft wing tissue and other areas of the body, and one condor was shot and killed with an arrow (Service 2012d).

Organochlorines

DDT (1,1,1-trichloro-2,2-bis(p-chloro-phenyl)ethane) an organochlorine pesticide, is thought to have contributed to the species' decline in the 1950s and 1960s (Kiff et al. 1979). Other evaluations have found little or no correlation between eggshell thinning and the decline of the condor (Snyder and Meretsky 2003). Recent low productivity of the central California part of the California population has once again raised concern about DDT exposure in central California. In 2006, the first condor nest in Monterey County was documented after nearly 100 years. The nest was located in the remote coastal mountains in the cavity of a coast redwood tree near Big Sur, California. This nesting attempt failed and eggshell fragments collected were confirmed to be from a thin-shelled California condor egg.

Condors, whose range includes the central California coastline, are known to regularly feed on marine carrion, the largest portion of which has been California sea lions (Sorenson et al. 2007). Despite DDT having been banned in 1970s, it continues to persist in California sea lions along the coast of California at very high levels (LeBoeuf et al. 2002, Debier et al. 2005, Ylitalo et al. 2005). When considering the marine component of their diet, condors nesting in central California are susceptible to organochlorine exposure, DDT being of most concern. Burnett et al. (2013 *in press*) investigated the plausibility of eggshell thinning induced by DDE (1,1-dichloro-2,2-bis(p-chlorophenyl)etylene) a breakdown metabolite of DDT, in the Big Sur California condors and found a correlation between eggshell thinning and weight loss rates, an absence of the outer crystalline layer, which is characteristic of DDE contamination, and a significantly different eggshell thickness in condor eggs between southern California birds (which generally do not feed on marine mammals) and central California birds.

Similarly, eggshell thinning and reproductive failures due to the consumption of organochlorine-contaminated marine animals has been observed in reintroduced bald eagles on Santa Catalina Island, California (Garcelon et al. 1989). Studies in the 1970s showed that condors are vulnerable to eggshell thinning as a result of DDT exposure. Kiff et al. (1979) documented significant thinning and other structural changes in California condor eggshells, verified the presence of DDE in thin eggs, and concluded that "DDT syndrome" has contributed to lowered nesting success.

Habitat Loss

The threat of habitat loss is a concern for condors into the future, particularly if adequate amounts of historical foraging habitat are not conserved for condors through continued grazing and hunting, and conservation of suitable condor foraging habitat does not keep pace with development across the species' range. Habitat used historically by condors for foraging has been lost by development in Los Angeles and Ventura Counties over the years. However, there remain substantial areas of condor foraging habitat in protected open space to support the expanding California population of condors, including areas in close proximity to the Covered Lands. To the north and east of Tejon Ranch, in the Sierra Nevada and associated foothills, there are large areas of public land (mostly BLM and U.S. Forest Service lands (e.g., Sequoia National Forest)). To the west of I-5 and south of State Route 138 (SR 138), there are private and public open space lands, including the Wind Wolves Preserve, Los Padres National Forest, and Angeles National Forest. Ongoing management of these lands for wildlife and grazing benefits condors. The Wind Wolves Preserve, which lies to the west of Tejon Ranch, includes over 95,000 acres of condor foraging and roosting habitat that is expected to continue to provide conservation value to the species, in addition to foraging habitat found on Tejon Ranch. We have no evidence to suggest that habitat loss is currently preventing or limiting the condor's expansion into its historical range in California. However, if in the future important historical foraging grounds that are not conserved for condors are converted to land uses that do not provide a food source for the species, and if conservation of suitable condor foraging habitat does not keep pace with development across the species range, habitat loss may become an active threat.

The proposed Panoche Valley Solar Farm project is located on a 4,885-acre site in eastern San Benito County, California. The Applicant (PV2 Energy) has applied for a Clean Water Act permit from the U.S. Army Corps of Engineers (Corps) to fill jurisdictional waters to construct three road crossings. The Corps issued a Notice of Intent to prepare a Draft EIS for the project on July 19, 2012. Currently, we have not analyzed impacts to condors that may result from this project, but we note there is suitable foraging habitat for the California condor in the project area. The project will tie into two existing Pacific Gas & Electric transmission lines. Effects to listed species, including the condor, will be addressed in section 7 consultation with the Corps on their proposed permit issuance.

Summary

In summary, the captive breeding program has effectively prevented the extinction of the California condor. Reintroductions into the wild have created two wild free flying populations; one in California and one in Arizona/Utah, as contemplated in the recovery plan (Service 1996a). Condors released in the 1990s are breeding successfully in the wild. California condors are continuing to expand their use of the species historical range each year. In the California population, condors have most recently started to increase their use of historical areas of the southern Sierra Nevada, where additional nesting and foraging habitat exists. Despite past habitat loss, at present, there is no evidence that the expanding population of free-flying condors lacks sufficient foraging habitat or food, particularly in the vicinity of the Covered Lands. Condors are currently finding their own sources of food and are foraging across large areas of their historical range. However, the wild condor populations are not self-sustaining because the mortality rate of condors in the wild continues to be greater than the natural population growth rate based on natural recruitment from wild-fledged chicks. The primary cause of mortality affecting the recovery of the California condor is lead poisoning (Finkelstein et al. 2012). Other threats also still exist for condors including microtrash, habituation, habitat loss, other contaminants, West Nile Virus, and shooting. However, until the threat of lead poisoning is eliminated or at least significantly reduced, continued release of captive-bred condors into the wild is likely to be necessary to supplement the wild population and the recovery goals identified in the recovery plan will likely not be achieved.

Critical Habitat for the California Condor

Critical habitat for the California condor consists of nine critical habitat areas[6] in San Luis Obispo, Santa Barbara, Ventura, Kern and Tulare Counties, California, totaling approximately 570,400 acres. Distinct critical habitat units were designated to support nesting, foraging/feeding, and roosting.

The Sespe-Piru, Matilija, Sisquoc-San Rafael, and Hi Mountain-Beartrap critical habitat units are considered critical for nesting and related year-long activity. The Mount Pinos and Blue Ridge

[6] The final critical habitat rule uses the term “area” instead of the more commonly used term “unit” to refer to each of the nine areas identified as condor critical habitat. The terms have the same meaning and we use them interchangeably in this document.

Condor Areas are considered critical for roosting. The Tejon Ranch, Kern County Rangelands, and Tulare County Rangelands Areas are considered critical for feeding and related activities (Service 1976). The Sespe-Piru, Matilija, and Sisquoc-San Rafael and Hi-Mountain-Beartrap nesting Areas are located on Federal lands within the Los Padres National Forest and are protected from development and include the Sespe Condor Sanctuary, which is closed to public access. These critical habitat units are generally in the same condition as when they were designated in 1976, notwithstanding natural environmental changes that have occurred since then. To our knowledge, no major land use changes have occurred on the Los Padres National Forest that has adversely affected these critical habitat units. California condors are currently nesting within the Sespe-Piru critical habitat unit. Reintroduced condors have not begun to nest in the Matilija, Sisquoc-San Rafael, or Hi-Mountain critical habitat units, but we anticipate condors will nest in these units in the future.

The Mount Pinos critical habitat unit provides essential roosting habitat for condors and is located in the Los Padres National Forest and protected from development. Large historical roost trees are present within this critical habitat unit and condors continue to use this unit for roosting. The Blue Ridge critical habitat unit is located within the Blue Ridge National Wildlife Refuge, provides roosting habitat for condors, and is protected from development. Large roost trees and rock outcrops in this area provide roosting habitat used historically by California condors. Limited use of this area by released condors has occurred. The Blue Ridge critical habitat unit also contains several large radio communication towers. These towers represent a potential threat to condors if they are used as perching or roosting habitat and condors become entangled or otherwise injured, or if condors collide with them. For example, as noted previously, one condor was recently injured after becoming entangled in loose strapping (i.e., climbing webbing) on a large communication tower and was subsequently euthanized due to the severity of its injuries. This communication tower had not been well maintained and as a result posed a risk to condors.

The Tejon Ranch critical habitat unit is located on private land used primarily for ranching, and was designated as critical habitat because of its importance as a foraging area for condors. This unit provides foraging opportunities in the form of carcasses associated with grazing, hunting, and other wildlife mortality. Ongoing ranching and hunting, particularly post-lead ban, have maintained the functionality of the Tejon Ranch critical habitat unit as an important foraging area for condors. The Tejon Ranch critical habitat unit is discussed in more detail in the California condor Environmental Baseline section of this biological opinion. The Kern County Rangelands and Tulare County Rangelands critical habitat units are also located on private lands and were also designated primarily as important foraging areas for condors. These two critical habitat units are located in the foothill grazing lands of the southern Sierra Nevada, are relatively undeveloped, and also provide foraging opportunities for the California condor as a result of mortality associated with grazing (dead livestock), hunting, and other wildlife mortality. Condors have recently been flying into the southern Sierra Nevada and have flown over these foraging areas.

Recovery Plan for the California Condor

The primary objective of the California condor recovery plan (Service 1996a) is the reclassification of the condor from endangered to threatened status. The recovery plan states that reclassification to threatened status may be considered when, at a minimum, there are at least two non-captive populations of condors that do not require maintenance in addition to one captive population. All three populations: (1) must each number at least 150 individuals; (2) must each contain at least 15 breeding pairs; and (3) be reproductively self-sustaining and have a positive rate of population growth. In addition, the non-captive populations (4) must be spatially disjunct and non-interacting, and (5) must contain individuals descended from each of the 14 founders.

The recovery plan describes a strategy for reclassification, which includes the following actions: (1) establish a captive breeding program to preserve the gene pool; (2) reintroduce California condors to the wild; (3) minimize mortality factors in the natural environment; (4) maintain habitat for condor recovery; and (5) implement condor information and education programs. All of these actions continue to be necessary to facilitate recovery. A successful captive breeding program has been established and is effective in producing juvenile condors for release. However, because the condor populations are currently not self-sustaining, captive breeding and the release of captive-reared birds into the wild remains a necessity. The need to continue to minimize mortality factors also remains essential as the species continues to suffer from lead poisoning, and there is an increased threat of collision in the form of new commercial wind energy facilities within the species historical range. The need to maintain habitat for condor recovery also remains important as increasing numbers of free-flying birds continue to re-occupy more of the species' historical range. Additionally, the need to implement condor information and education programs, particularly related to the threat of lead poisoning, continues to be necessary because mortalities from lead poisoning continue to occur.

ENVIRONMENTAL BASELINE

The Covered Lands are used by California condors for foraging, roosting, and as an important link to the portions of the condor's historical range in the southern Sierra Nevada and Coast Range. No condors are known to have attempted to nest in the action area, either before their removal from the wild or since their release back into the wild. Traditional condor roost sites occur in the action area in the Winters Ridge area. This is a communal roost site that has been used for multiple generations of condors, pre-and post-captive breeding program. Condors also roost communally in Tejon Canyon (Service *in litt*. 2011a).

As identified in the literature (Grinnell 1905, Koford 1953, Wilbur 1972, Wilbur 1978, Snyder and Snyder 2000), the critical habitat designation (Service 1976), and recovery plan (Service 1974, 1996) discussed below, the Tejon Ranch has historically played an important role in condor survival, providing an important food source for condors nesting in the Sespe-Piru region until condors were removed from the wild to start the captive breeding program.

Once condors were released back into the wild, sporadic use of the action area continued through the early and middle stages of the reintroduction effort from 1996 through 2007. However, beginning in early 2008, use of the action area by condors began to steadily increase (Johnson et al. 2010).

Ranching and hunting on the Covered Lands continue to provide important food sources for released condors as the population in California continues to expand. All of Tejon Ranch, including the Covered Lands, has been subject to TRC's perpetual lead ban since January 2008. Strict enforcement of the ranchwide ban on use of lead ammunition by TRC as well as TRC's compliance with the Ridley-Tree Condor Preservation Act should result in lead free food sources for condors within suitable foraging habitat on the Covered Lands and throughout the ranch into the future.

In 2010, the Service contracted with the U.S. Geological Survey (USGS) to conduct an independent analysis of all condor data sets for the southern California subpopulation of the California condor (Johnson et al. 2010). USGS analyzed the use of space by condors in six management units in southern California (Hopper Mountain National Wildlife Refuge, Bitter Creek National Wildlife Refuge, Wildlands Conservancy-Wind Wolves Preserve, Tejon Mountain Village Specific Area, Condor Study Area, and the remaining areas of Tejon Ranch). Condor space use was analyzed using location data from GPS transmitters collected by the Service between 2004 and 2009, as well as geographic information system (GIS) data.

The results of the USGS analysis identify probable use by California condors of these six management units, with the Hopper Mountain and Bitter Creek National Wildlife Refuge units receiving the highest overall concentration of use by condors between 2004 and 2009. Within Tejon Ranch, the Condor Study Area unit received the highest concentration of use during this period. Although not discussed in the USGS study, the Service attributes the high use of the Condor Study Area to the large number of GPS data points associated with the traditional roost site at Winters Ridge (located in the Condor Study Area) as well as documented feeding events. The GPS data points are transmitted to a satellite every hour and the amount of time condors are stationary at the roost site results in a large number of GPS data points concentrated at that site. The USGS analysis also identified individual condor home ranges for the subpopulation of California condors occupying southern California, and confirmed that no condors exclusively use Tejon Ranch or the Covered Lands, but condors in the southern California subpopulation of condors regularly use the ranch, including the Covered Lands. In summary, the USGS study confirmed that condors currently use, and are likely to continue to use, all three of the Tejon Ranch management units, as well as the other three management units outside Tejon Ranch (Johnson et al. 2010). The Service considers the USGS study and associated GPS data to be the best scientific information available regarding condor use of these management units, and the GPS data provide the most updated interpretation of condor use of Tejon Ranch.

Currently, all or nearly all of the southern California flock of condors, frequently use the Covered Lands (action area) for foraging and roosting (Service *in litt*. 2012). The Service attributes the increase in use of Tejon Ranch by condors to the natural re-colonization of a

portion of the species' range (Johnson et al. 2010) that was historically important to condors as a foraging area and a regularly used "traditional" roosting area. The continued availability of carrion and the conservation of suitable foraging habitat, through continued ranching, have provided condors with essentially the same landscape and habitat features that attracted historical, pre-release condors to the action area.

In order to more fully evaluate the effects of the proposed ITP under NEPA and the Act on the California condor's continued ability to forage on Tejon Ranch and to consider the effects on the Tejon Ranch critical habitat unit, the Service developed a model of suitable foraging habitat on Tejon Ranch (Service 2012a [Master Response (MR)-1E], Service 2012b [MR-3 and Appendix D-23][7]). Taking into account the suitability of foraging habitat that would be lost and conserved more accurately reflects the effects of the loss of habitat on the condor. We consider this approach much more reliable than simply comparing the raw acreage of presumed foraging habitat directly and indirectly lost as a result of the proposed action (17,995 acres) with the raw acreage of presumed foraging habitat conserved under the TUMSHCP and existing RWA (over 148,000 acres). Our analysis, summarized below, is based on the best available information—the Tejon Ranch Vegetation Composite Geographic Information System Layer (Tejon vegetation GIS layer) (Dudek 2007c) combined with a field assessment—to quantify the vegetation communities on the ranch where condors are likely to consistently find and access food. The vegetation communities listed below and included in our model (Service 2012b), are the vegetation communities on Tejon Ranch where condors are able to consistently find and access food and the areas where condors, in fact, consistently feed. These vegetation communities include several sub-classifications of oak woodland on Tejon Ranch that are characterized by a vegetative understory sparse enough to allow condors access under the tree canopy. Other sub-classifications of oak woodland, including "mixed oak woodland," were excluded from the foraging habitat model because these communities on Tejon Ranch are generally characterized by a thick, dense understory that is inhospitable to, and is unlikely to be accessed by, foraging condors. Thus, the definition of "suitable foraging habitat" as used in our model and throughout this document refers to the vegetation communities on Tejon Ranch, including the Covered Lands, that are most likely to consistently provide food for condors based on available condor research and Service observations.

Suitable foraging habitat exists across Tejon Ranch, both within and outside of the Covered Lands, and within and outside designated critical habitat for the California condor on the ranch. All critical habitat in the Tejon Ranch critical habitat unit is not suitable foraging habitat, and not all suitable foraging habitat on the ranch is within designated critical habitat.[8] Where suitable

[7] The full list of vegetation communities included in our model of suitable foraging habitat is not reflected in Appendix D-23, but is included in MR-3 (Service 2012b), and also presented in this *Environmental Baseline* section for the California condor. All calculations of suitable foraging habitat included in the SDEIS, FEIS, and this biological opinion are based on the full list of vegetation communities from the Tejon Ranch Vegetation Composite GIS layer, included in our model. Additionally, the Service determined not to use the other parameters included in the initial version of the condor foraging habitat model (i.e., percent slope or distance from the centerline of a ridge) as restrictive to condor foraging or feeding as reflected in the Errata for the FEIS (Chapt. 2 Service 2012b).

[8] The condor was one of the very first species listed under the Act and critical habitat for the condor was one of the very first designations under the Act. As discussed in the effects on critical habitat section of this biological

foraging habitat overlaps with designated critical habitat, we specifically note this. Impacts to critical habitat, including areas of suitable foraging habitat (within designated critical habitat), are analyzed under Effects on Critical Habitat for the California Condor in the Effects of the Action section of this biological opinion. General impacts to suitable foraging habitat that is outside the boundary of designated critical habitat are discussed under *Habitat Loss* in the Effects of the Action section of this biological opinion. The total amount of modeled suitable foraging habitat for the California condor in the action area (the Covered Lands) is 84,112 acres (Service 2012b). Table 3, California Condor Acreage Matrix, includes a breakout of the various acreages analyzed in this document.

Table 3. California Condor Acreage Matrix

Category	Acres
Designated Condor Critical Habitat	
Total in California	570,400
Tejon Ranch condor critical habitat unit	134,871
Within Tejon Ranch boundaries	127,774
Within TMV Planning Area	19,091
Within Lebec/Existing Headquarters Area	0
Within Covered Lands	95,068
Conserved under TUMSHCP and Ranchwide Agreement	102,098
Conserved within Covered Lands	80,231
Remaining within boundaries of Tejon Ranch with approval of the TUMSHCP	112, 937
Conserved outside of Covered Lands under RWA	21,867
Conserved within RWA Existing Conservation Easements, outside of Covered Lands	9,866
Conserved within RWA Existing Conservation Easements, outside and inside Covered Lands	14,215
Conserved within TMV Planning Area	13,716
Impacted (directly/indirectly) within TMV Planning Area	14,837
Existing Suitable Foraging Habitat on Tejon Ranch	
Within Tejon Ranch	182,614
Within designated critical habitat on Tejon Ranch	**87,400**

opinion, the condor critical habitat designation occurred prior to the amendment of Section 4 of the Act to include detailed critical habitat designation requirements and prior to the development of detailed critical habitat regulations and guidance. Thus, the descriptions of the condor critical habitat areas (units) in the condor critical habitat rule are brief and general and follow coarse township and range coordinates. See Condor critical habitat designation at 41 FR 41914 (September 24, 1976).

Within Covered Lands	84,112
Within designated critical habitat on Covered Lands,	**58,715**
Outside Covered Lands	98,502
Within designated critical habitat, outside Covered Lands, and preserved under RWA	18,261
Within the TMV Planning Area	19,536 Consists of: TMV Specific Plan =18,823 Oso Canyon = 713 West of Freeway = 0
Within Lebec/Existing Headquarters Area	0
Within the TMV Planning Area and within critical habitat	13,718
Within Condor Study Area	23,040
Within critical habitat and the RWA Grapevine Development Area, outside of the Covered Lands, and not preserved under RWA	6,653
Suitable Foraging Habitat Impacted	
Impacted directly by development envelope in TMV Planning Area and Oso Canyon	6,656 Consists of TMV Specific Plan = 6,255 Oso Canyon = 401
Impacted indirectly (within 0.5 mi) from development envelope in TMV Planning Area (TMV Specific Plan + Oso)	11,339
Impacted directly and indirectly from development envelope in TMV Planning Area (includes development envelope of TMV Specific Plan and Oso Canyon (no suitable habitat is in West of the Freeway). *Note*: The actual disturbance within the TMV Planning Area development envelope would be limited to 5,533 acres. However, the exact location of development is unknown; therefore, the larger development envelope (8,817 acres) is used to assess effects of development activities in the EIS and this biological opinion, which results in an overstatement of habitat affected.	17,995
Total suitable foraging habitat, within critical habitat, impacted directly or indirectly	12,015
Suitable Foraging Habitat Remaining and Conserved	
Remaining suitable foraging habitat on Tejon Ranch	164,619
Conserved within the Condor Study Area	23,040

Conserved within critical habitat under TUMSHCP and Ranchwide Agreement	64,306
Conserved within critical habitat within Covered Lands,	46,045
Conserved within Covered Lands includes (1) TUMSHCP Mitigation Lands composed of a) Established Open Space, and b) TMV Planning Area Open space (some acreage of which we assume to be indirectly affected by development); and (2) Existing Conservation Easement Lands. All of the above acreage would be conserved and managed in accordance with TUMSHCP.	66,117
Conserved outside of Covered Lands under the RWA	83,818
Conserved in total under TUMSHCP and RWA	149,935

As noted above, we characterize suitable foraging habitat (Service 2012a [MR-1E] and Service 2012b [MR-3]) as habitat where condors are likely to consistently find and access food. To more accurately characterize suitable foraging habitat for the condor in the action area and elsewhere on Tejon Ranch, and to quantify the amount of suitable foraging habitat that would be directly lost or indirectly affected by the TUMSHCP, as well as the amount of suitable foraging habitat that that would remain on the ranch, including suitable foraging habitat that would be conserved in the TUMSHCP Mitigation Lands, and ranchwide under the RWA, we used the Tejon vegetation GIS layer (Dudek 2007c) to identify the location and acreages of vegetation communities that have consistently been associated with condor foraging, including foothill grassland and oak-savannah habitats (Snyder and Snyder 2000, Service 1996a, Wilbur 1978), for inclusion in the foraging habitat model. We also examined additional vegetation communities identified in the Tejon vegetation GIS layer and overlaid these with aerial imagery of Tejon Ranch to assess the extent of open ground throughout these vegetation communities on the ranch. We then conducted a field site visit to assess the density, thickness, and extent of the vegetative understory in the vegetation communities included in the Tejon vegetation GIS layer, and to assess the potential for condors to access food and/or facilitate escape from potential predators in these vegetation communities.

The most specific vegetation community classifications included in the Tejon vegetation GIS layer (see also Service 2012b, MR-3) informed our field site visit and were used for this analysis. Based on our field assessment and aerial imagery of the ranch, we excluded vegetation communities from the suitable foraging habitat model that included understory vegetation too dense to allow condors to feed and to escape predators. Specifically, the following vegetation communities in the Tejon vegetation GIS layer were excluded from the suitable foraging habitat model for condors on Tejon Ranch:

- Black oak woodland
- Brewers oak scrub
- Chaparral
- Developed
- Incense cedar stand

- Intermixed conifer
- Lake
- Mixed oak woodland
- Riparian scrub
- Undetermined chaparral
- Scrub oak
- Wetland
- White fir/mixed oak

We included the following vegetation communities from the Tejon vegetation GIS layer in the suitable foraging habitat model for condors on Tejon Ranch:

- Agriculture
- Alluvial scrub
- Annual grassland
- Black oak savannah
- Blue oak savannah
- Blue oak woodland
- Canyon oak savannah
- Canyon oak woodland
- Conifer mixed oak
- Desert wash riparian seeps
- Disturbed non-native grassland
- Grassland
- Gray pine savannah
- Gray pine woodland
- Interior oak savannah
- Interior oak woodland
- Mixed oak savannah
- Mojavean scrub
- Native grassland
- Oak savannah
- Oak woodland
- Pinyon pine woodland
- Riparian woodland
- Riparian/wetland
- Saltbush/buckwheat scrub
- Scrub
- Undetermined savannah
- Undetermined woodland
- Wash
- White fir stand
- White oak savannah
- White oak woodland

The structure of the vegetated understory associated with the vegetation communities excluded from the model is not entirely uniform across the Covered Lands due to the natural variation associated with localized growing conditions. There are areas in the vegetation communities we excluded from the condor suitable foraging habitat model, where the understory vegetation structure is sparse enough to allow condors to access a carcass. When comparing the aerial imagery of the ranch with the Tejon vegetation GIS layer, it is evident that the vegetation is not uniform within each mapped GIS polygon. In addition the mapping resolution of the Tejon vegetation GIS layer is not finite enough to capture open areas within the mapped polygons of each vegetation community. Thus, even using the best available vegetation data for Tejon Ranch, we were unable to map and quantify every open area that could potentially provide feeding opportunities for condors.

However, in the absence of a perfect data set and following our field review to ground-truth the understory vegetation, and review of aerial imagery of these areas, we were able to exclude specific community classifications from the model because the understory vegetation in those communities is generally too dense for condors to access. Inclusion of these areas as suitable foraging habitat would greatly overestimate the amount of habitat within the Covered Lands, both in the TMV Planning Area and in the proposed TUMSHCP Mitigation Lands where condors are likely to be able to find and access food and, similarly, would overestimate the amount of suitable foraging habitat in other lands targeted for conservation on Tejon Ranch under the RWA.

The use of GPS technology has allowed condor recovery program field biologists to more easily locate and document stationary condors feeding on non-proffered carcasses, providing a better understanding of where condors are finding food on their own and successfully feeding. The GPS data on non-proffered feeding events indicate condors find and feed on carcasses in various areas of Tejon Ranch, primarily in relatively open vegetation (Service *in litt.* 2010). The data indicate that condors were associated with non-proffered carcasses on Tejon Ranch in a variety of vegetation communities, with the substantial majority located in the vegetation communities included in our model of suitable foraging habitat. A few carcasses were located in open areas within the “mixed oak woodland” vegetation community (a vegetation community that was excluded from the model based on the density of the vegetated understory). However, these data are consistent with the fact that the mapped polygons of vegetation communities are not small enough to identify every open area within each vegetation community that could potentially provide feeding opportunities for condors (over 182,000 acres were modeled as suitable foraging habitat for condors on Tejon Ranch). Similarly, due to these mapping scale limitations, it is possible that, within the vegetation communities identified as suitable foraging habitat in the model, there may be areas with dense undergrowth unlikely to be accessed by condors for feeding.

In summary, our suitable foraging habitat model, combined with our field assessment of habitat conditions, provides a reliable mechanism to identify the locations and extent of suitable foraging habitat on Tejon Ranch, as opposed to simply assuming that all areas within the Covered Lands are of equal value to the condor. For example, oak savannah and grasslands

provide consistent feeding opportunities for condors due to the presence of both carrion and an appropriate vegetation structure that allows condors to access that carrion. As a result, these areas have consistent value to condors as foraging habitat. In contrast, a much larger area of the woodland habitat excluded from the model would provide at best very limited opportunities for successful feeding because the vegetation structure of that woodland habitat renders it difficult and dangerous for condors to find and access food.

Critical Habitat in the Action Area

The Service designated critical habitat for the California condor in 1976 (Service 1976, September 24, 1976). Because it was one of the first critical habitat designations, it was demarcated generally by township and range lines and lacks the detailed discussion of essential habitat features and primary constituent elements that are characteristic of more recent designations. The totality of the discussion of Tejon Ranch in the 1976 final critical habitat rule is as follows:

> "The Tejon Ranch, Kern County rangelands, and Tulare County rangelands, as described below, are considered critical for feeding and related activities. The Tejon Ranch is very important because it contains the only significant feeding habitat remaining in close proximity to the Sespe-Piru Condor nesting area. In most cases, condor feeding habitat is not so restricted as nesting and roosting sites, and only certain portions of the areas described below are needed at any one time. Because, however, the location of food is directly related to both condor distribution and reproductive success, substantial areas of open range, with adequate food, and limited development and disturbance, would have to be preserved in each delineated area in order to maintain the species.
>
> Tejon Ranch: an area of land, water and airspace in Kern County, with the following components (San Bernardino Meridian): R16W T10N, R17W T10 N, R17W T11N, R18W T9N, R18W T10N, R19W T10N (Service 1976)."

The Tejon Ranch critical habitat unit encompasses 134,871 acres. Of this, 95,068 acres of the Tejon Ranch critical habitat unit are located within the action area (Covered Lands). As discussed above, the specific conservation function of the Tejon Ranch critical habitat unit as described in the final critical habitat rule is to provide essential feeding (foraging) areas for the California condor. In addition, the Tejon Ranch critical habitat unit provides areas for roosting, including traditional roost sites, as well as habitat connectivity to other portions of the historical range outside and beyond the boundaries of Tejon Ranch. There are 87,400 acres of suitable foraging habitat in the Tejon Ranch critical habitat unit (based on our model discussed above) and detailed in the Final EIS (Service 2012b). Where the action area (i.e., the Covered Lands) overlaps with the Tejon Ranch critical habitat unit, there are 58,715 acres of suitable foraging habitat, the majority of which are grasslands and oak savannahs.

Hunting and cattle ranching within the Tejon Ranch critical habitat unit, both within and outside the action area, have historically provided, and continue to provide, a food source for California

condors. Condors are currently foraging across the Tejon Ranch critical habitat unit and are finding natural sources of carrion (i.e., livestock and wildlife carcasses). The majority of the Tejon Ranch critical habitat unit, including the portion within the Covered Lands, has remained in a relatively undeveloped state due primarily to the historical and ongoing practice of cattle ranching and other undeveloped natural habitat that supports deer, elk, and pigs which along with cattle carcasses provide sources of carrion for condors. Therefore the Tejon Ranch critical habitat is currently fulfilling its intended conservation purpose: to provide important foraging habitat for condors.

Recovery Plan

The land encompassed by the action area is identified in the recovery plan (Service 1996a) as a key foraging area for condors. Historically, Tejon Ranch was an important foraging area throughout the condor's annual cycle, but especially in the fall and late spring, when there is a high intensity of deer hunting on the ranch. More recently, year round pig hunting and cattle grazing have also contributed to the ranch's importance as a foraging area for condors. The recovery plan recommends that a plan be prepared with the consent and participation of the affected landowners to maintain the value of Tejon Ranch for condors.

EFFECTS OF THE ACTION ON THE CALIFORNIA CONDOR AND ITS CRITICAL HABITAT

Potential direct and indirect effects on the California condor associated with Commercial and Residential Development Activities and Planwide Activities under the TUMSHCP, include collisions with power lines and utility structures, exposure to microtrash, disturbance to feeding or roosting condors, habituation to human structures and activities, and loss of foraging habitat. These potential threats, and the measures proposed by TRC to avoid and minimize them, are analyzed in this section. We follow the analysis of these threats, with a discussion of individual Planwide Activities, including the relevant threats associated with each Planwide activity, and the measures incorporated into the TUMSHCP to avoid or minimize the threats.

Collisions with Powerlines and Utility Structures

Various utilities, including antennae farms, power lines, and communications structures, currently exist on or across the Covered Lands. Utilities owned or controlled by third parties are not Covered Activities under the TUMSHCP. Existing utilities controlled by TRC are Covered Activities and may be used, maintained, repaired, or replaced in their existing location and footprint. In addition to existing utilities, some utilities may be relocated or new ones installed to accommodate development expansion activities, as described under *Planwide Activities.*

The potential exists for California condors to collide with utilities, including power lines and communication towers. California condors that collide with powerlines, communication towers, antennae or any other vertical structure are likely to be injured or killed. Powerlines also pose a risk of electrocution (Rideout et al. 2012). No condors have been documented colliding with

power lines or stationary transmission or communication towers on Tejon Ranch to date, and no condor collisions with communication towers have been documented anywhere. Nevertheless, any new aboveground powerlines or communication towers, or similar vertical structures installed as a result of development within the TMV Planning Area, could potentially pose a collision risk to condors, particularly when visibility is low (e.g., due to the presence of heavy fog).

Measures to Minimize Collisions with Powerlines and Utility Structures

To avoid and minimize the potential for condors to collide with utilities, including two new communication structures, and other smaller communication structures, TRC has proposed the following protective measures:

(1) Within the TMV Planning Area and Lebec/Existing Headquarters Area, design restrictions and review and approval processes are required for new vertical communication towers and other similar structures, as set forth below:

a. TRC may install two emergency communication towers (PA-2 and DF-1: one at approximately 78 feet in height (including antennae), and the other at approximately 70 feet in height (including antennae), at the two separate locations in the TMV Planning Area development envelope, in order to provide suitable emergency radio communication coverage. The two proposed emergency communication towers would include design restrictions identified by the Service to minimize the potential for collisions. Such restrictions would be reviewed and approved by the Service, and include the following: (1) the towers will be self-supporting (i.e., no guide wires will be included as part of the design); (2) the tower facades will be primarily solid (e.g., through use of panels or other siding, wider or denser lattice work, or alternative tower solutions as approved by the Service) to increase their visibility to California condors, although microwave dishes and antennae will be exposed to provide appropriate system operations; and (3) the towers will incorporate Service-approved condor anti-perching devices on all potential landing surfaces.

The addition of primarily solid facades to the design of the two new communication towers should effectively avoid the potential for condors to collide with these towers. There have been no documented examples of California condors colliding with similar communication towers on Tejon Ranch or elsewhere. By adding substantial girth to the design of the towers, similar to that of a large mature tree trunk, we presume condors would be able to see these towers when in flight, even during foggy weather. There is also a possibility that if condors can see these towers, and they appear similar to a tree trunk, that condors may try to land on them. To minimize the potential that condors would perch on the two new

communication towers, the towers would incorporate anti-perching devices for birds, such as nixalite or other similar material.

b. The placement and maintenance of any other future communication or utility tower or similar structure within the TMV Planning Area and Lebec/Existing Headquarters Area, other than the two communication towers identified in (1)(a) and the smaller cell phone towers and similar structures identified in (1)(c), is generally prohibited provided, however, that TRC may request, and the Service would review, and may approve the construction, design and location of any new communication or utility tower or similar structure. The future placement of any new communication or utility tower or similar structure within the TMV Planning Area and Lebec/Existing Headquarters Area would trigger the need for an amendment to the TUMSHCP and ITP and further NEPA review if the placement or operation of such tower or structure would exceed the height restrictions or other conditions set forth in (1)(c) below, or result in new, potentially significant effects on the environment, including but not limited to impacts on or take of ESA-listed species. Such factors as tower or structure height and construction design, historical and existing condor flight patterns over the ranch, and proximity to existing towers and structures would be considered as part of any future Service review. In addition, the future approval of a new tower or structure would require the tower or structure be self-supporting (i.e., no guide wires would be included as part of the design) and be kept clean of debris, such as cable, trash, and construction materials. Any tower or structure that provides the potential for perching would be required to include Service-approved anti-perching devices suitable to deter condors from perching on the tower or structure.

c. Smaller cell phone antennas, radio antennas, and other similar vertical communication structures are a permitted use within the development footprint as long as such structures/antennas adhere to the following criteria: (a) the structures must be no higher than 10 feet above houses or buildings (taller structures would require review and approval by the Service), assuming the height limits for houses or buildings within the TMV Specific Plan Area vary between 35 and 45 feet; (b) the structures must be installed within the TMV Planning Area development envelope and/or Lebec/Existing Headquarters Area; (c) if the structure contains surfaces suitable for perching by condors, the structure must contain Service-approved anti-perching devices on such surfaces to deter condors from perching; and (d) the structures must be located closer to trees where practicable and consistent with effective operations of communication systems. TRC must confer with the Service regarding the placement of the

antenna and structure during preparation of tentative tract maps and corresponding grading plans.

d. All towers and similar structures must be kept clean of debris, such as cable, trash, and construction materials.

(2) Within the Covered Lands, outside of the TMV Planning Area and Lebec/Existing Headquarters Area, construction or maintenance by TRC or any third party under TRC's control of any new vertical communication or utility tower or similar structure outside of existing antenna farms, excluding flexible or small antennas (e.g., whip antennas) under 20 feet in height, is generally prohibited; provided, however, that TRC may request, and the Service would review and may approve the construction, design, and location of any new tower or similar structure. The future placement of any new communication or utility structure outside of the TMV Planning Area and Lebec/Existing Headquarters Area on the Covered Lands would trigger the need for an amendment to the TUMSHCP and ITP and further NEPA review if the placement of the tower or structure would result in new, potentially significant effects on the environment, including but not limited to impacts on or take of ESA-listed species. Such factors as tower or structure height and construction design, historical and existing condor flight patterns over the ranch, and proximity to existing towers and structures would be considered as part of any future Service review of a proposed communication or utility tower or structure. In addition, the future approval of a new communication or utility tower or structure would require that the tower or structure be self-supporting (i.e., no guide wires would be included as part of the design) and must be kept clean of debris, such as cable, trash and construction materials. Any tower or structure that provided the potential for perching would be required to include Service-approved anti-perching devices suitable to deter condors from perching on the tower or structure.

(3) Within the Covered Lands, no wind farms would be constructed (and TRC agrees to expand the ban to all ranch lands) during the term of the ITP. Additionally, the prohibition on wind farms must be maintained on the TUMSHCP Mitigation Lands in perpetuity. Notwithstanding the foregoing, individual wind turbine devices, which have the primary purpose to serve electrical generation needs on site, may be constructed following review and approval by the Service, based on the Service's determination that the device and any associated structures and electrical lines are of a design and in a location that would not pose a threat to condors (e.g., vertical blade designs within screened cylinders may be appropriate, but open blade designs likely to cause condor fatality in the event of a collision are not appropriate). TRC also commits in perpetuity not to amend or terminate its negative easement right prohibiting wind farms on Gorman Ranch, outside the Covered Lands (adjacent to Tejon Ranch).

(4) Within the Covered Lands, no new aboveground high voltage towers or transmission lines, or similar aboveground electrical transmission structures or lines, will be built by TRC. The following existing towers and power lines may be relocated within 1,000 feet of existing lines as long as the potential for injury or harm to condors will be minimized with the installation of anti-perching devices: (1) a north-south 66 kv aboveground transmission line located within TMV Specific Plan Area 1 and 5; (2) a 66 kv aboveground transmission line in the vicinity of the Lebec Road-I-5 Interchange; (3) temporary relocation of an existing aboveground 12 kv transmission line that runs east from I-5, just north of Castac Lake, which will be undergrounded outside of the I-5 corridor within the TMV Planning Area after construction is complete; and (4) possible relocation of smaller aboveground lines during construction. Additional relocated transmission or distribution lines are prohibited unless approved by the Service following review. All new transmission and distribution lines built by TRC will be placed underground. The locations of transmission lines proposed for relocation are subject to Service review and approval, with the exception that the smaller lines identified in category (4) above may be relocated without Service review and approval, provided such smaller lines are relocated within 0.5 mile of I-5 and avoid prominent ridgelines. Any relocation of the 66kv transmission lines (categories (1) and (2) above) must also avoid prominent ridgelines.

(5) Within the Covered Lands, to the extent allowed by law and applicable contracts, TRC will require new agreements with entities that have the authority to place any new aboveground power, communication towers, or other utility lines on the ranch, to place any such facilities only with the consent of TRC. Additionally, TRC will seek to enter into consensual agreements with those entities that may otherwise exercise such authority, both currently and in the future, without the consent of TRC. Such agreements will provide for measures to minimize the potential for injury or harm to condors, including requiring such structures to be fitted with anti-perching devices and located within existing utility corridors to the extent practicable. TRC may also encourage such entities, including entities installing underground utilities, to seek certificates of inclusion or become "lessees" under the ITP. These activities would not be "Covered Activities" unless they are located on Covered Lands and are conducted by TRC or by entities under the direct control of TRC for purposes of implementing the TUMSHCP and ITP that have become third-party lessees as defined in the Implementing Agreement or certificate of inclusion holders, or that operate under required or consensual agreements written or modified to give TRC control, including authority to require compliance with all applicable TUMSHCP and ITP requirements. Failure to obtain an agreement with an entity over which TRC does not have control will not be considered a violation of the TUMSHCP or the ITP.

Additionally to further minimize the potential for collisions in the future, TRC would require new agreements with entities that have the authority to place any new aboveground power,

communication towers, or other utility lines on the ranch, to place any such facilities only with the consent of TRC, and TRC will seek to enter into consensual agreements with third parties that own or control existing utility structures that will provide for measures to minimize the potential for injury or harm to condors, including requiring such structures to be fitted with anti-perching devices and located within existing utility corridors to the extent practicable. TRC may also encourage such entities, including entities installing underground utilities, to seek certificates of inclusion or become "lessees" under the ITP.

Implementation of the measures described above, in particular, the requirements to locate all new power lines underground and to design the two new communication towers with primarily solid facades to increase their visibility to condors, should effectively avoid the threat of collisions between condors and utilities covered under the TUMSHCP. Because TRC proposes to bury all new power lines and would not relocate any existing power lines on prominent ridges as part of the TUMSHCP, issuance of an ITP would not create a risk of electrocution or collision with power lines.

Microtrash

Microtrash consists of small bits of plastic, glass and metal which are inadvertently fed to condor hatchlings by their parents, and is an important factor adversely affecting condor breeding activity (Grantham 2007b, Mee et al. 2007b). While adult condors can usually pass such materials without harm, microtrash can cause injury or mortality to condor chicks by impacting the digestive process and inhibiting the bird from feeding properly. Planwide Activities, including film production, passive recreation, repair and maintenance of roads, use of backcountry cabins, and utilities, and ongoing ranching operations within the Covered Lands could produce microtrash. Likewise, residential and commercial development, including both the construction and occupancy phases of such development, could also produce microtrash. Several measures, including the requirement to regularly inspect and clean up areas where microtrash could potentially accumulate, along with the requirements to disseminate information regarding the dangers of microtrash and enforce restrictions designed to eliminate microtrash, are incorporated into the Planwide Activities and commercial and residential Development Activities including the requirement to regularly clean up and eliminate any microtrash, in development areas through routine community maintenance activities and throughout the Covered Lands at and near all work sites, recreation events, filming projects, roads, and back-country areas where human presence occurs. The Tejon Ranch Staff Biologist will regularly monitor and enforce these requirements.

Measures to Minimize Microtrash

To avoid and/or minimize the potential for microtrash to collect in areas used or potentially used by condors within Covered Lands, TRC has proposed the following measures:

(1) TRC or an included entity will prepare condor educational materials and implement a training program such as printed brochures or other media (e.g.,

video) that will include information concerning the life history of the California condor, where condors potentially occur within the TMV Planning Area, prohibited behaviors related to condors such as the feeding, pursuit, capture, and harassment of individual condors, and other potential direct interaction with condors. The information must also identify types of microtrash that could be ingested by condors and describe measures to eliminate microtrash at and near all construction sites, recreation areas, outdoor filming projects, roads, and back-country areas where human presence occurs. The education program will include training of key personnel at TRC, appropriate signage at trailheads or entrances to open space areas, and dissemination of pertinent information at onsite nature centers and other public areas. The educational materials will be disseminated to TMV project construction and work crews, film crews, residents, guests and visitors, particularly those engaging in recreation activities that could put them in close proximity to condors. Project land managers will be empowered to take action to prevent any such activity that would pose a threat to condors. This measure will be included in implementation documentation as appropriate under the Memorandum of Permit.

(2) The following condor protection measures would be implemented and documented as appropriate under the Memorandum of Permit:

a. Master Developer's Construction Crews—All construction contracts let by the Master Developer must include provisions requiring the general and subcontractors to provide construction workers with educational materials describing condor protection measures.

b. Residential or Commercial Construction Crews—All land sale contracts issued by the Master Developer must include provisions requiring future residential and commercial property owners to provide construction workers with educational materials describing condor protection measures.

c. Film Crews—All TRC film crew contracts must include provisions requiring the film companies to provide crew members with educational materials describing condor protection measures.

d. Residents—The Master covenants, conditions, and restrictions (CC&R) must include requirements for the property manager to distribute educational material describing condor protection measures on an annual basis. The CC&Rs must also include enforcement language related to condor protection. The Tejon Ranch Staff Biologist will perform the enforcement responsibilities (see Table 1 of this biological opinion, Measure 22(b)(2)).

e. Resort Guests—The CC&Rs included in the resort, and any land sale contract or management agreement, must include provisions requiring the property management company to provide resort guests with educational materials describing condor protection measures.

f. Ranch Visitors—All Entry Permits for back-country areas will include educational material describing condor protection measures.

(3) TRC or an included entity will ensure that routine community maintenance activities include regular efforts to eliminate microtrash at and near all work sites, recreation events, filming projects, roads, and back-country areas where human presence occurs. All trash receptacles will be fitted with animal and weather-resistant lids, will be regularly emptied, and will regularly be inspected by the Service-approved Tejon Ranch Staff Biologist. This measure will be included in implementation documentation as appropriate under the Memorandum of Permit. The CC&Rs will include provisions authorizing the Master and Commercial Maintenance Associations, as relevant, to promulgate from time to time rules and regulations recommended by the Service-approved Tejon Ranch Staff Biologist to address microtrash and trash receptacles and to enforce such rules and regulations, which must be consistent with and no less stringent than the conservation measures.

(4) The Service-approved Tejon Ranch Staff Biologist, or designated TRC employees or consultant, will be assigned to all film crews to enforce rules regarding discarding of microtrash items and will require a thorough daily clean-up by the filming entity during and immediately upon completion of all film shoots to eliminate any microtrash that may have accumulated.

The implementation of these measures should effectively avoid adverse effects to condors as a result of microtrash generated on the Covered Lands, particularly the requirements to clean up any microtrash generated from Covered Activities described above in measures 3 and 4. Requirements to educate those who use and would use the Covered Lands about the threat of microtrash should greatly reduce the potential for microtrash to accumulate on the Covered Lands. To date microtrash collected and ingested by condors appears to be mainly generated from areas that currently or historically experienced high levels of public use. For example, in the Angeles National Forest, roadside pullouts containing layer upon layer of microtrash in the gravel or dirt substrate have built up over time. Efforts to clean up microtrash from these sites by hand are effective in the short term, but over time, additional buried microtrash makes its way to the surface as a result of regular use. Recently the U.S. Forest Service has capped such roadside pullouts using clean fill material to slow or stop the migration of the buried microtrash from reaching the surface.

The Covered Lands have historically been managed as ranch lands and have not been subject to significant public use. Therefore, it is unlikely there are existing large deposits of microtrash on

the Covered Lands. The education measures and requirements to regularly collect trash generated by Covered Activities proposed by TRC should effectively minimize the accumulation of microtrash on the Covered Lands from increased human use and activity expected under the TUMSHCP and no take is expected from microtrash on Covered Lands.

Disturbance

Development and Planwide Activity-related disturbance to condors could result in the disruption of natural behaviors including, but not limited to roosting, feeding, foraging, and preening, potentially causing condors to leave the immediate area. Repeated disturbance could result in temporary or complete avoidance of disturbed areas by condors.

Disturbance to condors could occur during construction or from regular use of developed areas associated with the TMV Planning Area. Construction-associated disturbance includes, but is not limited to, disturbance from noise, light, and increased human activity associated with construction equipment, vehicles, generators, building, and demolition. Ongoing use of the TMV Planning Area development could also result in condor disturbance due to noise and lighting and increased human and pet activity in and adjacent to the development. To account for these indirect effects to condors from the proposed TMV Planning Area development, we conservatively assume for purposes of analysis that condors foraging or roosting within the TMV Planning Area would be disturbed if within the TMV Planning Area development envelope, and outward for a distance of 0.5-mile.

Although there are no traditional condor roosts within the TMV Planning Area, condors do roost there overnight on occasion, individually or in groups, particularly prior to or after they feed. A 0.5-mile distance from human activity has not been used as a measure to minimize human disturbance to feeding condors in the past; however, we consider this distance to be an appropriate and conservative approximation of the distance necessary to reduce to a negligible level, or eliminate entirely, disturbance to condors given that exact reactions condors may have to different noises or activities cannot be predicted.

In addition, because disturbance to roosting condors from oil and gas development has previously been documented at distance of 0.5-mile (Koford 1953, Wilbur 1978) , and we have no additional data documenting disturbance to condors more than 0.5-mile from human activity, we consider 0.5-mile from human activity to be the best available information on the maximum distance at which condors would be subject to disturbance from human activity, and assume this area will encompass indirect effects to condors from human disturbance. Condors have been documented feeding closer than 0.5-mile to human habitation (Wilbur 1978) (see discussion below under *Habitat Loss*), but records are scarce. The hunger of the bird likely contributes to how tolerant an individual may be to human activity before flushing. Therefore, assuming that disturbance of condors feeding or roosting would occur within 0.5-mile of the proposed TMV Planning Area development envelope is an appropriate, if conservative approach to assessing the indirect disturbance effects of development.

We consider the primary effect of disturbance to condors to be through the indirect loss of habitat. We have analyzed the effect of the 0.5-mile indirect effect area resulting from human disturbance on condors below under *Habitat Loss*. We do not anticipate disturbance to condors to result in direct injury or mortality because the condors will typically leave an area when disturbed.

Planwide Activities including, but not limited to, recreation in development areas and within the Mitigation Lands, filming, or use of back country cabins, could also disturb feeding or roosting condors as a result of noise, lighting, and general increase human activity if they occur within 0.5-mile of condors. Requirements, including a prohibition on inappropriate human behaviors and actions in the presence of California condors, and dissemination of this information to all users of the Covered Lands, are incorporated into the Planwide Activities to avoid and/or minimize the potential for such activities to disturb condors on the Covered Lands.

The following measures are included in the TUMSHCP to avoid or minimize the potential for disturbance to condors in the Covered Lands:

(1) A condor educational curriculum will be created and disseminated that will include information concerning prohibited behaviors related to condors such as the pursuit, capture, or harassment of, and all other potential direct interactions with the species. The Service's Condor Recovery Program will be available to provide technical assistance to TRC or the Conservancy in creating the condor educational material.

(2) Construction workers, filming crews, TRC staff, and residential and commercial occupants and their guests will be required to cease any behavior that constitutes an attractive nuisance or otherwise presents an unreasonable and avoidable danger to California condors upon direction by TRC and in coordination with the Service-approved Tejon Ranch Staff Biologist. Pursuant to the Memorandum of Permit, documentation describing this prohibition will not list such behaviors in detail (because we do not have an exhaustive list), but will provide examples and authorize the Service-approved Tejon Ranch Staff Biologist, in consultation with the Service, to respond to changing California condor behaviors, human activities, and other conditions with whatever restrictions are necessary to provide the protection intended for the California condor.

(3) Recreation activities, particularly organized events, and filming projects in areas where condors are known or expected to occur, will be closely regulated to minimize any effects that could disturb feeding, perching or roosting condors. Such regulation can include the dissemination of information regarding condors, through access permits, or in the case of film production, filming contracts, monitoring by the Service-approved Tejon Ranch Staff Biologist, and potential setbacks for localized roosting and feeding behaviors near a carcass location.

(4) Fireworks, explosions (louder than gunshots) or other abnormally loud noises are prohibited in the TUMSHCP Mitigation Lands unless the Service-approved Tejon Ranch Staff Biologist determines, in consultation with the Service, that no condors are present or would otherwise be adversely affected by the fireworks, explosions, or noise. Additionally, fireworks, explosions (louder than gunshots) or other abnormally loud noises in the Condor Study Area are prohibited without exception.

(5) Educational information as described above will be disseminated through access permits to guests and/or visitors to all back-country cabins regarding microtrash and appropriate behaviors if condors are encountered. Appropriate behavior includes avoiding contact with California condors, including feeding, watering, approaching, or touching, and would also include contacting the Tejon Ranch Staff Biologist to respond.

These measures should effectively minimize disturbance to condors from ongoing use of developed areas and from Planwide Activities. The requirement for construction workers, filming crews, TRC staff, and residential and commercial occupants and their guests to cease any behavior that constitutes an attractive nuisance or that otherwise presents an unreasonable and avoidable danger to California condors, the enforcement of setbacks to avoid disturbing condors on the Covered Lands, and a prohibition on explosions and excessive noise in the Covered Lands unless determined by the Service that condors would not be affected, and including a complete ban on the use of fireworks and explosions in the Condor Study Area, should effectively avoid and minimize disturbance to condors. Wide dissemination of education materials to all who use the Covered Lands regarding what constitutes adverse effects on condors and the types of human behaviors and activities that could disturb condors, and monitoring by the Tejon Ranch staff Biologist, should also substantially minimize the potential for disturbance to condors on the Covered Lands outside the development area. If condors use open space areas within TMV Planning Area following construction, educational materials and setbacks from active condor use areas will minimize the potential for disturbance.

Traditional condor roosting areas near the Winters Ridge area in the Condor Study Area are within the TUMSHCP Mitigation Lands and would be conserved. Also, these traditional roost sites are more than five miles from the edge of the proposed TMV Planning Area development envelope. We do not anticipate development activity to result in disturbance to condors roosting in the Winters Ridge area based on the topography and distance of this area from the proposed development. Nor do we anticipate that Planwide Activities will result in disturbance to condors roosting in the Winter Ridge area. The Haul Road crosses the ranch along Winters Ridge. This road is currently used in conjunction with ongoing ranch activities. California condors appear tolerant of the current amount of use of this road receives, as they continue to occupy the Winters Ridge roosting area despite ongoing use of this road. The Haul Road, as well as the other ranch roads, will be subject to some additional use by visitors and residents engaged in recreational activities, but access to the TUMSHCP Mitigation Lands will be carefully regulated and the number of visitors will be limited under the TUMSHCP in accordance with a Service-approved

public access plan. Therefore, we do not expect the additional use to result in disturbance to California condors roosting in the Winters Ridge area. Other Mitigation Lands would also be subject to the previously described measures to minimize disturbance including monitoring by the Tejon Ranch Staff Biologist and enforcement of setbacks, and restriction on explosions, fireworks and other abnormally loud noises. As noted above, explosions, fireworks and other abnormally loud noises are prohibited without exception in the Condor Study Area, where the Winters Ridge roosting area is located and so should effectively minimize disturbance to condors using this roosting area. Even if some disturbance to condors were to occur, despite the protective measures described above, we do not anticipate those adverse effects would result in injury or mortality of the California condor on the Covered Lands.

Habitat Loss

Direct and indirect effects on the California condor and its suitable foraging habitat within Covered Lands are likely to occur as a result of proposed commercial and residential development. More suitable foraging habitat is present on the Covered Lands and elsewhere on Tejon Ranch, than is found within designated critical habitat. Effects on critical habitat, including suitable foraging habitat within the Tejon Ranch critical habitat unit, are discussed below under Effects on Critical Habitat.

The California condor forages opportunistically over large expanses of its range. It is a visual scavenger that may identify a food source on its own, or by following other scavenging species, such as common ravens and golden eagles, to locate carcasses. Carcasses are generated from mortality of grazing animals, hunting, and other wildlife mortality including native ungulates. It is generally recognized that, by definition, an opportunistic scavenger feeds wherever it can find and access a food source.

Despite the fact that condors are able to fly over hundreds of square miles of diverse habitat types, certain habitat types are more likely to contain food sources that are more detectable and accessible to condors than others. In particular, carrion located in grasslands and oak savannah will generally be observable and accessible to condors because of the open structure of vegetation. Historically, the characterization of condor foraging habitat has generally been based on visual observations of condors foraging and feeding. More recently, the use of global positioning system (GPS) technology has allowed field biologists to more easily locate and document stationary condors feeding on non-proffered carcasses, providing a better understanding of where condors are finding food and successfully feeding. The GPS data on non-proffered feeding events indicate condors find and feed on carcasses in relatively open vegetation areas of Tejon Ranch. Up to 17,995 acres of suitable foraging habitat, as identified in our model of suitable foraging habitat developed for the SDEIS (Service 2012a, MR-1E) and discussed in the Environmental Baseline section of this biological opinion, would be directly or indirectly affected as a result of commercial and residential development associated with the TMV Planning Area.

Within the TMV Planning Area development envelopes of the TMV Specific Plan and Oso Canyon, 6,656 acres of suitable foraging habitat, in the form of grassland and oak savannah, would be directly lost through conversion of the area to commercial and residential development. An additional 11,339 acres of suitable foraging habitat would be indirectly affected up to 0.5-mile from the development envelope as result of noise and visual disturbance associated with commercial and residential development (for a total loss of 17,995 acres of suitable foraging habitat).

As discussed above, we consider a 0.5-mile distance between feeding condors and human activity to be an appropriate and conservative approximation of the distance necessary to reduce to a negligible level or eliminate the disturbance to foraging and feeding condors, given that the exact reactions condors may have to different noise or activities cannot be predicted. Koford (1953) noted that condors normally feed in relatively isolated areas and usually leave if approached within about 1,000 feet (approximately 0.18 mile); he also recorded condors feeding within 500 yards of an active ranch house. Wilbur (1978) documents condors feeding within 1,000 feet of well-traveled roads. Therefore, we conservatively assume that California condors would not forage in the area extending up to and including a distance of 0.5-mile from the TMV Planning Area development envelope.

As discussed above, the 0.5-mile disturbance buffer around development accounts for 11,339 acres of suitable foraging habitat assumed to be indirectly lost as a result of development in addition to the 6,656 acres of suitable foraging habitat directly lost within the 8,817- acre development envelope. In fact, the total amount of suitable foraging habitat lost as a result of residential and commercial development will be somewhat lower because our estimate assumes loss of all suitable habitat within the development envelope and an area extending out 0.5-mile from that envelope rather than using the actual acreage of direct and indirect habitat loss allowed under the TUMSHCP which would be lower.

Within the TUMSHCP Mitigation Lands, 66,117 acres of suitable foraging habitat would be permanently conserved (including 23,040 acres of suitable foraging habitat within the 37,000-acre Condor Study Area). A total of 164,619 acres would remain on Tejon Ranch with implementation of the TUMSHCP. Of that total, 149,935 acres would collectively be conserved under the TUMSHCP and RWA.[9] We anticipate condors will continue to use remaining suitable foraging habitat throughout the Covered Lands, and the ranch. Condors have previously used and currently use suitable foraging habitat outside the Covered Lands and outside of designated condor critical habitat and are capable of using any area on the ranch for foraging that contains suitable foraging habitat, as discussed in our model (Service 2012a,b).

[9] While the TUMSHCP only applies to Covered Lands, under the RWA, approval of the TMV project would trigger the permanent protection as open space of all identified conservation lands on Tejon Ranch, both within and outside of the Covered Lands. Thus it is reasonable to assume permanent conservation of these lands in addition to the Mitigation Lands if the ITP is issued. Even without the ITP, the RWA provides for protection of conservation lands ranchwide for a period of 99 years.

We do not anticipate that the reduction in suitable foraging habitat for condors on Tejon Ranch under the proposed TUMSHCP will appreciably decrease the food base for condors because grazing will continue on the ranch through the proposed permit term at levels comparable to historical, average conditions (i.e., approximately 14,500 head of cattle, with yearly variation to account for rangeland conditions). Hunting, including year round hunts for wild pigs, has provided an ongoing source of food (in the form of gut piles or the occasional animal not retrieved by the hunter) for condors on Tejon Ranch, including Covered Lands, for decades and is expected to continue to serve as a food source for condors. Review of GPS observations of foraging condors on Tejon Ranch indicate that condors use foraging habitat throughout the ranch to find food, including areas in the TUMSHCP Mitigation Lands above 2,000 feet in elevation and areas lower in elevation, outside the Covered Lands, including lands conserved under the RWA. Foraging by condors on Tejon Ranch is not limited to suitable foraging habitat mapped in or adjacent to the TMV Planning Area development and envelope. Available data do not indicate that the suitable foraging habitat that would be lost in this development envelope is more important to condors than other areas of suitable foraging habitat that would remain available to condors in the Covered Lands and on the ranch as a whole. Given that grazing and hunting on Tejon Ranch is expected to remain consistent with historical average levels through the proposed permit term under the TUMSHCP such that food sources would be consistently available to condors on the Covered Lands and throughout the ranch (in suitable foraging habitat in the TUMSHCP Mitigation Lands, and other suitable foraging habitat on the ranch, including lands conserved under the RWA), we conclude that Tejon Ranch, including the Covered Lands, will continue to function in the future, as it has in the past, as an essential foraging area for condors.

The continued availability of reliable and consistent food sources for condors on the Covered Lands and adjacent areas of Tejon Ranch is likely to increase in importance if the overall production of livestock in the range of the condor declines over time. However, just as condors in central California do not feed on the Covered Lands or Tejon Ranch regularly, and in fact, no California condors feed exclusively on the Covered Lands or Tejon Ranch, the Service does not anticipate that condors breeding and occupying other areas of their historical range now or in the future would feed exclusively on Covered Lands or Tejon Ranch. Depending on seasonal variations in the current food supplies resulting from hunting, calving seasons, lambing seasons, and other factors, use of Covered Lands and Tejon Ranch by condors is likely to fluctuate seasonally. Such variability in food availability is consistent with the opportunistic scavenging and far-ranging foraging behavior characteristic of California condors (Service 1974, 1996; Wilbur 1978; Snyder and Snyder 2000).

In summary, under the TUMSHCP, hunting and grazing would continue in the Covered Lands and in most of the Tejon Ranch critical habitat unit, as well as in other areas of suitable foraging habitat outside of designated critical habitat. Ranching would continue through the permit term consistent with past grazing practices, which have been conducted at a historical average grazing level of 14,500 head of cattle, both in conserved areas in the Covered Lands, and areas conserved under the RWA outside the Covered Lands. Thus, even with the removal of 6,656 acres of suitable foraging habitat as a result of development in the TMV Planning Area, the overall food base for condors on the Covered Lands (and on the Ranch as whole) is not expected to decline;

rather, the important historical contribution of Tejon Ranch and the Covered Lands to the condor's food supply would continue under the TUMSHCP and remain relatively constant over the 50-year permit term.

Measures to Mitigate Habitat Loss

(1) To mitigate the direct and indirect effects of loss of 17,995 acres of suitable foraging habitat, TRC would conserve and manage foraging and roosting habitat for the California condor as follows:

a. Approximately 66,117 acres of suitable foraging habitat within the TUMSHCP Mitigation Lands will be preserved as functional and viable foraging habitat for California condors. A total of 116,532 acres of Covered Lands will be permanently protected overall as Mitigation Lands.

b. The approximate 37,000-acre Condor Study Area, a portion of the Mitigation Lands, including 23,040 acres of suitable foraging habitat, will be preserved in perpetuity. The Condor Study Area has historically been a core habitat area for foraging and roosting by condors on Tejon Ranch and continues to be used, to a large degree, by released condors.

c. Continued grazing at approximately the historical average level of 14,500 head of cattle (with yearly variation to account for rangeland conditions) will continue on the ranch through the permit term to provide a food source for the condor.

d. Continued hunting within open space areas on the ranch will continue through the permit term to provide a food source for the condor.

(2) The TUMSHCP Mitigation Lands will be permanently protected by conservation easement or other appropriate deed restriction as follows:

a. Dedicated conservation of the Initial Mitigation Lands will be phased as provided under the Implementing Agreement. A conservation easement is required to be recorded on the 47,671 acres of Initial Mitigation Lands, which include the 37,099-acre Condor Study Area portion of the Established Open Space and a 10,572-acre portion of the TMV Planning Area Open Space, prior to grading of the TMV Project. TRC may increase the acreage of the Initial TMV Planning Area Open Space Lands to coordinate easement boundaries with the State conservation requirements. The obligation to record a conservation easement over the TMV Planning Area Open Space portion of the Initial Mitigation Lands will be extended up to 5 years provided that a Memorandum of Permit and a Memorandum of Agreement to record a conservation easement is recorded prior to the grading of the TMV Project.

b. The Remaining Mitigation Lands will be permanently conserved in accordance with the terms of the Implementing Agreement as follows. Dedicated conservation easements are required to be recorded over the 56,423 acres of Established Open Space following the schedule set forth in the RWA, but in no event could the recording of easements extend beyond the permit term. The 12,429 acres of the TMV Planning Area Open Space within the Remaining Mitigation Lands must be conveyed by conservation easement or otherwise restricted in a form approved by the Service as the TMV Planning Area is developed and tentative maps are approved, but in no event could the recording of easements extend beyond the permit term.

(3) The Condor Study Area will be additionally managed as follows:

a. The Condor Study Area will be managed by the Tejon Ranch Conservancy in accordance with the TUMSHCP and per the RWA, under the guidance of the Ranchwide Management Plan (RWMP) which will be subject to Service review and approval for consistency with the TUMSHCP, any recorded conservation easements, and the Act. The initial RWA conservation easement was recorded over this area on December 12, 2012. Public access to and use of the Condor Study Area authorized by the public access plan will be controlled, monitored, and enforced by TRC or the Tejon Ranch Conservancy. Two back-county cabins currently exist in the Condor Study Area. Those cabins may be maintained, improved, repaired, replaced, or reconstructed in their existing locations, within their existing footprints and without substantial increase in height. No other back-country cabins may be constructed or relocated to the Condor Study Area.

b. Access to the Condor Study Area in the public access plan will be developed in consultation with, and would be approved by, the Service. The public access plan will be subject to Service review and approval in perpetuity and include parameters for human use of the Condor Study Area, including but not limited to the type of uses allowed and disallowed, the level of use intensity, and any seasonal restrictions, if warranted. Measures likely to be incorporated into the program include requiring visitors to register before entering, restricting the number of visitors per day/week/month depending upon California condor use of the Condor Study Area as determined by the Service-approved Tejon Ranch Staff Biologist and the Service, and prohibiting future access by those persons who do not follow the rules or comply with the program. TRC or the Tejon Ranch Conservancy will be responsible for implementing the program and measures.

In summary, a total of 66,117 acres of suitable foraging habitat would remain on the Covered Lands with implementation of the TUMSHCP, which should effectively mitigate the direct loss of 6,656 acres and indirect effects to 11,339 acres of suitable foraging habitat (17,995 acres of suitable foraging habitat lost in total) that we anticipate as a result of the proposed TMV Planning Area development, particularly because existing sources for food for California condors on Tejon Ranch will be maintained through continued hunting and grazing programs and conservation of open space lands that provide habitat for native ungulates, another source of carrion for condors. In addition, suitable foraging and roosting habitat for California condors would be managed to benefit condors, particularly in the Condor Study Area, where disturbance would be minimal, and no additional construction of backcountry cabins would occur. (We address potential effects on habitat connectivity for the California condor in the Effects on Critical Habitat section below.) The requirement for Service approval of public access plans, both during and following the permit term, to control access to Mitigation Lands will also help safeguard the continued suitability of these lands for condor use. These management measures will ensure that suitable foraging and roosting habitat would remain functional for condors on the Covered Lands under the TUMSHCP.

Habituation

As part of their natural behavior, condors investigate their environment, often picking and tearing at objects. However, when this behavior involves humans and human structures it can result in injury or mortality to condors. A condor that is allowed to remain in close proximity to humans and/or human structures will likely experience positive reinforcement to a potentially dangerous situation (i.e., entanglement, ingestion of trash or harmful chemicals, or food provided by humans). On occasion, when condors have visited residential communities and have come into direct contact with people, they have been given food and water. If condors are fed by hand, it is likely they will return and repeat such undesirable behavior, putting themselves at further risk of injury or death. Such undesirable behavior may also be taught to other condors, further exposing more of the wild condor population to the potential for injury or mortality.

In the early years of condor reintroduction, before any condors had reached breeding age in the wild, groups of juvenile condors regularly visited mountain communities within their historical range, often perching on houses, decks, and automobiles; sometimes causing property damage. In some instances residents provided these condors with human food and water, exacerbating the problem. Condors' attraction to humans has been less of an issue in the last decade. However, it does still occasionally occur. For instance, during the summer of 2012, condors in the southern California subpopulation foraging and feeding regularly near the mountain community of Bear Valley Springs in the Tehachapi Mountains began frequenting houses located in an area of large pine trees suitable for perching and roosting. The area is in the vicinity of grazing lands where the condors actively foraged and fed on non-proffered carcasses. In this example, condors typically roosted overnight in large trees, and then moved to nearby rooftops and decks of houses built in close proximity to large trees suitable for condor roosting. Condors probably roosted in this area prior to human development because of the suitability of the roosting habitat (J. Grantham pers. comm. 2012).

Although unlike Bear Valley Springs, there are no traditional roost sites in the TMV Planning Area, we anticipate there is a potential for condors to be attracted to human activities and structures associated with the development proposed under the TUMSHCP during and following its construction. We also anticipate that condors may be attracted to Planwide Activities on Covered Lands, including but not limited to filming activities, passive recreational activities, ranching activities, and backcountry cabins. The habitat on the Covered Lands is similar to the area in the vicinity of Bear Valley Springs and condors frequently occur on the Covered Lands (see Environmental Baseline section).

Measures to Minimize and Avoid Habituation

The proposed TUMSHCP includes several measures to minimize and avoid habituation including protection of the Condor Study Area and other large blocks of condor habitat within the TUMSHCP Mitigation Lands and Existing Conservation Easement Areas. Limited human activity would occur in these areas and the TUMSHCP includes adaptive management provisions to address habituation or the potential for habituation of condors within the Mitigation Lands as well as development areas based on ongoing monitoring by the Service-approved Tejon Ranch Staff Biologist(s). The following proposed measures should minimize the likelihood of habituation as a result of the TUMSHCP:

(1) Upon approval, and for the duration of the permit, the applicant will retain the service of a full-time biologist (i.e., Service-approved Tejon Ranch Staff Biologist) or contract with a qualified third party approved by the Service to perform the functions described in this section until the Tejon Ranch Staff Biologist is hired. (The duties of the Tejon Ranch Staff Biologist will require the services of additional trained personnel. Thus, the term “Tejon Ranch Staff Biologist” also refers to other qualified project biologists under the direct control of the Tejon Ranch Staff Biologist for purposes of implementing the Tejon Ranch Staff Biologist duties under the TUMSHCP).

(2) The Service-approved Tejon Ranch Staff Biologist’s primary function will be to assist in minimizing and mitigating any interactions between humans and California condors within the Covered Lands and in administering the avoidance, minimization, and mitigation measures pertaining to condors in the TUMSHCP. The Service-approved Tejon Ranch Staff Biologist will not be required or allowed to handle or interact with California condors other than incidentally or in emergency situations and only if he or she has been issued by the Service a scientific permit under Section 10(a)(1)(A) of the Act, and is permitted to do so by applicable Federal and State law. The Service-approved Tejon Ranch Staff Biologist will be responsible for performing, either directly or through direct supervision of assigned staff, the following functions related to California condors:

a. Perform the monitoring and reporting responsibilities of TRC in the TUMSHCP.

b. Perform the enforcement responsibilities.

c. For the purpose of minimizing contact and interaction between humans and California condors, (i) coordinate with retained environmental education specialists, to prepare guidelines and educational programs, reviewed and approved by the Service, for proper behavior by persons who buy real estate or visit the developments constructed within Covered Lands, or who are permitted to use the Condor Study Area, and (ii) include descriptions of such guidelines and programs in pamphlets or other documents which are to be distributed to such persons.

d. Monitor use of the Condor Study Area by adjacent home buyers and lessees and facilitate communication and coordination among the Service, TRC and the Master Owner Association to ensure that allowed uses of the Condor Study Area do not compromise the value of that area as a California condor safe zone and for traditional and historical ranch uses.

e. Conduct educational programs, and disseminate educational materials, concerning the California condor to home buyers and visitors to any mountain development.

f. Coordinate with TRC's Wildlife Management Operation on implementation of the hunter education/enforcement program regarding the lead ammunition ban and condor protection.

g. Assist the Service with assessment and implementation methods to discourage California condors' use and visitation of human communities and dwellings on the Covered Lands. The Service-approved Tejon Ranch Staff Biologist will contact the Service immediately if habituation behavior by California condors is witnessed or reported and will assist the Service, as necessary and as requested by the Service, by providing additional monitoring of condors determined to be exhibiting behaviors with the potential to result in habituation, and/or of areas within the Covered Lands determined to be attractive to condors. Measures to discourage habituation, including "hazing," measures, will be implemented by the Service, in consultation with TRC. The Service-approved Tejon Ranch Staff Biologist may participate in hazing activity only if he or she has applied for and received a recovery permit from the Service under Section 10(a)(1)(A) of the Act that covers such activity to ensure proper methods to avoid injury to condors are employed, and the Service and TRC have determined that he or she may do so in accordance

with all applicable Federal and State law (including approval for inclusion in a Memorandum of Understanding—if and to the extent required—between the Service and CDFW that allows such interactions with California condors despite their status as a Fully Protected Species under State law).

h. Assist in communications with the Service regarding potential violations with the TUMSHCP, the Act or any recorded conservation easement or CC&Rs.

(3) The Service may propose specific additional functions for the Service-approved Tejon Ranch Staff Biologist that it considers appropriate and consistent with the duties set forth above and applicable legal requirements.

To further address the potential for habituation to human activity and structures, TRC has proposed the following additional measures:

(4) To minimize the potential for condor habituation within the TMV Specific Plan Area, measures 1-14 in Table 1 above, including avoidance of microtrash and education, are required under the TUMSHCP and will be incorporated into the CC&Rs governing residential and commercial development. Additionally, the CC&Rs must require that development on the ridges within the TMV Specific Plan Area (the east–west ridge above Rising Canyon, the western portion of Geghus Ridge, and on Grapevine, Middle, Squirrel, Silver, and Lolas Ridges) be designed and constructed consistent with the design guidelines and zoning standards contained in the Tejon Mountain Village Specific Plan (including a height limitation of 35 to 45 feet above finished grade) and be of relatively low density, and

(5) If it is observed or otherwise determined that condors are perching on or attracted to structures located on private property within the TMV Planning Area or other Covered Lands, the Service, or other party authorized by the Service (such as the Tejon Ranch Staff Biologist), will be allowed, after coordination with the property owner, to access the property to implement avoidance (hazing) measures including, for example, installation of passive rooftop sprinkler systems on structures to deter condors from the property, and other hazing measures deemed appropriate by the Service. This measure will be included in CC&Rs for commercial and residential development.

Hazing

A key method used by the Service to scare or flush condors from potentially dangerous human interactions and avoid the potential for habituation is hazing. Hazing involves providing condors with immediate and direct negative reinforcement to avoid interactions with humans or human

structures through such actions as hand clapping, yelling, the use of leashed barking dogs, and the use of water (i.e., hoses or sprinklers), and/or soft projectiles to scare condors away from a potentially harmful situation such as perching on a structure, chewing and tearing at man-made objects, or any other situation where a California condors could be at risk of injury or mortality. The practice of hazing has been an ongoing component of the condor recovery program since captive-bred juveniles were first released back into the wild, and the Service anticipates that hazing will remain a necessary recovery action, for as long as condors are attracted to humans and/or human structures.

Hazing of condors by Service personnel, or Service-approved and trained third parties, is a key measure incorporated into the TUMSHCP to avoid injury, death, or habituation of condors. As noted above, the hazing of condors has been a consistent component of the condor recovery program since condors were reintroduced into the wild in 1992 and is used by recovery program biologists when condors come in direct contact with humans or human structures. These hazing efforts have been increasingly effective in deterring inappropriate and potentially dangerous condor interactions with humans and human structures. As condors released into the wild have matured over the past 20 years, the need for hazing has diminished as older birds typically exhibit less attraction to humans and human structures than recently released juvenile birds. Effective hazing combined with the maturing of released condors has reduced the number and frequency of such interactions and the need to remove condors from the wild due to habituation or exposure to dangerous situations.

Properly conducted, hazing does not create a likelihood of injury or death to condors. To date, over the 20 year condor reintroduction program, we are not aware of a single instance of injury or death to a condor resulting from hazing and no other adverse effects to condors rising to the level of injury have been documented from hazing. Thus, the Service considers hazing to be a take avoidance measure rather than as harassment or harm to condors under the Act and 50 C.F.R. 17.3.

In the recent instance of condor activity at the Bear Valley Springs community mentioned above, the Service stationed biologists in the community around the clock throughout the 2012 summer months, so they could immediately haze birds from rooftops and decks as needed. The Service also educated landowners about potential household dangers to condors (e.g., rat poison, loose ropes or wires) and suggested methods for remediating the attractiveness of their property to condors. An automated motion detection water sprinkler located on a rooftop that was triggered by condors proved to be one of the most successful methods for flushing condors from houses in Bear Valley Springs.

The hazing of condors by trained Service personnel avoided any injury to, and the need to remove condors from the wild in Bear Valley Springs. Gradually, the condors reduced their presence at Bear Valley Springs to the point where the stationing of Service personnel to haze the birds was no longer necessary. While hazing efforts at Bear Valley Springs did not eliminate the condors' use of the area, which is historical roosting habitat for the species, it effectively directed condors away from humans and human structures, avoided any injury or mortality to

condors, and prevented any condors from becoming habituated, thus avoiding the need to remove any condors from the wild.

Based on our experience with wild condor populations to date, we anticipate there will be some need to haze condors over the 50-year permit term to avoid condor habituation to humans and /or structures on the Covered Lands, particularly within the TMV Planning Area, where new commercial and residential development would occur. As discussed above, hazing condors to discourage contact with humans and human structures involves relatively benign actions such as loud noises, the use of water sprinklers, or other non-injurious methods. Hazing of condors in conjunction with Covered Activities on the Covered Lands is not expected to significantly disrupt the birds' normal behavioral patterns or result in any injury or mortality of condors.

Hazing could result in a condor being injured if conducted by individuals without proper training and/or experience. For example, a condor near a fence, power line, road or other potential hazard, could be inadvertently hazed in the direction of the hazard by an inexperienced individual. To avoid the potential for injury to condors, active hazing may only be conducted by trained Service personnel, or in appropriate circumstances when approved by the Service, by the Tejon Ranch Staff Biologist. Because the Tejon Ranch Staff Biologist must be approved by the Service and must hold a Section 10(a)(1)(A) recovery permit to ensure proper training in hazing techniques, we do not anticipate any injury or mortality to condors as a result of hazing, consistent with our past experience.

Under the TUMSHCP, if it is observed or otherwise determined that condors are perching on or attracted to structures located on private property within the TMV Planning Area or other Covered Lands, the Service, or other party authorized by the Service (such as the Tejon Ranch Staff Biologist), will be allowed, after coordination with the property owner, to access the property to implement hazing measures, including, for example, installation of passive rooftop sprinkler systems on structures to deter condors from the property, and other hazing measures deemed appropriate by the Service. This measure would be included in CC&Rs for commercial and residential development.

Effects of Habituation on the Condor

Despite the measures incorporated in to the TUMSHCP to avoid habituation, the potential exists for one or more condors to become habituated relative to the TMV development over the proposed 50-year permit term. If hazing and other measures to avoid habituation that occurs on the Covered Lands are not successful, the habituated condor must be removed from the wild either temporarily or permanently to avoid physical injury or death. Although very difficult to predict, we anticipate that up to four condors may become habituated over the 50-year permit term, and triggering the need for the Service to remove such habituated birds from the wild. Current management practices in the Service's California Recovery Program regarding the removal of condors from the wild involve targeting an offending condor and trapping the bird(s) at an established offsite trapping location. The bird is typically held in captivity for an indefinite amount of time, dependent on the bird's behavior in captivity, as opposed to being transferred to

a different location and immediately released back into the wild (J. Brandt, Service, pers. comm. 2011). The Service has captured habituated condors to remove them from the wild (and captured hundreds of condors for medical evaluation or vaccination, replacement of GPS transmitters and tags, etc.), over the 20 years of the condor reintroduction program. During this time, we are not aware of a single instance of a condor mortality resulting from capture.

Because the population of wild condors is continuing to increase through both captive breeding and natural reproduction in the wild, and we anticipate the release program to continue until the primary threats to recovery (e.g., lead poisoning) have been reduced substantially or eliminated, we do not anticipate that removing four condors from the wild over 50 years will have an appreciable effect on the California population or the species as a whole. As discussed in the Status of the Species section, the California condor population had dropped to 22 individuals in 1982 when the decision was made to start a captive breeding population. The population has continued to grow through the use of successful captive breeding and natural recruitment from wild fledged chicks, and is expected to continue to grow into the future. As of March, 2013, there are 132 condors in the wild in California, 170 in captivity, and 404 in the total worldwide population. Using the average number of annual releases, fledged chicks, and deaths since releases began, we predict the numerical population goal (150 individuals) for down listing could be reached as soon as 2015 for the California population. This population could reach 244 individuals by 2027 (Service 2012d) and is expected to increase at a similar rate throughout the proposed permit term. As the population continues to grow through released condors and natural recruitment into the population, the effects of the nonlethal incidental take of four condors on the species as a whole would continue to decline over the 50-year permit term.

Permanent removal of a condor from the wild occurs only in the most extreme case; when a condor cannot be returned to the wild because a “time out” and/or additional aversion training to eliminate negative behaviors are not successful. Predicting whether or not a condor removed from the wild would be re-released at some point in the future is difficult, especially given the long-lived nature of the species. Based on our current experience, condors that have been removed from the wild, and that have been subsequently placed on public display in zoos, are unlikely to be re-released into the wild. Such condors are subject to regular human exposure, at close proximity, including both members of the public and zoo staff, and because condors on public display are not hazed, they receive positive reinforcement in the form of attention and food reward.

Not all of the condors removed from the wild due to habituation are on public display. Those birds could eventually be re-released at some point in the future. Examples are available in the history of the recovery program where birds removed from the wild many years ago have subsequently been re-released with no behavioral issues.

While there have been instances where condors have been permanently removed from the wild, early and consistent intervention (i.e., hazing) to deter condor interaction with humans and human structures has typically proven to be an effective solution to habituation (Service *in litt*. 2009). We have limited data available in our files that quantifies the number of condors that

have been removed from the wild due to habitation throughout the history of the recovery program. Based on the information available to us, 11 condors released into the wild were subsequently removed from the wild for "behavioral reasons" between 1994 and 2004 (Service *in litt*. 2011b). We interpret "behavioral reasons" to be similar behavior to habituation as described in the FEIS (Service 2012b) and this biological opinion. Of these 11 birds, nine were returned to captivity between 1994 and 1995, the first few years of the reintroduction program, while only two were removed between 1997 and 1999. We are aware of one additional bird removed from the wild due to habituation between 2005 and 2009 (J. Brandt, Service, pers. comm. 2012a).

Between 2009 and 2012, four condors were captured and removed from the wild due to habituation (J. Brandt, Pers. Comm., 2012a). In 2009, two birds (one 5 and one 7 years old) were removed from the Arizona population after they had been repeatedly fed by a group of hunters over the period of approximately one week. The two birds were sent to southern California to be re-released in the hope that a different environment would have a beneficial effect on their behavior. These birds exhibited extreme tolerance to humans to such an extent that they roosted overnight on the tailgate of a truck parked at the campsite. Subsequent aberrant behavior, including a lack of fear of humans, resulted in our determination that these birds were a danger to themselves, and their behavior would compromise other condors. In this instance, we attribute the habituation to the extended amount of time these birds were allowed to associate with humans at the campsite, while receiving positive reinforcement (i.e., food). These birds will likely remain in captivity permanently because they exhibited such an extreme attraction to, and tolerance of, humans. In 2011, one juvenile bird was removed from the wild for behavioral reasons when it repeatedly landed near visitors at Pinnacles National Park. Whether or not this bird will be re-released in the future is unknown at this time. Some individual condors appear to be more prone than others to habituation from the time they are released. The reasons for this are unknown.

We most recently removed a condor from the wild due to habituation in December 2012, after the bird approached a group of people. This bird had demonstrated a history of aberrant behavior from the time it was initially released. It was originally trapped in Big Sur for behavioral reasons then transferred to southern California where it was re-released, and then trapped again because it would not feed or socialize with other condors. The bird was held in the flight pen at Bitter Creek NWR, with a pre-release cohort of juvenile birds, in an attempt to socialize it with the young pre-release birds, and then recently released again. It had to be captured again because it approached a group of people likely begging for food. As indicated above, this individual never interacted naturally with other condors and exhibited aberrant behavior from the time it was first released.

In most situations where condors have been attracted to human structures or activity, the Condor Recovery Program has been able to respond to human/condor interactions soon enough that hazing efforts have been effective and habituation has not occurred, especially in more recent years as some of the released condors have reached breeding age. For the purposes of this analysis, we have conservatively assumed that up to four condors may need to be removed either temporarily or permanently from the wild as a result of the proposed activities over the 50-year

term of the proposed permit. While the estimate that up to four condors could become habituated over a 50-year time span is necessarily predictive and uncertain, we conclude that this estimate is reasonable given the increasing condor population and our experience with previous undesirable interactions between humans and condors, as well as the minimization and avoidance measures proposed in the TUMSHCP, particularly the use of the Tejon Ranch Staff Biologist and additional authorized Tejon staff to quickly respond to potential habituation behaviors before such behaviors become established and result in habituation. The estimate of four is also supported by our recent experience at Bear Valley Springs, where our consistent hazing of condors avoided habituation and the need to remove any condors from the wild despite the regular presence of condors in this historical roosting area for approximately 6 months.

As discussed above, under the TUMSHCP, "take" of a condor is considered to have occurred if a condor has become habituated to humans or human structures on the Covered Lands (i.e., its normal behavioral patterns have been significantly disrupted or compromised), even if no "physical injury" has yet occurred. The capture and temporary or permanent removal of up to four habituated condors over the 50-year permit term is considered a Service recovery action to minimize the effects of take (i.e., habituation) of the condors under the TUMSHCP. Under the TUMSHCP, the Service would confer with TRC regarding our determination to remove a condor from the wild as a result of habituation on the Covered Lands, and would work with TRC to identify additional protective measures to minimize the potential for additional habituation of condors on the Covered Lands.

Habituation of a condor would trigger its removal from the wild for its own protection and the potential protection of other condors. Although removal is a Service recovery action, we analyze what the effects of such removal means to the survival and recovery of the species in the wild. The temporary removal of a habituated condor from the wild population that is subsequently successfully returned into the wild would have a negligible effect on the species because upon its return to the wild, the bird would be contributing to the survival and recovery of the species.

Although difficult to predict, based on our experience to date, we consider that the likelihood that condors will need to be permanently removed from the wild due to habituation is low. The recovery program's regular use of effective hazing techniques where the potential for habituation exists, and the growing presence of mature adult birds in the wild population that are less likely to engage in undesirable behaviors, have resulted in fewer birds being removed from the wild in recent years compared with the earlier years of the recovery program. In addition, our expectations regarding condor behavior in the wild has evolved over the life of the recovery program. In the first years of the recovery program, condors were regularly captured and returned to captivity because of behaviors that today may not trigger removal from the wild. The recent case of Bear Valley Springs is a good example of such a change in our interpretation of acceptable condor behavior over time. While condors frequenting human structures is still not appropriate behavior, and we continue to haze birds from these situations, to date condor behavior at Bear Valley Springs has not resulted in habituation and the need to remove condors from the wild. Instead, the condors responded to hazing by leaving the immediate threat. In the

early years of the recovery program the same situation at Bear Valley Springs might have triggered the capture and removal of condors from the wild.

Based on our current management of the free-flying condor population, we would only consider removing a breeding bird attending an active nest in the extreme circumstance where there was imminent threat of injury or mortality to the bird. We continue to manage the wild population to further the success of every nest and bolster successful natural reproduction in the wild.

Condors permanently removed from the wild no longer contribute to the wild population. Currently, all condor founder genes are represented in both the wild and the captive breeding populations, and both the wild and captive populations are managed independently of each other to ensure all available original California condor founder genes are represented both populations. Therefore, habituated condors that must be removed from the wild do not contribute genes to captive California condor populations that are not already represented in captivity and in the wild and their removal would not compromise the genetic vigor of the wild population. The Service's current practice of assuring that founder genes are represented in both the captive and wild populations will continue into the future.

The wild condor population has significantly increased since the initiation of the recovery program and is likely to continue to increase at a similar rate over the 50-year term of the proposed permit. Even so, augmentation of the wild population with captive-bred condors will continue to be necessary for the foreseeable future as a result of negative natural population growth rates (i.e., mortality, largely due to lead poisoning, exceeds recruitment into the wild population from natural reproduction in the wild). Under these circumstances, the permanent removal of up to four condors from the wild, if necessary, should not appreciably affect the overall wild condor population, or inhibit the species' progress toward recovery. Our estimated level of take is based on the general historical patterns of habituation, the success of past hazing efforts in the field that have been implemented quickly to preclude positive reinforcement associated with humans and human structures, and the growing presence of mature adult birds in the wild which are less likely to engage in undesirable behaviors and can serve as models for juvenile birds.

The permanent loss of wild breeding condors as a result of habituation would have a greater negative effect on the California condor's recovery than the loss of juveniles. While the Service cannot predict what the age structure of the population will be during the 50-year permit term because natural population growth (i.e., without the introduction of captive-reared juveniles) in the wild is suppressed, primarily due to mortality from lead poisoning, and because the mortality of free-flying condors in the wild is random with respect to age class, the habituation and permanent removal of breeding adult condors from the wild would have a greater effect on the growth of the wild population, and on condor recovery, than the habitation of a juvenile bird because condors breeding in the wild are already contributing to natural reproduction in the wild, while juvenile condors are do not reach sexual maturity until approximately six years old. However, based on our past experience, we consider the habituation of adult breeding condors to

be unlikely because adult birds are more likely to avoid interaction with humans or human structures.

Though possible, it is also unlikely that four condors could become habituated at one time, resulting in the need for us to remove those four birds from the wild at once. Based on our experience during the past 8 years, when few condors have been removed due to habitation, and given the proposed measures to minimize habituation, we consider it unlikely that four condors would become habituated at one time. The presence of an onsite, Service-approved biologist with the responsibility to monitor condors on Tejon Ranch and quickly respond to negative interactions between humans and condors using Service-approved measured to haze condors should effectively minimize the need to remove condors from the wild. The Service-approved Tejon Ranch Staff Biologist would supervise and train additional qualified biologists in Service-approved hazing techniques to assist in efforts to haze condors from undesirable situations associated with the proposed action and would be empowered to enforce rules governing use of the Covered lands, which would further reduce the possibility that multiple birds would become habituated at one time. In addition, the Service would permanently review all public access plans to ensure that level and intensity of public use of the Mitigation Lands is compatible with the presence of condors.

Even if four condors were to simultaneously become habituated on Tejon Ranch, and we then had to undertake efforts to remove them from the wild, we still do not anticipate population level impacts to the condor that would appreciably reduce the likelihood of survival or recovery of the species because the wild population is increasing annually due to augmentation with captive-bred, released condors (which is likely to continue in the near future due to the ongoing threat of lead poisoning), as well as natural recruitment from wild fledged chicks. In 2012, more chicks in the southern California flock hatched in the wild and fledged than died (J. Brandt, Service, pers. comm. 2012b). If the threat of lead poisoning is alleviated, and lead deaths are halted or severely reduced, we anticipate condors could achieve a self-sustaining wild population (Finkelstein et al. 2012). The effect of removing up to four condors over a 50-year permit term is not likely to have an appreciable effect on the continuing growth of the wild population of condors in California, and thus is not likely to jeopardize the survival or recovery of the species.

In summary, we do not anticipate that habituation and subsequent efforts by the Service to remove up to four habituated condors from the wild, including the unlikely possibility of removal of four condors at one time, will have meaningful population level impacts on the recovering condor population over the 50-year life of the permit or appreciably reduce the likelihood of the survival or recovery of the species. Even with such removal, the population of wild condors would continue to grow through natural reproduction and the necessary practice of captive breeding. In addition, we are committed to keeping breeding adults in the wild even if they do not effectively respond to hazing in order to increase the potential for successful natural recruitment into the wild population except in the extreme case of imminent injury or mortality. As stated above, over the 20 years of the condor reintroduction program, no breeding adults have been removed from the wild due to habituation. As the population continues to grow each year, the total of 4 condors potentially removed from the wild population will become a smaller and

smaller subset of the overall wild population in California, and the effect of the removal of each individual (particularly non-breeding birds that would be more likely to be removed) on the overall population will continue to decline.

In addition, we consider the potential for habituation to be unlikely given the proposed minimization and avoidance measures included in the TUMSHCP, such as provisions for avoidance of microtrash, education materials regarding condor interactions and for an onsite Service-approved biologist (Tejon Ranch Staff Biologist) to monitor condors on the ranch, coordinate with the Service regarding condor locations and activity, and promptly respond with Service-approved hazing activities as directed by the Service. In particular, the ability of Service and/or Tejon Ranch Staff Biologist to respond quickly to situations involving negative interactions between condors and humans, or human structures, and to deter condors from such adverse situations, is one of the primary measures that would minimize the potential for habituation to occur.

Mitigation Measures to Support Service Recovery Actions

If condors become habituated on the Covered Lands and must subsequently be removed temporarily or permanently from the wild by Service, TRC will mitigate the loss of individual condors with the following:

(1) Should any ESA nonlethal incidental take (habituation) of a California condor occur from a Covered Activity on the Covered Lands, TRC commits to payment of the full costs of capture, monitoring, relocating, or removal of the habituated bird.

(2) Should any such ESA nonlethal incidental take (habituation) of a California condor occur from a Covered Activity on the Covered Lands that results in a physical injury of a California condor, TRC will pay the full cost of its care, including any veterinary treatment for any injury to it, and its removal to and continuing care at a breeding center or receiving facility.

Other Mitigation Measures to Support Recovery

The following additional measures have been proposed by TRC, and accepted by the Service, to further minimize and mitigate effects of the TUMSHCP, and assist in the recovery of the California condor:

(1) Measure Associated with Establishment of Supplemental Feeding/Trap and Release Sites:

a. TRC would allow the establishment of supplemental feeding sites within preserved areas of the ranch if needed in the future in support of the California Condor Recovery Plan, as determined by the Service. Currently no such feeding site is planned. If such supplemental feeding

sites are determined to be needed by the Service, the Service will consult with TRC on the location, design and operation of such feeding sites.

(2) Measures Associated with the Establishment and Enforcement of a Perpetual Ranchwide Ban on Lead Ammunition:

a. The use of lead ammunition on Tejon Ranch has been banned since January 1, 2008. The ban applies to all hunters registering with TRC's Wildlife Management Operation for hunting access licenses, whether they hunt through a hunting membership, a group hunt, or a guided hunt. California subsequently enacted the Ridley-Tree Condor Preservation Act, which bans lead ammunition in the range of the California condor effective July 1, 2008.

b. To ensure that the ban on lead ammunition will successfully contribute to reducing the incidence of lead poisoning to condors, TRC must continue to implement the hunter awareness and enforcement program. The components of the program include the following:

i) All hunting permittees must acknowledge and sign a notice and agreement that addresses the lead ammunition ban and the protection of the California condor. By signing the agreement, hunting permittees acknowledge that the possession or use of ammunition containing lead is prohibited and that violation of this prohibition will result in immediate expulsion from the ranch, permanent termination of all future hunting privileges, and liability to TRC and State and Federal governments. The agreement also clarifies protections that the condor has under State and Federal laws, penalties for violations of these laws, and the application of these laws to all hunting permittees.

ii) All hunting permittees must acknowledge and sign an agreement that defines hunting rules and regulations on Tejon Ranch. The agreement reiterates that the possession or use of ammunition containing lead is prohibited and that violation of this prohibition will result in immediate expulsion from the ranch, permanent termination of all future hunting privileges, and liability to TRC and State and Federal governments. The agreement includes rules and regulations that among other things, prohibit shooting at large birds; require that gut piles and carcasses, unless transported off the ranch or are suspected to contain lead, must remain in place on the ranch; require the removal of all litter, trash, and microtrash; and that prohibit any behavior that could be construed as a "take" of the condor.

iii) All hunting permittees must acknowledge and sign a hunting permit that reiterates that the possession or use of ammunition containing lead is prohibited and that violation of this prohibition will result in immediate expulsion from the ranch, permanent termination of all future hunting privileges, and liability to TRC and State and Federal governments, and that states that the permit is not valid unless the notice and agreement regarding lead ammunition and protection of condors and the hunting rules and regulations agreement have been acknowledged and signed. The permit also notices that the hunting permittee is bound to all conditions within each of these agreements.

c. The education and enforcement program will also include workshops and/or seminars that educate hunters with respect to the effects of lead on condors and that will give hunters an opportunity to experiment with non-lead ammunition alternatives.

d. The hunter education and enforcement program will be implemented by the Wildlife Management Operation at Tejon Ranch. The ban on use of lead ammunition applies not only to hunters, but also to all TRC employees or third parties who are engaged in any animal damage control or nuisance abatement activities on the ranch. In other words, except for law enforcement, the ban is universal as to all persons who enter the ranch.

e. To ensure that the lead ammunition ban remains in place and effective in perpetuity, the conservation easement required for the TUMSHCP Mitigation Lands will require continued implementation of the lead ban after expiration of the ITP term.

(3) Measure Associated With Funding for Additional GPS Transmitters for Condors:

a. TMV LLC will provide funding to install additional GPS satellite tracking transmitters on condors currently not carrying such transmitters to allow for the continuous, real-time monitoring of the location of wild, free-flying California condors. Specifically, $156,000 will be provided to purchase GPS transmitters prior to the issuance of any grading permits affecting suitable condor foraging or roosting habitat and then $26,000 will be provided to assist in funding operations, maintenance, and/or replacement every year afterwards for a total of 10 years. This system will enable the immediate location of birds that are not moving relative to the ground, which usually indicates that an injury or illness has occurred. The prompt retrieval of injured or sick birds will allow for the rapid implementation of

appropriate medical care or rehabilitation, actions that have saved the lives of several condors in the past.

Planwide Activities

Livestock Grazing and Range Management Activities

Grazing levels would continue consistent with the current average of up to 14,500 cattle, including cow/calf operations, which have provided important sources of food for condors on Tejon Ranch (Wilbur 1972). Current and future livestock grazing and related range management activities on the Covered Lands are expected to have continuing beneficial rather than negative effects on California condors. Livestock grazing is beneficial to California condors because, as livestock die naturally, it provides a necessary source of carrion for condors to feed on (Service 1974, 1996; Wilbur 1978). As discussed above in the Effects of the Action section under *Microtrash*, the potential for microtrash associated with ranch management activities is a potential adverse effect. However, measures incorporated into the TUMSHCP to reduce the presence of microtrash on the Covered Lands, including educational materials distributed to all parties using the Covered Lands, monitoring of potential sources of microtrash by the Tejon Ranch Staff Biologist, and requirements to clean up any sources of microtrash should effectively minimize this threat.

Fuel Management

Fuel management practices consist primarily of grazing. As discussed previously, historical grazing has benefited the California condor by providing a valuable food source. Grazing would continue at historical average levels. Fuel management through grazing is an effective means to reduce fuel loads and avoid the potential of fire to travel through expansive grasslands to reach areas of timber, development, etc. Fuel management through grazing would continue to provide a food source for condors. Fuel reduction would not result in a loss of foraging habitat for condors because grazing is one of the primary food sources for condors on Tejon Ranch. Therefore we do not anticipate adverse effects to condors or their foraging habitat from fuel management.

Filming

Filming could become an attractive nuisance if film crews feed California condors, leave discarded food, or do not pick up microtrash. As previously noted, ingestion of microtrash by adult condors can lead to injury and/or mortality of chicks. The measures proposed under the TUMSHCP and described previously in detail under *Microtrash*, should reduce the threat of microtrash associated with filming, particularly monitoring by the Tejon Ranch Staff Biologist and the requirement to clean up all film sites.

The potential for condors to become habituated to humans or structures associated with filming events is also potential adverse effect of filming on Tejon Ranch. Measures to minimize the

potential for habituation described in detail under *Habituation* above, including hazing of any condors approaching people, film sets, and any associated vehicles or equipment, have proven to be effective in minimizing the likelihood of habituation. Qualified TRC employees, such as the Service-approved Tejon Ranch Staff Biologist, and other personnel would be assigned to accompany all film crews and would enforce rules prohibiting behaviors that could lead to habituation of or injury to condors including discarding food or microtrash or approaching condors.

Filming that includes explosives or other loud noises could adversely affect condors that may be roosting or feeding in the vicinity. For that reason, explosions (louder than gunshots) or other abnormally loud noises are prohibited throughout the TUMSHCP Mitigation Lands unless the Service-approved Tejon Ranch Staff Biologist, in consultation with the Service, determines that no condors are present. Explosions (louder than gunshots) are absolutely prohibited in the Condor Study Area portion of the Covered Lands.

The Interim RWMP also requires pre-disturbance review and restoration of all filming sites to pre-disturbance conditions. These restrictions would be included in subsequent revisions to the RWMP and subject to Service review and approval during the proposed permit term. For these reasons the threats including microtrash and habituation associated with filming should be effectively reduced on the Covered Lands.

The Applicant is not able to provide an estimate of the frequency or scope of film production on the Covered Lands. To date we are unaware of adverse effects to condors associated with filming except for one instance in 2011 when several juvenile condors approached a film site. Service biologists were investigating GPS locations in the area and effectively flushed the condors from the film site. The measures discussed above in the Effects of the Action section, under *Habituation* and *Microtrash* should effectively minimize these threats, particularly the monitoring of film sites by the Tejon Ranch Staff Biologist for condor activity and the requirement for film crew to clean up all films sites and remove all microtrash.

Recreation

Recreational activities on the Covered Lands could have an adverse effect on California condors if the activities intrude into areas where the species is roosting, foraging, or feeding. However, given the large size of the conservation lands; the random, irregular occurrence of carrion that condors use for food; the low-impact, passive recreation activities proposed; and the active monitoring and regulation of those activities by TRC staff or Conservancy docents, as well as restrictions on the location and types of organized events, we anticipate the level of potential for disturbance from passive recreation to be low, and similar to what has occurred in other areas within the condor's historical range in association with passive recreation. For example over the life of the recovery program, individual hikers, campers, and hunters have interacted with condors who may have investigated their campgrounds or flown low over trails located on ridgelines and investigated groups of hikers, mountain bikers, etc. Such instances are fairly infrequent.

The greatest risks to condors from such interactions is the potential for habitation if condors are allowed remain in close proximity to recreation activities, if they are fed by visitors, or if they destroy camping or other equipment, thereby becoming susceptible to injury or mortality. Camping equipment could also include microtrash that condors could ingest if they have access to unattended camping or hiking equipment. Measures to minimize the potential for habituation, disturbance, and microtrash, described previously, should effectively minimize the potential for habituation, disturbance, and ingestion of microtrash.

Further, private recreation activities are limited by the requirement in the TUMSHCP to preserve the conservation values of the Covered Lands (including species and habitats) pursuant to the TUMSHCP and to follow best management practices required to be developed through the RWA as part of the RWMP. Public recreation activities will only be allowed in accordance with a Public Access Plan that would be reviewed and approved by the Service for consistency with the TUMSHCP, the RWA, and applicable TUMSHCP conservation easements during the permit term and would continue to be subject to Service review and approval following the permit term for consistency with the terms of applicable TUMSHCP conservation easements and with the Act. These measures will assure that recreational activities will be limited to those compatible with protection of the condor and its habitat.

An Interim Public Access Plan is currently in place that provides for docent-led public tours and that requires pre-activity surveys prior to any ground-disturbing activities. We anticipate the level of public access under the TUMSHCP to be generally consistent with the Interim Public Access Plan [individual docent lead tours, passive recreation etc., limited access points (M. White, Tejon Conservancy, pers. comm. 2012)]. The public access plan would be reviewed and approved by the Service in perpetuity. Through our review and approval we anticipate the amount and extent of public access that disturbance to the California condor will be effectively minimized. Our experience to date with the interim public access plan is that it has not resulted in any adverse effects to the California condor.

Irrigation/Water Diversion

A few small agricultural areas totaling about 232 acres exist within the Covered Lands (e.g., small vineyards and an orchard near Castac Lake). Agricultural uses that remain in open space after TRC identifies the final development footprint will continue subject to State and local regulations. Most of TRC's farming operations are located on the San Joaquin Valley floor and are not in the Covered Lands. The remaining 232 acres of ongoing agricultural activity will continue either in the development area or adjacent to it (without expansion), and are all within 0.5 mile from the development (that area previously discussed as not likely to be used by condors due to disturbances associated with human activity and development within that distance) and therefore are not located in an area that we expect to be used by condors. For these reasons we do not anticipate any adverse effect to condors from agricultural activities in Covered Lands. Previously authorized water diversions from several creeks on Tejon Ranch support more extensive agricultural activities on the San Joaquin Valley floor outside the Covered Lands.

Three are on, or withdraw water from, watercourses on the Covered Lands. Such water diversions would continue. We do not anticipate water diversions to affect the California condor, because condors have historically used, and currently drink, from cattle water troughs on Tejon Ranch. The continuation of ranching will continue to make such water sources available to condors.

The principal risk to California condors from farming operations would be if farm chemicals were left in the open unattended. For example, in the early 1990s a condor died after ingesting ethylene glycol (anti-freeze) that was not properly stored near Pyramid Dam in Los Angeles County, California. Leaving chemicals unattended is prohibited by applicable local, State, and Federal requirements for managing pesticides, which include proper storage, which is also a requirement under the TUMSHCP. Further, these activities are subject to the farming and water diversion best management practices in the Interim RWMP, which also include requirements for proper storage. Therefore, chemicals used in association with farming (and ranching) would be stored in locations and in such a condition they would not be available to condors, effectively eliminating the threat of poisoning from farming chemicals.

Roads/Trails

A network of generally unpaved roads exists in the action area, and would be maintained, relocated, or new roads could be constructed to facilitate the Planwide Activities. Road maintenance activities are subject to best management practices related to maintenance for fire prevention, maintenance of berms on dirt roads to handle minor storm water flows, and dust control management activities on dirt roads. Further, any new or relocated roads would first be evaluated by the Conservancy, including a site assessment, to avoid impacts to sensitive resources and must also be planned to reduce impacts on sensitive natural resources and limited to a minimal area.

One condor is thought have been hit by a vehicle while feeding on road kill in a densely forested area in Arizona Road; however, use and maintenance of roads and trails have not been observed to be a substantial source of impacts to California condors historically, on the ranch or elsewhere within the range of the condor. Condors typically do not feed on road kill. If road kill attracts condors in the action area, the Service would be contacted to provide technical assistance. No new roads except ranch and emergency vehicle access roads would be constructed outside the TMV Planning Area. Any potential loss of suitable foraging habitat would be accounted for in our analysis of the *Estimate of Planwide activity Disturbance* discussed below.

Microtrash could inadvertently be left by individuals, motorists, or work crews involved in repair or maintenance activities. As previously noted, ingestion of microtrash by adult condors can lead to injury and/or mortality of chicks. The TUMSHCP includes measures to effectively minimize the risk of microtrash through education and trash pickup requirements. TRC or an included entity will ensure that community maintenance activities include regular efforts to eliminate microtrash at and near all work sites, recreation events, filming projects, roads, and back-country areas where human presence will occur. Similarly, other potential threats such as

disturbance and habituation would be effectively minimized in association with the construction of new ranch or emergency vehicle access roads, or the repair and maintenance of existing ranch roads through educational requirements for all users of the Covered Lands and the requirement that the Tejon Ranch Staff Biologist monitor condors and respond to condor/human interactions, as discussed in more detail in the Effects of the Action section, under *Disturbance* and *Habituation*.

Backcountry Cabins

Eight backcountry cabins are currently present on the Covered Lands. Two of these are located in the Condor Study Area. Maintenance and use of existing backcountry cabins would continue. In addition, cabins may be relocated with Service approval, following the limitations as described in Table 1 of this biological opinion.

No new cabins may be constructed in or relocated to the Condor Study Area. As previously noted, microtrash left by users of these cabins could adversely affect condors if ingested by condor chicks that are fed by adults. As discussed in detail in the Effects of the Action section, under *Microtrash*, there are numerous measures included in the TUMSHCP to minimize this threat, including educational materials distributed to all parties using the Covered Lands, monitoring by the Tejon Ranch Staff Biologist and the requirement to clean up all sources of microtrash. Condors attracted to backcountry cabins could also become habituated. The measures discussed in detail in the Effects of the Action section, under *Habituation*, including educational materials for all parties using the Covered Lands, monitoring by the Tejon Ranch Staff Biologist, and including hazing of any condors approaching people, and any associated vehicles or equipment that have proven to be effective in minimizing the likelihood of habituation.

Ancillary Ranch Structures

The TUMSHCP provides for the maintenance, construction, expansion, or relocation of existing structures on the TUMSHCP Mitigation Lands that support ranching activities, provided that such activity is *de minimis*. Ground disturbance from ancillary ranch structures would be included in the 200 acres allocated for all Planwide Activities.

As described above under Planwide Activities in the Description of the Proposed Action section, *de-minimis* activities associated with ancillary ranch structures would be covered under the TUMSHCP. Non-*de minimis* activities associated with ancillary ranch structures are also allowed (1) if the activity is located in disturbed areas (e.g., undergrounding utilities in road rights-of-way), or (2) following a meet-and-confer process with the Service to ensure that the activity associated with an ancillary ranch structure avoids or adequately minimizes impacts to Covered Species and their habitats.

As noted, ancillary ranch activities would support ranching or hunting uses that benefit the condor, and the additional restrictions and protective measures to address habituation,

microtrash, and disturbance, described in the Effects of the Action section, previously under *Habituation*, *Microtrash* and *Disturbance* should effectively minimize these threats in association with ancillary ranch structures, particularly educational materials distributed to all users of the Covered Lands, monitoring by the Tejon Ranch Staff Biologist, requirements to clean up microtrash and the use of Service-approved hazing measures to minimizing habituation.

Fencing

Existing fences may be maintained throughout the Covered Lands. In addition, new fencing may be constructed only to support existing ranch uses and mitigation efforts. While some fencing is present, and new fencing can be located in suitable foraging habitat used by condors, fencing is not known to adversely affect condors on the ranch or in other areas within the range of the condor. In addition, under the TUMSHCP, any new fencing would first be subject to a site evaluation to avoid impacts to sensitive natural resources under the RWMP, and will be reviewed by the Service. Therefore, condors are not expected to be subjected to any adverse effects associated with fencing.

Lebec/Existing Headquarters Area Uses

TRC's corporate headquarters are located immediately adjacent to I-5 and within the approximately 410-acre Lebec/Existing Headquarters Area. Currently, this area includes a number of corporate headquarters buildings, an antique shop, a post office, a church, and several single-family residences for ranch employees. Existing activity in the Lebec/Existing Headquarters Area would continue to occur. Construction of additional structures within the 265-acre development envelope in this area is considered part of the commercial and residential development Covered Activities.

The existing uses in and around TRC's corporate headquarters are located adjacent to I-5 (within 0.5 mile), and therefore are not located in an area that we expect to be used by condors. As such, we do not anticipate any adverse effect to condors as a result of Lebec/Existing Headquarters Area uses. If condors were to be attracted to this area and exhibited potential habituation behaviors, the methods discussed previously and analyzed above in the Effects of the Action section, under *Hazing*, *Habituation*, and *Microtrash*, would be implemented to minimize habituation and microtrash. In particular, Service-approved hazing methods implemented by the Service, the Tejon Ranch Staff Biologist and or other Service-approved biologists under Section 10(a)(1)(A) permits, combined with educational materials disturbed to all users of the Covered Lands should effectively minimize the potential for habituation in the unlikely event condors approached the Lebec/Existing Headquarters Area.

Similarly, if condors were to be attracted to the Lebec/Existing Headquarters Area, they could ingest microtrash. However, this area is also subject to all applicable requirements under the TUMSHCP to effectively minimize and avoid threats to the condor on the Covered Lands, including those discussed in detail in the Effects of the Action section, under *Microtrash*, *Disturbance*, *Habituation* and *Collision* above. For the reasons described previously under the

analysis for these specific threats, these threats will be effectively minimized by the proposed measures in the unlikely event condors were attracted to the area Lebec/Existing Headquarters Area.

Mitigation, Monitoring, and Management

Mitigation, monitoring, and management activities to carry out identified biological goals and objectives for the condor or other Covered Species included in the TUMSHCP or other resource agency permits for the commercial and residential Covered Activities, as well as mitigation, monitoring, and management activities imposed pursuant to any local, State, or Federal approval of development on Tejon Ranch would be carried out in accordance with the Act and would be subject to our review. We acknowledge that other agencies may credit TRC for mitigation and protective measures included in the TUMSHCP for mitigation imposed by such other agencies. Any restoration, enhancement, or similar mitigation activities would not be allowed if they would result in unpermitted take or unpermitted adverse habitat modification under the Act.

Additionally any mitigation activities for other agencies would be subject to the protective measures for the California condor included in Table 1, in the Description of the Proposed Action section of this biological opinion. For all the reasons described previously in the Effects of the Action section, under *Disturbance*, *Habituation*, *Hazing*, and *Microtrash*, we anticipate that any of these potential threats to the California condor as a result mitigation, monitoring, and management activities would be effectively minimized.

Estimate of Disturbance by Planwide Activities

The proposed TUMHCP would cover approximately 200 acres of permanent ground disturbance associated with the Planwide Activities described above. If the Applicant restores an area of ground disturbance, an area equal in size may then be disturbed. Thus, no more than 200 acres may exist in a developed condition because of Planwide Activities at one time. Ground disturbance would primarily be associated with construction of roads, backcountry cabins, and ancillary structures.

For the purposes of this effects analysis, we assume that all parts of the action area that could be affected by Planwide Activities have an equal chance of being affected and that all habitat types would be affected in equal proportion. This assumption is based upon the Applicant's inability to predict exactly where 200 acres of habitat disturbance due to Planwide Activities would occur.

For the purposes of estimating species-specific habitat disturbance by Planwide Activities, we are not using the 8,817-acre development envelope used by the Applicant to estimate impacts from development (TUMSHCP Table 2-1, footnote 4), but rather we are using the 5,533-acre area that actually could be developed within the development envelope. We did this because, after development of the 5,533-acre development footprint, 3,284 acres of the 8,817-acre development envelope would remain and be subject to Planwide Activities, and modeled habitat for the California condor could occur in the 3,284 acres. Therefore, we included 3,284 acres of

the development envelope in this analysis to acquire an estimate of habitat lost by Planwide Activities that is as accurate as possible. When we combine this estimate with anticipated habitat loss from commercial and residential development in the summary of effects analysis (discussed below), we will have slightly double-counted and overestimated the amount of suitable foraging habitat that would be lost in the action area. This slight overestimation of lost habitat does not compromise our analysis, because the overlap is very small relative to the size of the action area, and this approach ensures that potential species impacts are fully considered by analyzing a larger impact than would actually occur.

Adding together the acres of commercial and residential development, National Cement and La Liebre Mines, the VA Cemetery, and Not-A-Part lands (blocks of land within the boundary of the action area but not owned by the Applicant), a total of 12,423 acres within the exterior boundaries of the plan area are not subject to Planwide Activities. We expect that Planwide Activities could occur on the remaining 129,463 acres of the action area (141,886 acres within the action area minus the 12,423 acres of excluded areas above). Therefore, the ratio of disturbance due to Planwide Activities (200 acres) to Covered Lands subject to Planwide Activities (129,463) equals 0.0015. We applied this ratio to suitable foraging habitat outside the excluded areas but in the action area and rounded the remainder up to a whole acre. Thus, 66,117 acres of suitable foraging habitat are subject to Planwide Activities, and using our ratio of 0.0015, we anticipate that Planwide Activities would disturb or remove up to approximately 99 acres of suitable foraging habitat for the California condor over the permit duration. Because of the substantial amount of foraging habitat that would be conserved in the Mitigation Lands, we consider the additional loss 99 acres of suitable foraging habitat to be negligible. With the loss of an additional 99 acres, the TUMSHCP would still result in the conservation of 66,018 acres of suitable foraging habitat on the Covered Lands.

Even if we assume the entire 200 acres of additional ground disturbance were to occur in suitable foraging habitat, the added loss of this additional acreage would have a negligible effect on the California condor and its ability to forage effectively, inside and outside of the Covered Lands, due to the vast amount of suitable foraging habitat conserved (see Table 3 in the *Environmental Baseline* section of this biological opinion), combined with the continued availability of historically important food sources generated from grazing, hunting, and other natural wildlife mortality on the Covered Lands. In addition, because these 200 acres account for impacts associated with all Planwide Activities, the loss of these 200 acres would likely be spread across the Covered Lands over the life of the proposed permit and would not occur all at one place or at one time. This would further reduce the potential impact of the loss of these additional 200 acres. The vast majority of the Covered Lands, in addition to the remainder of Tejon Ranch not modeled as suitable foraging habitat will also be conserved under the TUMSHCP and RWA.

Summary of Effects on the California Condor

In determining whether a proposed action is likely to jeopardize the continued existence of a species, we consider the effects of the action with respect to the reproduction, numbers, and distribution of the species. We also consider the effects of the action on the recovery of the

species. In that context, the following paragraphs summarize the effects of the proposed TUMSHCP on the California condor.

Habitat loss, collision, microtrash, disturbance, and habituation are potential adverse effects to the California condor that could occur as a result of the Covered Activities under the TUMSHCP, including up to 200 acres of ground disturbance associated with Planwide Activities and approximately 17,995 acres of suitable foraging habitat lost or indirectly affected by proposed development. Numerous measures to avoid or effectively minimize these adverse effects in association with commercial and residential development and the Planwide Activities discussed in detail above and included in Table 1, in the Description of the Proposed Action section of this biological opinion, are proposed as part of the TUMSHCP. Implementation of the proposed measures should avoid or effectively minimize collisions, microtrash, disturbance of condors, and the potential for habituation. The TUMSHCP will mitigate for unavoidable impacts, including loss of suitable foraging habitat by, among other measures, permanently conserving the vast majority of the Covered Lands and ensuring the management of such lands is compatible with conservation of the condor and other resource values.

Acreages of suitable foraging habitat and critical habitat (discussed below) that are included in Table 3, *California Condor Acreage Matrix*, and otherwise discussed in this biological opinion, prior to the *Summary of Effects of the TUMSHCP* section and *Summary of Effects on Critical Habitat* section, do not include the additional acreage we estimate to be lost from the Planwide Activities. The amounts of suitable foraging habitat and critical habitat reflected in theses *Summary of Effects* sections and in the *Conclusion* section, represent the total amount of suitable foraging habitat, and critical habitat, that we anticipate to be lost from the development and planwide activities proposed under the TUMSHCP. As stated above, we anticipate approximately 17,995 acres of suitable foraging habitat for the California condor will be lost, and indirectly affected due to development, and we have calculated that in the remainder of the Covered Lands, Planwide Activities could affect an additional 99 acres of suitable foraging habitat, for a total of 18,094 acres of lost suitable habitat for the California condor. While 18,094 acres of suitable foraging habitat would be lost, 66,018 acres of suitable foraging habitat would be preserved in the TUMSHCP Mitigation Lands. An additional 83,818 acres of suitable foraging habitat will be conserved outside of the Covered Lands under the RWA. The total amount of suitable foraging habitat remaining on Tejon Ranch after implementation of the TUMSHCP would be 164,619, of which 149,935 acres would collectively be conserved under the TUMSHCP and RWA. This suitable foraging habitat would continue to support foraging opportunities for condors in the Covered Lands, and across the ranch consistent with historical condor use of the ranch. Overall, the vast majority of the Covered Lands would be protected from future commercial and residential development, and would continue to support suitable condor foraging and roosting habitat.

As discussed above under *Habituation*, we consider the likelihood that four condors will become habituated and require removal from the wild during the proposed 50-year permit term to be low due to the numerous measures incorporated into the TUMSHCP to minimize the potential for habituation and so due to the maturing of the wild population and the Service's improved

aversion training methods. In the event the TUMSHCP measures do not avoid habituation entirely, the habituation of up to 4 condors, and their subsequent removal from the wild, would not result in population level impacts to the condor leading to an appreciable reduction in the likelihood of the survival of the species. The free-flying California condor population is expanding and will continue to grow, through natural recruitment as well as captive breeding as necessary. The Service's removal of up to four condors from the wild over the 50-year permit term will not appreciably hinder the growth of the wild population in California, which has expanded from 8 released in 1992 to a total of 126 condors as of November 30, 2012 despite the need to periodically remove condors from the wild population due to habituation or other causes. As discussed above, we consider it likely that by 2015, the California population of free-flying condors will reach the numerical target of 150 individuals, which is identified in the Condor Recovery Plan as one of several important criteria for down listing the species to threatened status. Moreover, the relative effect of the removal of up to four condors would continually decrease over the permit term as the wild population expands. Based on the analysis above, we also do not anticipate that implementation of the TUMSHCP will impair recovery of the California condor. A further discussion of the effects of the Covered Activities on recovery is included below.

Reproduction

No evidence exists of historical or current California condor nesting on the Covered Lands or elsewhere on Tejon Ranch. The Covered Lands were historically used as a traditional roosting area and foraging grounds. The condor's traditional roosting area on the Covered Lands would be permanently protected in the Condor Study Area portion of the Mitigation Lands under the TUMSHCP. The conservation of substantial suitable foraging habitat on the Covered Lands would result in the conservation of historical foraging grounds in close proximity to the Sespe-Piru critical habitat nesting areas. Because condors are capable of flying over development areas similar in size to what is proposed under the TUMSHCP, implementation of the TUMSHCP and ITP will not prevent condors foraging on the Covered Lands, from reaching nesting areas, including critical habitat. In addition, we do not anticipate the habituation of four condors over the permit term to include breeding adult condors, and therefore do not anticipate the removal of any breeding individuals from the wild, including adults tending nests (see *Habituation* above). Also discussed above under *Habituation*, older condors are less likely to exhibit habituated behaviors than juvenile condors and over the 20 year reintroduction period, we have never had to remove a breeding adult condor from the wild due to habituation. We continue to manage the species to increase natural reproduction in the wild and would only remove a breeding bird in the case of imminent injury or death. Therefore, California condor reproduction will not be impacted by the proposed TUMSHCP.

Number

The proposed TUMSHCP would include the incidental take of four California condors through habituation. No lethal take of condors would be authorized, thus the absolute number of condors would not decrease under the plan. Even so, condors that do not respond to hazing efforts on

Tejon Ranch are considered to have become habituated. Under the permit, the Service would remove up to four condors that have become habituated on Tejon Ranch from the wild either temporarily or permanently as a recovery action, under our section 10(a)(1)(A) permit, to avoid the continuing threat of injury or mortality. If the removal of a condor was temporary, and it was returned into the wild, the effects on the wild population would likewise be temporary and slight.

We consider there to be a low likelihood that the permanent removal of up to four condors from the wild will be necessary. Over our 20 years of administering the condor reintroduction program, the development of improved aversion training methods combined with the maturing of wild condors to model appropriate behaviors for younger condors, as resulted in fewer permanent removals in recent years. If one or more of the four condors were permanently removed from the wild, that condor would no longer contribute to the expansion of the wild population, although it would still be present in the captive population and available to contribute to condor recovery efforts.

Based on the species' current population and expected population growth, we conclude that the permanent removal of up to four condors from the wild would have a negligible effect on the species' numbers. Reproduction in the wild is successfully occurring and is contributing to the increases in the free-flying population each year. In addition, the wild California condor population will continue to require augmentation by releases of captive-bred birds for the foreseeable future until the threat of lead contamination is effectively reduced or eliminated. As discussed previously under *Habituation*, we anticipate the wild population to reach the numerical downlisting criterion of 150 birds for California by 2015, and we anticipate that the wild population will continue to grow at current rates, thus resulting in a continuing decline over time of the impact of the removal of four condors.

Because we anticipate the population will continue to increase in the reasonably foreseeable future due to captive-breeding as well as wild reproduction, the removal of up to four birds from the wild over a 50-year permit term is not expected to have an appreciable effect on the number of condors in the wild. We anticipate that the likelihood of removing any condors from the wild is low based on our continuing success in hazing condors from potentially dangerous interactions with humans and human structures, and that any removal of condors that may be required would likely be temporary in duration. Therefore, the TUMSHCP will not result in a population level reduction in the number of California condors in the wild.

Distribution

We do not anticipate the proposed action will affect the California condor's distribution. Condors currently fly over developed areas similar in size to that proposed under the TUMSHCP, moving back and forth from nesting areas to foraging areas, to roosting areas, and accessing much of their historical range. Large undeveloped areas on the Covered Lands (as well as on the ranch as a whole) will be conserved and ensure that the ranch continues to carry out its historical foraging, roosting and connectivity functions for condors. Almost all areas of the condor's range now include some form of human development. Although development

poses a threat of habituation to condors, we have become increasingly successful at managing condors in this environment through hazing and educational outreach efforts. As a result, fewer condors have required removal from the wild. We anticipate that condors will continue to use the Covered Lands as they expand their use of historical foraging, roosting, and nesting habitat throughout their geographic range with implementation of the TUMSHCP. The removal of condors from the wild, due to habituation, since the start of the recovery program has had no effect on the species current distribution. Despite the examples of condors removed from the wild, discussed above in the Effects of the Action section, under *Habitation,* California condors are currently accessing nearly all of their recent historical range in California, and we anticipate their range expansion to continue. Therefore, California condor distribution will not be diminished by the proposed TUMSHCP.

Effects on Recovery of the California Condor

As of March 2013, there are 132 California condors in the wild in California, comprising one of the two spatially disjunct populations identified in the recovery plan (Service 1996a). The other disjunct population occurs in Arizona and Utah, and is designated as experimental, non-essential under section 10(j) of the Act (Service 1996b). Experimental, non-essential populations may only be considered for the purposes of section 7(a)(2) when a proposed action that would affect the experimental, non-essential population on National Park or National Wildlife Refuge lands. Because the proposed TUMSHCP would not occur on a National Park or National Wildlife Refuge, and would not affect the 10(j) population established in Arizona, we are not including that population in our analysis of the Effects of the Action on the species' recovery.

The California population consists of all condors in the wild in California. This population is unofficially divided by the California Condor Recovery Program partners into a Southern California flock and a Central California flock for management purposes, based on the location of the current release sites and the general behavior of the condors frequenting these locations. Condors released in Big Sur and at Pinnacles National Park, as well as their wild offspring, are loosely considered the Central California flock because they currently spend most of their time in the central part of the State and do not regularly interact with condors in Southern California. We anticipate increased interaction between the Southern and Central California flocks as the overall California population continues to grow, and more individuals expand their home ranges.

We anticipate direct and indirect effects on 18,094 acres of suitable foraging habitat for the California condor as a result of commercial and residential development and 200 acres of ground disturbance associated with Planwide Activities. Based on the development envelope included in the proposed TUMSHCP, 6,656 acres of suitable foraging habitat would be directly lost when converted to commercial and residential development. An additional 11,339 acres of suitable foraging habitat would be indirectly affected by development related noise and activity. To offset the loss of foraging habitat, the proposed TUMSHCP includes conservation of 66,018 acres of suitable foraging habitat in the TUMSHCP Mitigation Lands, including 23,040 acres of suitable foraging habitat within the 37,000-acre Condor Study Area. In addition, 83,818 acres of suitable foraging habitat will be conserved outside of the Covered Lands under the RWA. A

total of 164,619 acres of suitable foraging habitat will remain with implementation of the TUMSHCP. Of that total, 149,836 acres of suitable foraging habitat would be conserved on Tejon Ranch in perpetuity (assuming the additional 99 acres of suitable foraging habitat were lost). Overall 129,318 acres will remain undeveloped in open space under the TUMSCHP plus approximately 110,000 additional acres under the RWA resulting in the permanent conservation of approximately 240,000 acres of Tejon Ranch.

Condors within the California population are regularly finding carrion on their own and do not rely on supplemental feeding for food. We do not anticipate that the direct loss and indirect effects on up to 18,094 acres of suitable foraging habitat on the Covered Lands will impair the ability of the California population to forage and find sufficient food as the population expands over the term of the proposed permit. The conservation of 66,018 acres of suitable foraging habitat on the Covered Lands, as well as an additional 83,818 acres of suitable foraging habitat on Tejon Ranch, outside the boundaries of the Covered Lands (149,836 acres of suitable foraging habitat conserved in total), will ensure Tejon Ranch continues to provide suitable foraging habitat for the expanding California population of condors using Tejon Ranch now and into the future as the species recovers. The continuation of grazing on the Covered Lands and rest of Tejon Ranch at historical levels and the continuation of the ranch's commercial hunting program will ensure a consistent food supply for condors foraging on the ranch.

As previously discussed, we do not anticipate any mortality of California condors in association with the Covered Activities. The TUMSHCP includes numerous protective measures to avoid and minimize impacts to condors including requirements to eliminate microtrash and prevent lead poisoning, a primary and continuing threat to condors in the wild. The TUMSHCP and ITP would allow the incidental take of up to four condors in the form of habituation triggering the need to remove condors from the wild either temporarily or permanently. As discussed above under *Habituation*, given the projected increase of the population, through both captive breeding and natural reproduction in the wild, the removal of up to four condors would over a 50-year permit term, would have negligible effects on the growth of the wild California population, which is anticipated to reach numerical 150 bird down-listing target set forth in the recovery plan within the next several years. In addition, the TUMSHCP contributes various additional measures to condor recovery, including provision of a supplemental feeding station, if deemed necessary by the Service to further the Recovery Plan, enforcing the ranchwide lead ban, and funding GPS units for additional condors.

We conclude that issuance of the proposed ITP will not appreciably reduce the likelihood of the recovery of the California condor but rather will contribute to the species' recovery by securing the permanent protection of important, strategically-situated foraging and roosting habitat for the species as recommended in the recovery plan and providing for Service review and approval of public access to these areas to minimize disturbance of condors.

Effects on Critical Habitat for the California Condor

The Service designated critical habitat for California condor in 1976 (Service 1976, September 24, 1976). It was one of the first critical habitat designations, was demarcated generally by township and range lines, and lacks the detailed discussion of essential habitat features and primary constituent elements that are characteristic of more recent designations. However, each of the nine different critical habitat units (the units are referred to as "areas" in the rule) was designated because of its specific role in meeting the life history needs of the California condor (i.e., nesting, roosting, and foraging areas). The specific conservation function of the Tejon Ranch critical habitat unit is to provide essential feeding (foraging) areas for the California condor (Service 1976). It is also important to note that in describing the Tejon Ranch and other critical habitat units in the final rule we state:

> The Tejon Ranch, Kern County rangelands, and Tulare County rangelands, as described below, are considered critical for feeding and related activities. The Tejon Ranch is very important as it contains the only significant feeding habitat remaining in close proximity to the Sespe-Piru Condor nesting area. In most cases, Condor feeding habitat is not so restricted as nesting and roosting sites, and only certain portions of the areas described below are needed at any one time. Because, however, the location of food is directly related to both Condor distribution and reproductive success, substantial areas of open range with adequate food, and limited development and disturbance, would have to be preserved in each delineated area in order to maintain the species (Service 1976).

In evaluating the effects of the proposed TUMSHCP and ITP on critical habitat for the California condor we focus on the loss of suitable foraging habitat associated with commercial and residential development (discussed below under *Estimate of Disturbance to Critical Habitat Due to Commercial and Residential Development Activities*), and with 200 acres of ground disturbance associated with Planwide Activities (discussed below under *Estimate of Disturbance to Critical Habitat Due to Planwide Activities*).

We also consider the effect of the proposed development on connectivity within the Tejon Ranch critical habitat unit and between the other designated California condor critical habitat units. We analyze these effects in terms of the ability of the Tejon Ranch critical habitat unit, and the ability of the entire California condor critical habitat designation to continue to provide its conservation function for the species and, as outlined in our policy guidance (Service 2004), we are not relying on the regulatory definition of "destruction or adverse modification" of critical habitat.

The Tejon Ranch critical habitat unit encompasses 134,871 acres[10], including 87,400 acres of suitable foraging habitat for the California condor[11]. We modeled suitable foraging habitat for the California condor on Tejon Ranch (Service 2012a [MR-1E] and Service 2012b [MR-3]) using the Tejon vegetation GIS layer (Dudek 2007c) to identify specific vegetation communities that have consistently been associated with condor foraging, including foothill grassland and oak-savannah habitats (Snyder and Snyder 2000; Service 1996a; Wilbur 1978), for inclusion in the foraging habitat model. Additional vegetation communities identified in the vegetation GIS layer were also examined and overlaid with aerial imagery of Tejon Ranch to assess the extent of open ground throughout these vegetation communities on the ranch. We then conducted a field site visit to assess the density, thickness, and extent of the vegetative understory in the additional vegetation communities included in the Tejon vegetation GIS layer, and to assess the potential for condors to access food and/or facilitate escape from potential predators in these vegetation communities. Based on aerial imagery plus the field site assessment we discarded some vegetation communities and included others in our model. Using the Tejon Vegetation GIS layer we then quantified the total acreage of the vegetation communities that would be impacted directly and indirectly by the proposed TMV Planning Area development envelopes. Based on our model we identified a total of 182,614 acres of suitable condor foraging habitat on Tejon Ranch, including 84,112 acres in the Covered Lands. All suitable foraging habitat acreages used in this biological opinion are derived from our model.

Disturbance to Critical Habitat Due to Commercial and Residential Development Activities

Approximately 95,068 acres of the Tejon Ranch critical habitat unit are within the TUMSHCP boundaries. The proposed commercial and residential development in the TMV Planning Area partially overlaps with designated critical habitat and would result in adverse effects to 14,837 acres of critical habitat, including 12,015 acres of suitable foraging habitat, taking into account both habitat lost and habitat indirectly affected. As discussed above in the Effects of the Action section, under *Habitat Loss*, we assume for purposes of analysis that lands within the TMV Specific Plan or Oso Canyon development envelopes (both within the TMV Planning Area) and within 0.5-mile of these development envelopes would not serve as a significant foraging area for condors as a result of disturbance associated with the development and use of these areas. Therefore, the Service does not anticipate that the areas extending 0.5 mile from development envelopes would remain functional as foraging habitat for condors following development in the TMV Planning Area. Of the total number of critical habitat acres directly or indirectly affected by development proposed under the TUMSHCP, 12,015 acres are considered suitable foraging habitat.[12]

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[10] Not all of the Tejon Ranch critical habitat unit is within Tejon Ranch. Approximately 127,774 acres of the 134,871 acre unit lie within the ranch boundaries.

[11] We determined there are a total of 182,614 acres of suitable foraging habitat on Tejon Ranch, considering lands both within and outside of the Tejon Ranch critical habitat unit.

[12] We did not include the Lebec existing headquarters area in our model of suitable foraging habitat because these areas are within 0.5 mile of the busy I-5 corridor and existing developed areas and therefore unsuitable for condor foraging. This area is also located outside of designated critical habitat for the condor.

Approximately 80,231 acres of critical habitat, encompassing 46,045 acres of suitable foraging habitat, would be conserved in the Covered Lands, not taking into account the impact of Planwide Activities, discussed below. Traditional roost sites in the Winters Ridge area of the critical habitat unit would also be conserved.

As discussed previously, the specific conservation function of the Tejon Ranch critical habitat unit is to provide essential feeding (foraging) areas for the California condor (Service 1976). The Tejon Ranch foraging areas represent the closest foraging habitat to the Sespe/Hopper nesting areas. In addition, the Tejon Ranch critical habitat unit provides areas for roosting, including a traditional roosting area historically used by condors, as well as habitat connectivity to other portions of the historical range outside and beyond the boundaries of Tejon Ranch.

Condors are regularly feeding on non-proffered food on Tejon Ranch (food that they find on their own that that is not part of the Service's supplemental feeding program), both on and off of the Covered Lands, and beyond the boundaries of Tejon Ranch. Condors did not historically feed exclusively on Tejon Ranch, do not exclusively feed on the ranch currently, and we do not expect that all condors in a future population of 150 or more free-flying condors in California would feed exclusively on Tejon Ranch. Large areas of suitable foraging habitat currently occur elsewhere in the historical range of the condor, including lands in public and private ownership such as grasslands and savannahs in the Coast range, Transverse Range and southern Sierra Nevada foothills (i.e., National Forest and National Wildlife Refuge lands, private ranches, and private conservation lands). Historically, seasonal movements of condors throughout the species' geographical range are well-documented (Koford 1953, Wilbur 1978, Snyder and Snyder 2000).

Under the TUMSHCP, hunting and grazing would continue throughout the Tejon Ranch critical habitat unit, as well as in the other areas of suitable foraging habitat on Tejon Ranch outside of designated critical habitat, and would continue to provide valuable sources of carrion for condors to feed on. Ranching would continue at historical average grazing levels up to a total of 14,500 head of cattle. Continued ranching would include grazing, breeding, and calving.

As outlined in the grazing plan included in the Interim RWMP (TRC and Conservancy 2009), grazing would follow seasonal rotations currently in place, where cattle use grazing lands on the lower elevations of the ranch in the winter, moving gradually onto the higher elevation grazing lands through the spring and summer. The continuation of calving on Tejon Ranch, both on the TUMSHCP Mitigation Lands outside of the TMV Planning Area and on the other conserved rangelands on the ranch, is particularly important with regard to food availability for condors. Calves in particular have served as an important food source for condors in the past (Koford 1953, Wilbur 1978, Miller et al. 1965), and Wilbur (1972) concluded that cow/calf operations on Tejon Ranch provide a crucial food source for condors. The RWA protects those uses elsewhere in the Tejon Ranch critical habitat unit.

Hunting, particularly hunter-killed native ungulate and feral pig carcasses of animals that are not recovered by hunters, and discarded gut piles, also provides an important food source for condors on Tejon Ranch. Hunting records from Tejon Ranch reflect that from 2001 through 2011, an average of approximately 840 deer and pigs were killed on the ranch on an annual basis (TRC 2012). Although not a Covered Activity under the TUMSHCP, TRC would continue its established commercial hunting program on the TUMSHCP Mitigation Lands (and other conserved portions of the ranch). Unguided hunting activity would be reduced in scope in the TMV Specific Plan Area, but guided hunts will continue in the TMV Planning Area Open Space and commercial hunting operations will continue in the portions of critical habitat that are outside the proposed TMV Planning Area development envelope. As described above, the Service does not anticipate that carcasses associated with hunting within the TMV Specific Plan or Oso Canyon development envelopes or within 0.5 mile of these development envelopes, would serve as a significant food source to condors based on disturbance associated with development. In areas where the density of development is low, particularly if low-density residential developments are not occupied full time, foraging habitat may be used more frequently by condors. However, we are conservatively assuming all of the development envelopes have the same level of disturbance, including areas extending out 0.5 mile from the envelopes, because we do not know specifically what areas within the allowable envelopes would be developed.

Of the entire 134,871 acre Tejon Ranch critical habitat unit, 14,837 acres of critical habitat would be directly lost and indirectly affected by the Covered Activities considered in the TUMSHCP, resulting in 120,034 acres of the entire critical habitat remaining in the Tejon Ranch critical habitat unit with implementation of the TUMSHCP. Of this total, 112,937 acres of critical habitat would remain within the boundaries of the Tejon Ranch. After considering the direct loss and the indirect effects on suitable foraging habitat (within critical habitat) from proposed development (12,015 acres) on the existing 87,400 acres of suitable foraging habitat within the Tejon Ranch critical habitat unit, we conclude 75,385 acres of critical habitat (that is suitable foraging habitat), would remain within the Tejon Ranch critical habitat unit with implementation of the TUMSHCP. Combined with the continuation of historical and current grazing levels on the ranch, feral pig hunting, and the presence of native ungulates, all of which provide consistent food sources for condors within designated critical habitat, 75,385 acres of suitable foraging habitat will maintain the recovery function of the Tejon Ranch critical habitat as an important foraging area for the California condor currently and in the future.

Even though the acreage available for hunting and grazing on Tejon Ranch, including acreage within critical habitat on the Covered Lands, would decrease somewhat in absolute numbers under the TUMSHCP, Tejon Ranch, including designated critical habitat in the Covered Lands would continue to accommodate historical levels of grazing and would continue to support existing commercial and other hunting activities which provide important food sources for condors. Thus the traditional role of Tejon Ranch, including designated critical habitat on the Ranch, as an important foraging area for condors would be maintained and assured into the future. We conclude that the loss of some critical habitat acreage within the Tejon Ranch critical habitat unit, including the reduction in suitable foraging habitat assumed with implementation of

the TUMSHCP, will not have an appreciable impact on food availability for condors either within the Tejon Ranch critical habitat or within suitable foraging habitat across Tejon Ranch.

The continued availability of reliable and consistent food sources for condors on the Covered Lands (and the ranch as a whole) is likely to increase in importance if the overall production of livestock in the range of the condor decreases in the future. Review of geographic positioning system (GPS) observations of foraging condors on the Tejon Ranch indicate that condors use foraging habitat throughout the ranch to find food, including areas in the TUMSHCP Mitigation Lands above 2,000 feet in elevation and areas lower in elevation outside the Covered Lands and, including lands conserved under the RWA. Foraging by condors on Tejon Ranch is not limited to critical habitat or to suitable foraging habitat that generally occurs within or adjacent to the TMV Specific Plan and Oso Canyon development envelopes. Available data do not indicate that the foraging habitat that would be lost in these development envelopes is more important to condors than other areas of suitable foraging habitat that would remain available to condors on the ranch, both within and outside of critical habitat. Given that grazing and hunting on the Covered Lands and the ranch are expected to remain consistent with historical average levels through the permit term under the TUMSHCP such that food sources would be consistently available to condors throughout the ranch (in suitable foraging habitat in the TUMSHCP Mitigation Lands, including critical habitat, and outside of the Covered Lands, particularly on lands conserved under the RWA), Tejon Ranch would continue to function as an essential foraging area for condors. However, just as condors in central California do not feed on the Tejon Ranch critical habitat unit regularly, the Service does not anticipate condors breeding and occupying other areas of their historical range would feed exclusively on the Tejon Ranch critical habitat unit. Depending on seasonal variations in the current food supplies resulting from hunting, calving seasons, lambing seasons, and other factors, use of the Covered Lands and the Tejon Ranch by condors is likely to increase and decrease seasonally. Such variability in food availability is consistent with the opportunistic scavenging and far-ranging foraging behavior characteristic of California condors (Service 1974, 1996; Wilbur 1978; Snyder and Snyder 2000).

We also do not anticipate that local or regional movements of California condors will be inhibited by the proposed residential and commercial development or Planwide Activities. Condors continue to expand into their historical range, which includes some developed areas. GPS data confirm that condors fly over areas of moderate development to reach suitable foraging and roosting habitat (i.e., Santa Clarita, King City, and Filmore). The home ranges of California condors already include developed areas (Johnson et al. 2010) and we anticipate more condors will continue to expand into their historical range, notwithstanding the presence of developed areas, as the population continues to increase. As such, we do not expect that the proposed commercial and residential development or Planwide Activities either within or outside of critical habitat on the ranch will inhibit the local or regional movements of condors. The condor critical habitat rule itself expressly states that not all of the land designated as critical habitat within Tejon Ranch is necessary to conserve the condor. The rule states with reference, in part, to the Tejon Ranch critical habitat unit:

> In most cases, condor feeding habitat is not so restricted as nesting and roosting sites, and only certain portions of the [Tejon Ranch critical habitat area] are needed at any one time. Because, however, the location of food is directly related to both condor distribution and reproductive success, *substantial areas of open range, with adequate food, and limited development and disturbance, would have to be preserved in each delineated area in order to maintain the species.* (Service 1976; emphasis added)

Allowing limited development within the Tejon Ranch critical habitat unit while permanently protecting the vast majority of critical habitat on the ranch is contemplated by and consistent with the critical habitat rule. The recovery plan (Service 1996a) also advocates preservation of Tejon Ranch lands to maintain their value as an important condor feeding area through the development of a conservation plan with the consent and participation of the affected landowner. The loss of 14,837 acres of critical habitat out of a total of 134,871 acres of critical habitat within the Tejon Ranch critical habitat unit (11 percent) and out of a total of 570,400 acres of critical habitat designated across the range of the condor (2.6 percent) represents a small portion of condor critical habitat, the loss of which will not impair the ability of designated critical habitat to conserve the condor.

In evaluating the effects of the TUMSHCP on condor critical habitat we considered the loss of suitable foraging habitat, as defined by our model, from commercial and residential development, and the effects such loss is likely to have on the availability of food for the condor, as well as the amount of suitable foraging habitat that would be conserved under the TUMSHCP. These considerations are based on the final critical habitat rule for the species, in which the specific conservation function of the Tejon Ranch critical habitat unit is identified as providing essential feeding (foraging) areas for the California condor. We conclude that even with the development proposed for the TMV Planning Area in the TMV Specific Plan and Oso Canyon development envelopes which would directly and indirectly affect suitable foraging habitat, there will still be sufficient suitable foraging habitat remaining in large blocks on the remainder of the Tejon Ranch critical habitat unit, outside of the critical habitat unit on the ranch, and in conjunction with open space conservation in existing public and private lands throughout the condor's range in California, to support condors currently foraging on the ranch, as well as an expanding condor population expected to forage on the ranch in the future. The overall food availability for condors in the Tejon Ranch critical habitat unit would remain essentially unchanged because grazing and hunting consistent with past practices would continue.

Estimate of Disturbance to Critical Habitat Due to Planwide Activities

As previously discussed, the Applicant proposes a maximum of 200 acres of ground disturbance associated with the Planwide Activities described above. These ground disturbances would occur outside of the proposed development. The disturbance would primarily be associated with construction of roads, backcountry cabins, and ancillary structures. If the Applicant restores a portion of this disturbance, an area equal in size may then be disturbed. Thus, no more than 200 acres may exist in a developed condition because of Planwide Activities at one time. Using our calculations from the *Estimate of Disturbance Due to Planwide Activities* section above, the ratio

of disturbance due to Planwide Activities (200 acres) to Covered Lands subject to Planwide Activities (129,463) equals 0.0015.

Under the TUMSHCP, 46,045 acres of suitable foraging habitat within designated critical habitat would be conserved on the Covered Lands. When we apply our ratio of 0.0015, we anticipate that Planwide Activities would disturb or remove up to approximately 69 acres of suitable foraging habitat, within the Tejon Ranch critical habitat unit. Additionally, 34,186 acres of critical habitat that are not suitable foraging habitat would be subject to Planwide Activities (80,321 acres of critical habitat conserved on the Covered Lands minus 46,045 acres of suitable foraging habitat, within critical habitat, conserved on the Covered Lands equals 34,186 acres). When we apply our ratio of 0.0015 to 34,186 acres of critical habitat, we anticipate that Planwide Activities would disturb or remove up to approximately 51 acres of critical habitat (that is not suitable foraging habitat). In total approximately 120 acres of critical habitat including 69 acres suitable foraging habitat and 51 acres of non-suitable foraging habitat could be disturbed or removed in association with the 200 acres of additional ground disturbance.

When we combine this estimate with anticipated habitat loss from commercial and residential development in the summary of effects analysis we will have slightly double-counted and overestimated the amount of suitable foraging habitat that would be lost in the action area. This slight overestimation of lost habitat does not compromise our analysis, because the overlap is very small relative to the size of the action area, and this approach ensures that potential species impacts are fully considered by analyzing a larger impact than would actually occur. In comparison there is a substantial amount of critical habitat, including suitable foraging habitat, that would be conserved in the TUMSHCP Mitigation Lands, and we consider the amount of critical habitat, including suitable foraging habitat, that could be lost due to Planwide Activities, to be negligible.

Summary of Effects on Critical Habitat for the California Condor

The Tejon Ranch critical habitat unit contains 134,871 acres, including 87,400 acres of suitable foraging habitat. Approximately 14,837 acres of critical habitat, including 12,015 acres of suitable foraging habitat, within critical habitat, would be directly and indirectly affected by Commercial and Residential Development Activities. We anticipate that Planwide Activities would disturb or remove approximately 120 acres of critical habitat over the permit duration of which 69 acres are suitable foraging habitat, and 51 acres are critical habitat that is not modeled as suitable foraging habitat. In total, of 14,957 acres of critical habitat, including 12,084 acres of the suitable foraging habitat would be lost under the TUMSHCP[13]. Approximately 112,817 acres of critical habitat (88 percent) and 164,619 acres (90 percent) of suitable foraging habitat

[13] An estimated 149,935 acres of suitable foraging habitat out of the 164,619 acres of suitable foraging habitat remaining on Tejon Ranch would be conserved under the TUMSHCP and RWA. While the RWA identifies areas of potential future development on Tejon Ranch outside of the Covered Lands, development of such lands is not covered by the TUMSHCP and would require independent compliance with the ESA and other applicable law. If required, any future Section 7 biological opinion prepared in connection with such development would take into account the effects of the TUMSHCP and ITP on the condor and other affected listed species.

would remain undeveloped on Tejon Ranch upon approval of the TUMSHCP. Of the 127,774 acre portion of the Tejon Ranch critical habitat unit within the boundaries of Tejon Ranch, 80 percent (and 76 percent of the entire unit) would be permanently conserved under the TUMSHCP and the RWA (Please see Table 3).

In evaluating the effects of the TUMSHCP on condor critical habitat, we considered the loss of suitable foraging habitat, as defined by our model, from commercial and residential development, and the effects such loss is likely to have on the availability of food for the condor, as well as the amount of suitable foraging habitat that would be conserved under the TUMSHCP. These considerations are based on the final critical habitat rule for the species, in which the specific conservation function of the Tejon Ranch critical habitat unit is identified as providing essential feeding (foraging) areas for the California condor. We conclude that even with the development proposed for the TMV Planning Area in the TMV Specific Plan and Oso Canyon development envelopes which would directly and indirectly affect suitable foraging habitat, there will still be sufficient suitable foraging habitat conserved in large blocks on the remainder of the Tejon Ranch critical habitat unit, outside of the critical habitat unit on the ranch, and in conjunction with open space conservation in existing public and private lands throughout the condor's Range in California, to support condors currently foraging on the ranch, as well as an expanding condor population expected to forage on the ranch in the future. Importantly the overall availability of food for condors in the Tejon Ranch critical habitat unit would remain essentially unchanged because grazing and hunting consistent with past practices would continue.

We do not anticipate that the Planwide Activities would impact the ability of the critical habitat to serve its conservation function for the California condor (foraging habitat) based on the demonstrated compatibility of these activities with historical and ongoing use of the Tejon Ranch critical habitat unit by condors. In addition, carrion generated from grazing (a Planwide Activity) provides a necessary food source for condors foraging within critical habitat, and thus grazing has a beneficial effect on critical habitat for the California condor.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. Other current and reasonably foreseeable activities (Federal and non-Federal) outside of the action area that may impact the California condor or its critical habitat now or in the future are discussed in the Threats subsection in the Status of the Species and its Critical Habitat section of this biological opinion and in our conclusion section below. Consideration of these activities contributes to our understanding of the circumstances affecting the overall condition of the condor range-wide, and provides the basis from which to evaluate the effects of our proposed action, and to formulate our conclusion as to whether the action is likely to jeopardize the continued existence of the California condor or destroy or adversely modify its critical habitat. These activities are within

the current range of the condor or may affect the condor in the future as the species continues to reoccupy portions of its former historical range. The additional effects of these projects on the condor would be addressed in subsequent biological opinions, and are not addressed here as cumulative effects under Section 7 of the Act. Even though these projects do not qualify as cumulative effects under Section 7, they were addressed as cumulative effects under NEPA in the EIS including in section 4.1.7.2 of the SDEIS (Service 2012a).

Hunting

Private and commercial hunting operations occur on Tejon Ranch, including the Covered Lands; however, hunting is not an activity covered by the TUMSHCP. The Applicant proposes to continue hunting operations throughout the ranch during the proposed permit term, although commercial hunting would be replaced with managed predation control nearer the developed portions of the TMV Planning Area and only guided hunts would take place on the TMV Planning Area Open Space. (Hunting operations are also regulated by the California Department of Fish and Wildlife through a licensing process that includes other terms and conditions. For example, carcass and gut pile disposal have and are anticipated to remain banned within the TMV Planning Area to discourage California condor foraging in areas planned for commercial and residential development.) Hunting activities involve travel on existing paved and unpaved roads, overnight use of backcountry cabins, hiking, discharging hunting weapons, etc. As discussed above, under the *Loss of Habitat* and *Critical Habitat* sections hunting on Tejon Ranch is beneficial for condors as it provides an important food source for foraging condors. The Applicant's permanent ranchwide ban on use of lead ammunition in connection with hunting on Tejon Ranch, which is broader in scope than the prohibition on use of lead ammunition imposed under the Ridley-Tree Condor Preservation Act, and which will be carefully enforced and legally run with the land, will also remove an important threat to condors foraging on Tejon Ranch. The Service considers continued hunting to have a beneficial cumulative effect on condors and condor habitat, particularly with implementation of the new Ranch hunting regulations that, along with increased enforcement, ensure zero tolerance of lead ammunition and provide educational information to avoid inadvertent shooting of condors, on Tejon Ranch, including on the Covered Lands.

Mining

Two commercial mining operations occur in the action area, La Liebre and National Cement. Mining is not a Covered Activity under the TUMSHCP. The total area used for the two operations is about 2,636 acres, and the Applicant would maintain the mining leases through the proposed permit term. The two mining operations are on the southern/southeastern edge of the action area. The two mines were in existence prior to the development of the proposed TUMSHP, and the mines have not interfered with the condor foraging and roosting on the Covered Lands. Any use of chemicals in mining must be in conformance with Federal, State and local laws, and we are also not aware of any adverse effects from microtrash or habituation at these mines; therefore, we do not anticipate any cumulative effects from the two mines on the California condor.

Other Activities

As discussed above under the Project Description, within the external boundaries of the action area, there are existing inholdings and utilities. The Bakersfield National Cemetery also occurs inside the action area. These projects and activities are not Covered Activities under the TUMSHCP. We are not aware of any reasonably foreseeable activities within the 3,870 acres of inholdings that may affect the condor. Activities associated with existing utility corridors, transmission lines and associated structures within the exterior boundaries of the Plan Area could potentially affect the condor. However, given that these are existing structures and transmission lines and we are not aware of any past or current adverse impacts to the species from these structures within the action area, we do not anticipate a high potential for disturbance from non-covered utility maintenance activities or injury from collision with transmission lines within the action area. Therefore we do not anticipate any cumulative effects from the ongoing effects of non-covered existing utilities. The Bakersfield National Cemetery is in place, and we are not aware of any activities associated with the cemetery that may have an adverse effect on condors.

We are unaware of any other non-Federal actions that are reasonably certain to occur in the action area that are likely to adversely affect the California condor or its critical habitat.

CONCLUSION

After reviewing the current status of the California condor, the environmental baseline for the action area, the effects of the Service's proposed issuance of a section 10(a)(1)(B) permit for non-lethal incidental take of condors in the form of habituation resulting from commercial and residential development and ongoing Planwide Activities on the Covered Lands within Tejon Ranch, and potential cumulative effects within the action area, it is the Service's biological opinion that the issuance of a 10(a)(1)(B) permit, as proposed, is not likely to jeopardize the continued existence, or impede the recovery of the California condor, and is not likely to destroy or adversely modify its designated critical habitat. We have reached these conclusions for the following reasons:

1. The Covered Activities are not expected to result in, and the issuance of the 10(a)(1)(B) permit would not authorize, any injury to or mortality of California condors.

2. Habituation of up to four California condors, triggering their removal from the wild over the 50-year permit term would not appreciably reduce the reproduction, numbers or distribution of the species. The California population of wild condors has steadily expanded since the start of the reintroduction program and will continue to expand into the future over the permit term as a consequence of naturally occurring reproduction combined with the necessary continued reintroduction of captive-bred condors into the wild to offset mortality due to lead contamination; we expect the California population to reach the numerical target of 150 condors, identified in the Recovery Plan (Service 1996a) in the next several years.

3. Although possible, we consider it unlikely that all four condors, as proposed under the TUMSHCP, would become habituated and require removal from the wild at one time.

4. We do not anticipate the removal of breeding adults from the wild that are actively attending nests. Based on our experience, we would only remove a habituated breeding adult from the wild if it were at immediate risk of imminent injury or death, and would otherwise continue to manage the wild population to further the success of every nest, with the intent of increasing successful reproduction in the wild. In 20 years of implementing the condor reintroduction program, we have never removed a breeding adult condor attending a nest from the wild, and based on our recent experience at Bear Valley Springs, we consider it unlikely in the future.

5. To date, the Service has exempted the non-lethal take of one condor over a 25 year period due to habituation in connection with our ESA Section 7 review of a U.S. Army Corps of Engineers Clean Water Act permit for the Newhall Ranch Development Project. We also exempted the non-lethal take of one condor due to habituation over a 50-year period associated with our ESA Section 7 review of the Los Padres National Forest Oil and Gas Expansion Project; however, the U.S. Forest Service has reinitiated consultation with us on that proposed action and the incidental take statement for that project is no longer operative. We conclude that the habituation and potential permanent removal of one condor as a result of the Newhall Development Project in combination with the proposed authorization of non-lethal take (habituation and potential permanent removal) of up to four California condors during the 50-year permit term of the TUMSHCP, would not result in population level impacts to the condor, because the potential loss of five condors from the wild population in California would not appreciably reduce the reproduction, number, or distribution of condors. Natural reproduction is continuing and augmentation of the wild population with captive-bred birds is likely to continue for the foreseeable future until lead contamination is removed as a threat. The California population of wild condors currently numbers 126 and is on track to expand to a total of 150 condors by 2015, which is the numerical total identified in the condor recovery plan for each of the three condor populations that in combination with several other important factors, could lead to potential down listing of the species from endangered to threatened status.

6. There are several existing and future projects on Federal and non-Federal lands that could affect the condor in the future as the species continues to expand into its historical range in California. We expect that virtually all of these projects will be subject to Service review under Section 7 or Section 10(a)(1)(B) of the Act. The Service will fully evaluate their effects on condors, including critical habitat, in light of the baseline condition of the condor, including the effects of the TUMSHCP and ITP, if approved. As discussed in the Status of the Species Section above, there are substantial areas of Federal land within the current and historical range of the condor, including BLM lands, Sequoia, Los Padres, and Angeles National Forests, Bitter Creek National Wildlife and Pinnacles National Park. Any future projects on national forest, national wildlife refuge, or other federally

managed public lands that are likely to affect the condor are required to undergo consultation with the Service pursuant to section 7(a)(2) of the Act. In addition, any future project that may affect the condor on non-Federal lands and which requires authorization from another Federal agency, i.e., the U.S. Army Corps of Engineers, such as the Panoche Valley Solar Farm, will be required to undergo Section 7 consultation with the Service. Finally, any project on non-Federal lands that otherwise lacks a Federal nexus but that would result in take of condors, including, potentially, wind energy projects in the Tehachapi Wind Resource Area of Kern County, California and additional wind projects in the Tehachapi Mountains, the Sierra Nevada mountain range, and the Salinas River Valley or other potential developments on Tejon Ranch, would be required to obtain a Federal ITP under Section 10(a)(1)(B) from the Service. The Service fully expects that all of the projects identified above, if they have a Federal nexus and "may affect" condors or would result in take of condors would trigger Service review under Section 7(a)(2) of the Act and require issuance of a non-jeopardy/non-adverse modification biological opinion and authorization of any anticipated take of condors in order to proceed. As part of our review of each project, and prior to authorizing any incidental take of condors, we would carefully analyze the effects of the project, including any incidental take that is likely to occur, on the likelihood of the survival and recovery of the condor. The effects of such future actions would be evaluated in the context of the range wide status of the condor and condor critical habitat and would take into account the effects of the TUMSHCP and ITP, if issued.

Critical Habitat

1. The Tejon Ranch critical habitat unit contains 134,871 acres, including 87,400 acres of suitable foraging habitat. Approximately 88 percent of critical habitat and 90 percent of suitable foraging habitat would remain on the ranch with approval of the TUMSHCP and ITP. In addition under the TUMSHCP, TRC would continue to graze livestock on the ranch including, the Covered Lands, at historical levels. TRC would also continue its hunting program. Because condors are opportunistic feeders (i.e., they feed where the food is available) maintenance of the grazing and hunting programs, along with native ungulates, would continue to provide a reliable food source for condors at level levels consistent with historical condor use of the Covered Lands, the Tejon Ranch critical habitat unit and the ranch as a whole. The conservation of the vast majority of suitable foraging habitat within the critical habitat unit, combined with continued availability of carrion from grazing, hunting, and other naturally occurring wildlife produced on the critical habitat lands, will support foraging for both the current population of California condors using the ranch and the expanding population of condors expected to feed on the ranch in the future. The combined direct loss of and indirect effects to approximately 12 percent of critical habitat within the Tejon Ranch portion of the Tejon Ranch critical habitat unit will not impair the ability of the unit to carry out its intended foraging and feeding conservation role for the California condor or to provide connectivity for condors between the coast and interior portions of their range. Therefore, we conclude that the

issuance of an ITP to TRC based on the TUMSHCP will not adversely modify or destroy designated critical habitat for the California condor.

The Los Padres National Forest Oil and Gas Expansion Project and the potential Grapevine development on Tejon Ranch, also may affect designated critical habitat for the condor. However, based our experience to date, we anticipate such development and similar development in condor critical habitat would likely have a Federal nexus, or otherwise require issuance of an ITP. Therefore, the effects, if any, of such development on critical habitat, including their effects on lands that provide nesting, foraging or roosting habitat for the condor, or provide connectivity to different portions of the species' range in California, would be either avoided, considered in the Section 7 consultation, or addressed in an ITP application under Section 10(a)(1)(B), which would take into account the effects of the TUMSHCP ITP, if issued.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The proposed TUMSHCP and its associated documents clearly identify anticipated impacts to the condor likely to result from the proposed taking and the measures that are necessary and appropriate to minimize the effects of such take. All conservation measures proposed, together with the terms and conditions described in the associated Implementing Agreement and any section 10(a)(1)(B) permit issued with respect to the proposed TUMSHCP, are hereby incorporated by reference as reasonable and prudent measures and terms and conditions within this Incidental Take Statement pursuant to 50 CFR §402.14(i). Such terms and conditions are non-discretionary and must be undertaken for the exemptions under section 10(a)(1)(B) and section 7(o)(2) of the Act to apply. If the permittee fails to adhere to these terms and conditions, the protective coverage of the section 10(a)(1)(B) permit and section 7(o)(2) may lapse. The amount or extent of incidental take anticipated under the proposed ITP associated reporting requirements, and provisions for disposition of dead or injured animals are as described in the TUMSHCP and its accompanying section 10(a)(1)(B) permit.

We anticipate take in the form of habituation to humans or human structures of up to four non-breeding California condors under the proposed 50-year ITP and TUMSHP. Under the TUMSHCP, if the Service determines, in consultation with TRC, that habituation of more than four California condors has occurred or is about to occur as a result of Covered Activities on the Covered Lands, the permit must be suspended with regard to the California condor until and unless the threat of additional take is removed or the permit is amended to provide for such additional take in accordance with the Act and other applicable laws and regulations. Activities covered under the TUMSHCP, and associated permit, that are the cause of habituation must cease until additional measures to avoid any additional habituation are implemented or the permit is amended to cover additional take of condors. No condor mortality is anticipated or will be authorized under the proposed 10(a)(1)(B) permit.

REASONABLE AND PRUDENT MEASURES / TERMS AND CONDITIONS

The measures described in the TUMSHCP, associated documents, and the Section 10(a)(1)(B) permit are binding as noted in the Incidental Take Statement above and will effectively minimize the effects of any potential take of the California condor under the permit. Consequently, we are not including additional non-discretionary reasonable and prudent measures and implementing terms and conditions in this incidental take statement.

LEAST BELL'S VIREO

STATUS OF THE SPECIES

Regulatory History

The Service listed the least Bell's vireo as endangered on May 2, 1986 (Service 1986b) and designated critical habitat for the species on February 2, 1994 (Service 1994). Critical habitat for the least Bell's vireo covers approximately 38,000 acres within 10 units in six counties in Southern California: Santa Barbara, Ventura, Los Angeles, San Bernardino, Riverside, and San Diego (Service 1994). The critical habitat designation does not include any part of Tejon Ranch. The Service completed a draft recovery plan in 1998 (Service 1998a), but no final plan has been published. The least Bell's vireo is protected under the MBTA (16 U.S.C. 703–712) and was listed under the California Endangered Species Act as endangered in 1980.

Natural History/Habitat Requirements

The least Bell's vireo is in the family Vireonidae and is one of four subspecies of Bell's vireo (*Vireo bellii*) recognized by the American Ornithological Union (AOU 1957). The least Bell's vireo is a small, migratory songbird generally described as dull, ashy gray to green above, white to yellow below, with a light brownish gray on the breast (Service 1998a). The subspecies nests almost exclusively in riparian woodland habitats; however, they may also use adjoining upland scrub habitat (Salata 1983; Kus and Miner 1989). The subspecies usually inhabits structurally diverse woodlands along watercourses that feature dense cover within 3 to 6 feet of the ground and a dense, stratified canopy (Goldwasser 1981; Salata 1983; Gray and Greaves 1984; Service 1998a). The understory within this riparian habitat is typically dominated by mulefat, California wild rose (*Rosa californica*), poison oak (*Toxicodendron diversiloba*), sandbar willow (*Salix hindsiana*), young individuals of other willow species, and several perennial species (Service 1998a). Important canopy species include mature arroyo willows and black willows (*S. gooddingii*), and occasional cottonwoods, western sycamore, or coast live oak. In addition, the width of the vegetation belt appears to be important for establishing vireo territories. Native upland buffers are particularly important in narrow drainages (Franzreb 1989). Those pairs that select areas bordered by coastal sage scrub and grasslands tend to be more successful at fledging young than those nesting in areas bordered by agricultural and urban areas (Franzreb 1989). Riparian plant succession appears to be an important influence in maintaining vireo habitat (Franzreb 1989; Goldwasser 1981).

Least Bell's vireos primarily feed on invertebrates, especially lepidopteran (moth and butterfly) larvae, within willow stands or associated riparian vegetation (Miner 1989; Brown 1993). Least Bell's vireos occasionally forage in non-riparian vegetation such as coastal sage scrub, chaparral, and oak woodlands, although foraging in these other habitats usually occurs within 100 feet of the edge of riparian vegetation (Salata 1983; Gray and Greaves 1984; Kus and Miner 1989). Feeding behavior largely consists of collecting prey from leaves or bark crevices while perched or hovering and, less frequently, by capturing prey by aerial pursuit (Salata 1983; Kus and Miner

1989). Least Bell's vireos concentrate most of their foraging between 0 to 20 feet above ground level (Salata 1983; Miner 1989).

Least Bell's vireos are site-tenacious across breeding seasons and are highly territorial. They generally arrive in southern California breeding areas by mid-March to early April, and remain on the breeding grounds until mid-September, although some post-breeding migration may begin as early as late July (Service 1998a). Male least Bell's vireos establish and defend breeding territories through singing and physically chasing intruders (Barlow 1962; Beck 1996; Service 1998a). Although territories typically range in size from 0.5 to 7.5 acres (Service 1998a), no relationship appears to exist between territory size and various measures of territory quality (Newman 1992).

Nest building commences a few days after pair formation, with the female selecting a nest-site location and both sexes constructing the nest (Pitelka and Koestner 1942; Barlow 1962; Service 1998a). Nests are typically suspended in forked branches within 3 feet above the ground with no clear preference for any particular plant species (Nolan 1960; Barlow 1962; Gray and Greaves 1984; Service 1998a). Three or four eggs are laid on successive days shortly after nest construction (Service 1998a). The eggs are incubated by both parents for about 14 days with the young remaining in the nest for another 10 to 12 days (Pitelka and Koestner 1942; Nolan 1960; Barlow 1962). Each nest appears to be used only once with new nests constructed for each nesting attempt (Greaves 1987). Least Bell's vireos may attempt up to five nests within a breeding season, but they are typically limited to one or two successful nests within a given breeding season (Service 1998a). Fledgling least Bell's vireos gradually increase the distance they travel from the nest from about 35 feet the first day, about 200 feet several weeks after fledging (Hensley 1950; Nolan 1960), to at least 1 mile prior to their first fall migration (Gray and Greaves 1984).

Distribution and Population Trends

The least Bell's vireo historically occupied willow riparian habitats from Tehama County, in northern California, southward to northwestern Baja California, Mexico, and as far east as Owens Valley, Death Valley, and the Mojave River (Grinnell and Miller 1944; Service 1998a). Although originally considered to be abundant locally, regional declines of this subspecies were noticeable by the 1940s (Grinnell and Miller 1944), and the least Bell's vireo was believed to have been extirpated from California's Central Valley by the early 1980s (Franzreb 1989). The San Joaquin and Sacramento Valleys were considered to be the center of the least Bell's vireo's breeding range (60 to 80 percent of the historical population; Service 1986b), but the subspecies has yet to meaningfully re-colonize those areas. Except for a few outlying pairs, the least Bell's vireo is currently restricted to Southern California south of the Tehachapi Mountains, and northwestern Baja California (Wilbur 1980; Garrett and Dunn 1981; Franzreb 1989; U.S. Geological Survey (USGS) 2002). The largest current concentrations of least Bell's vireos are in San Diego County along the Santa Margarita River on Camp Pendleton and in Riverside County at the Prado flood control basin (Service 2006a).

The least Bell's vireo population in the U.S. has increased 10-fold since its listing in 1986, from 291 to 2,968 known territories (Service 2006a). The population has grown during each 5-year period since the original listing, although the rate of increase has slowed over the last 10 years. Population growth has been greatest in San Diego County and Riverside County, with lesser but significant increases in Orange County, Ventura County, San Bernardino County, and Los Angeles County. Kern, Monterey, San Benito, and Stanislaus counties have had a few isolated individuals and/or breeding pairs since the original listing, but these counties have not supported any sustained populations (Service 2006a). Santa Barbara County appears to have experienced a decline in territories, dropping from a high of 57 territories in 1986–1990 to 12 in the 1996–2000 and 2001–2005 time periods (Service 2006a).

The most recent 5-year status review for the least Bell's vireo attributes the increase in the least Bell's vireo population to "improvements in habitat abundance and quality and effective cowbird control" (Service 2006a). These improvements have occurred for several reasons:

1. The Federal listing of the least Bell's vireo (Service 1986b) helped raise awareness of the importance of conserving riparian habitat.

2. Several Natural Community Conservation Planning/Habitat Conservation Plan efforts include conservation and management of least Bell's vireo habitat.

3. Additional protections have occurred on military lands (e.g., Camp Pendleton) through the Sikes Act Improvement Act of 1997 (16 U.S.C. 670a et seq.) and the 2006 Memorandum of Understanding between the Service and the U.S. Department of Defense (Service 2006b).

4. The wetlands regulations under Sections 401/404 of the Clean Water Act and Section 1600 of the California Fish and Game Code have been more effectively implemented.

5. Public/private partnerships with the specific mission of conserving riparian habitats and migratory birds, including the least Bell's vireo, have been formed.

Reasons for Decline

Causes for decline of the least Bell's vireo include extensive destruction or degradation of habitat by agricultural practices and urbanization, exotic plant invasion, river channelization, water diversions, lowered water tables, and gravel mining (Service 1986b, 1994, 1998). In the Central Valley, more than 95 percent of the riparian woodland habitat that existed in the 1850s has been eliminated, and much of the remaining habitat is in a disturbed or degraded condition (Service 1998a). Habitat losses have fragmented most remaining populations into small, disjunct, widely dispersed subpopulations (Franzreb 1989). Habitat fragmentation negatively affects abundance and distribution of neotropical migratory songbirds, in part by increasing incidence of nest predation and parasitism (Whitcomb et al. 1981; Small and Hunter 1988; Yahner and DeLong 1992; Sharp 2002; Peterson 2002). Least Bell's vireos nesting in areas containing a high

proportion of degraded habitat have lower productivity (i.e., hatching success) than those in areas of high quality riparian woodland (Pike and Hays 1992).

The 1986 listing rule also identified brood parasitism by cowbirds as a substantial threat to the least Bell's vireo. Parasitism of least Bell's vireo nests can exceed 42 percent in some locations (Kus 1999) and remains the most significant threat to the recovery of the least Bell's vireo (Service 2006a). Parasitized nests are either abandoned or fledge cowbird chicks rather than least Bell's vireos. Cowbirds did not historically occur within the least Bell's vireo's range, and therefore least Bell's vireos have not evolved adequate defenses to avoid loss of productivity due to parasitism (Franzreb 1989; Kus 2002). Extensive cowbird trapping and focused nest monitoring can substantially reduce parasitism or its effects over the short term within a limited area (Franzreb 1989; Service 1998a; Griffith and Griffith 2000; Kus 2002).

Since the listing of the least Bell's vireo, destruction and modification of riparian habitat within its current range has been curtailed significantly, primarily as a consequence of protections provided by the original listing in 1986 (Service 1986b), the subsequent designation of critical habitat in 1994 (Service 1994), and other Federal and State regulatory processes. Other efforts not driven by regulatory processes have also promoted increased conservation and restoration of riparian habitat since listing (Service 2006a).

5-Year Status Review

The Service completed a five-year status review (Service 2006a) for the least Bell's vireo in September 2006 and announced initiation of the latest 5-year review in May 2010 (Service 2010b). The 2006 5-year review reported a 10-fold increase in the least Bell's vireo population since listing. Substantial increases occurred in San Diego County, Riverside County, Orange County, Ventura County, San Bernardino County, and Los Angeles County, while Santa Barbara County appears to have experienced a decline. The 5-year review reiterates that nest parasitism by the brown-headed cowbird is the most important threat to the least Bell's vireo. While acknowledging that the least Bell's vireo has not met the downlisting criteria from the draft recovery plan, the 5-year review determined that the sub-species is no longer in danger of extinction throughout all or a significant portion of its range, and recommended that the Service downlist the least Bell's vireo to threatened status.

Draft Recovery Plan for the Least Bell's vireo

The 1998 draft recovery plan for the least Bell's vireo states that the goal of recovery efforts is the reclassification of the subspecies from endangered to threatened and, ultimately, delisting of the subspecies. The draft plan states that reclassification to threatened status may be considered when there are stable or increasing population/metapopulations of least Bell's vireos for a period of 5 consecutive years, each consisting of several hundred or more breeding pairs at the following sites: Tijuana River, Dalzura/Jamul Creek/Otay River, Sweetwater River, San Diego River, San Luis Rey River, Camp Pendleton/Santa Margarita River, Santa Ana River, an Orange County/Los Angeles County metapopulation, Santa River, Santa Ynez River, and an Anza

Borrego Desert metapopulation. The draft plan states that each of these populations and metapopulations should be protected and managed.

The draft plan states that delisting of the least Bell's vireo may be considered when the subspecies meets the criterion for downlisting and there are stable or increasing least Bell's vireo population/metapopulations for a period of 5 consecutive years established at the following currently unoccupied areas of the subspecies' historical range: Salinas River, a San Joaquin Valley metapopulation, and a Sacramento Valley metapopulation. The draft plan states that each of these populations and metapopulations should be protected and managed.

Lastly, the draft plan states that threats to the least Bell's vireo at the aforementioned sites should be reduced or eliminated so that these populations/metapopulations are capable of persisting without significant human intervention, or perpetual endowments are secured for cowbird trapping and exotic plant control in riparian habitat occupied by the least Bell's vireos.

The draft recovery plan describes a strategy for reclassification, recovery, and delisting. Instrumental to this strategy is securing and managing riparian habitat within the historical breeding range of the least Bell's vireo, annual monitoring and range-wide surveys, and research activities necessary to monitor and guide the recovery effort.

ENVIRONMENTAL BASELINE

Historically, California's Central Valley was a primary breeding region for the least Bell's vireo, and the least Bell's vireo historically migrated from Mexico to the San Joaquin and Sacramento Valleys. It is likely that the Tehachapi Mountains provided a migration corridor for least Bell's vireos travelling north and that the subspecies used habitat in the Tejon Ranch area for breeding or stopover habitat. Suitable habitat for the least Bell's vireo was modeled on Covered Lands; however, we do not have any records of the subspecies using the Covered Lands. That said, we are aware of few survey results for the subspecies, and the lack of occupancy records may reflect the infrequency of surveys rather than established non-use of the action area by the least Bell's vireo.

The Applicant conducted protocol-level surveys for least Bell's vireo in the TMV Planning Area from April to July 2007, and no vireos were observed (Dudek 2009). The Applicant also conducted surveys for least Bell's vireo (and other wildlife) in the action area from 1999 through 2004 (Impact Sciences, Inc. 2004), 2005 (Jones and Stokes 2006a), and 2011 (Dudek 2011), all with negative results. These were not protocol-level surveys and were not a comprehensive survey of the action area. However, the available information, including other sources such as CNDDB, suggests that least Bell's vireos do not currently use the action area for breeding or foraging. However, considering that the least Bell's vireo is incrementally reoccupying parts of its former range (including the Central Valley), and modeled suitable habitat is available in the action area, least Bell's vireos could breed or forage in the action area currently or in the future.

The Applicant modeled a total of 614 acres of breeding/foraging habitat for the least Bell's vireo in the action area. Modeled suitable breeding and foraging habitats in the action area include riparian scrub, riparian woodland, oak riparian, riparian wetland, and desert wash/riparian seeps at elevations between 2,000 and 4,100 feet. The modeled habitat occurs primarily outside the TMV Planning Area in the south-facing drainages on the southern/southeastern edge of the action area east of the National Cement mine area. There are smaller segments of modeled habitat around Castac Lake; in Bear Trap Canyon; and in the western portion of the action area in Rising Canyon, north of Grapevine Ridge, and adjacent to I-5.

Notwithstanding the presence of modeled suitable habitat, we expect least Bell's vireos to occur, if at all, irregularly and at low density in modeled suitable habitat in the action area, and we expect any breeding least Bell's vireos in the action area to occupy large home ranges. While the action area occurs within the subspecies' historical range between non-breeding areas in Mexico/Central/South America and historically important breeding grounds in California's Central Valley, the Applicant's survey results for the subspecies were negative and other current distribution data do not document the presence of least Bell's vireo in the action area, suggesting that the subspecies occurs, if at all, in low numbers in the action area. In addition, most, if not all, of the modeled suitable habitat for the least Bell's vireo has been affected by past and ongoing livestock grazing, range management, off-road vehicle travel, and other ranch activities. These activities have reduced the quality of the riparian habitat in the action area and affected the ability of the action area to support breeding least Bell's vireos. Lastly, the modeled habitat is scattered, and some patches may not be large enough to support a single vireo territory. Least Bell's vireos will find fewer resources per unit area in fragmented, lower-quality habitat.

The largest typical territory size for the subspecies is 7.5 acres (Service 1998a), and theoretically, 81 pairs could occupy 614 acres of habitat under ideal conditions at this territory size. However, even in high quality habitat, least Bell's vireo density can be lower than expected. The modeled suitable habitat in the action area is of low quality, and the Applicant's model used coarse input parameters, which likely overestimates the amount of suitable habitat. Given these uncertain variables, we cannot determine the exact number of least Bell's vireos that could potentially occur in the action area, although it is possible that the action area could support a handful of least Bell's vireo pairs. Therefore, we will use modeled suitable habitat as a surrogate measure of the subspecies baseline.

EFFECTS OF THE ACTION

Planwide Activities

Livestock

The Applicant proposes to graze livestock on the balance of the action area outside development areas, consistent with the types and level of historical grazing and ranch management practices. Livestock generally have negative effects on riparian habitat and the native species that rely on that habitat. The least Bell's vireo has not been recorded in the action area, and if the subspecies

occurs in the action area, it does so at low density. If least Bell's vireo breeding does occur in the action area at some point over the permit term, livestock may directly impact least Bell's vireos by disturbing or destroying nests while moving through vegetation. Also, brown-headed cowbird density is known to be higher in proximity to livestock and agriculture (Goguen and Mathews 2000), and vireos may be indirectly impacted by livestock through cowbird nest parasitism. Livestock could indirectly affect least Bell's vireos by damaging vegetation in which least Bell's vireos could build nests and suppressing growth of new vegetation that could support least Bell's vireos. That said, the continuation of historical grazing practices under the TUMSHCP would maintain the lower-quality, baseline condition of riparian habitat in the action area during the permit term, and breeding by least Bell's vireos in the action area is unlikely.

The least Bell's vireo occupies a relatively large range covering riparian areas in Southern California and northern Mexico. Given the small amount of habitat in the action area relative to this range, any effects on the subspecies from grazing in the action area would be negligible. In addition, under the TUMSHCP, the Applicant must submit a grazing management plan to the Service every 5 years for review and approval. Our review of such plans will allow for the implementation of additional measures or modification of grazing practices, such as the selective use of fencing, which could limit direct livestock interactions with natural water sources and have ancillary benefits for riparian habitats used by the least Bell's vireo, thereby promoting the compatibility of grazing in the action area with the conservation of the least Bell's vireo.

Range Management/Ancillary Ranch Structures

Range management activities support livestock operations and consist of construction, operation, and maintenance of watering facilities, feeding areas, fences, and corrals, consistent with the types and level of historical grazing and ranch management practices; repair, reconstruction, and relocation of roads to accommodate historical grazing and ranch management practices; and repair, maintenance, or installation of ranch management communication equipment (e.g., whip antennas) less than 20 feet high. The repair, reconstruction and relocation of roads to accommodate historical grazing and ranch management practices are evaluated below under Roads. Range management also incorporates ancillary ranch structures including squeezes, loading chutes, holding and feeding fields, corrals, branding traps, barns, sewage disposal facilities, livestock and wildlife watering facilities, and utilities serving existing ranch uses.

As described above under Planwide Activities in the Description of the Proposed Action section, *de-minimis* activities associated with ancillary ranch structures would be covered under the TUMSHCP. Non–*de minimis* activities associated with ancillary ranch structures are also allowed (1) if the activity is located in disturbed areas (e.g., undergrounding utilities in road rights-of-way), or (2) following a meet-and-confer process with the Service to ensure that the activity associated with an ancillary ranch structure avoids or adequately minimizes impacts to Covered Species and their habitats.

These activities are subject to the 200-acre disturbance limit, occur at a small scale relative to the size of the action area, and range management facilities already exist in the action area. Workers

or equipment, as well as placement of ancillary ranch structures, may create enough noise or disturbance to cause least Bell's vireos to temporarily avoid suitable habitat. Given the relatively small amount of modeled least Bell's vireo habitat relative to the size of the action area and habitat available to least Bell's vireos range-wide, the irregular nature of range management activities, and the Service's ability to review and approve the Applicant's grazing management plan (which would include protections for riparian areas (TUMSHCP Section 7.2)), we expect impacts on least Bell's vireos by range management activities to be rare and negligible.

Fuel Management

Fuel management practices would consist primarily of grazing, and the effects of fuel management by grazing should be largely consistent with the effects of livestock. Other fuel management activities include fuel modification zones created by existing roads, and through irrigation and/or vegetation clearing and mowing within 120 feet surrounding existing structures (i.e., backcountry cabins, ancillary ranch structures, and other existing structures). Mowing may create enough noise to cause least Bell's vireos to avoid suitable habitat or abandon a nest. However, mowing for fuel management would occur infrequently/irregularly, and there are no backcountry cabins in least Bell's vireo modeled habitat. Therefore, we expect adverse effects from mowing to be rare and negligible.

Fuel modification associated with proposed development is discussed below under Commercial and Residential Development Activities.

Filming

Filming activities generally consist of temporary on-scene filming and photography-related uses, including, but not limited to the filming and staging of movies, television shows, and commercials; photo shoots; and still photography and related uses. Such activities may include the erection and dismantling of props, temporary installation of trailers and equipment for film crews, filming of on-camera action, catering, rehabilitation of disturbed areas, and the movement of film crews to and from locations.

Film shoots that include explosives or other loud noises could disturb least Bell's vireos that occur in the action area. Explosions (louder than gunshots) or other abnormally loud noises are prohibited throughout the TUMSHCP Mitigation Lands unless the Service-approved Tejon Staff Biologist, in consultation with the Service, determines that no California condors are present, and explosions (louder than gunshots) are strictly prohibited in the Condor Study Area portion of the Covered Lands. These restrictions on explosions in the action area would also benefit least Bell's vireos in the action area by minimizing the potential for disturbance to this subspecies from explosions.

We expect filming to cause only minimal impacts to least Bell's vireo habitat, because filming occurs over a relatively short time frame, the Applicant would require that habitat disturbed by filming activities be restored to pre-filming conditions, and the Applicant would require that

temporary construction avoid sensitive resources. We do not expect direct impacts to individual vireos or nests from filming, because the Applicant would conduct surveys prior to filming related uses, establish 500-foot buffers around least Bell's vireo nests, and have a qualified biologist monitor filming activities to ensure the terms of the TUMSHCP are implemented (see Table 2 of this biological opinion and Section 2.2.1 of the TUMSHCP). Food and trash left in or near least Bell's vireo habitat could attract predators and indirectly increase predation on vireos; however, the Applicant would require daily removal of trash to minimize this effect. In addition, the Applicant's proposal to manage open space lands to ensure that the existing natural resource and conservation values of the Ranch are protected, including reducing noise-related disturbance, would minimize adverse effects from filming. Therefore, we do not expect filming activities to cause substantial impacts to the least Bell's vireo within the action area.

Recreation

Recreation associated with the Planwide Activities includes private recreation by TRC, its employees, and guests, and public access is governed by the Interim RWMP and managed by the Conservancy. Such recreational use is also subject to the terms of the TUMSHCP and the terms of Service-approved conservation easements. While the private recreation by TRC occurs currently throughout the Covered Lands, public recreation, which generally consists of docent led tours by the Conservancy per the Interim RWMP, occurs in the Established Open Space portion of the Mitigation Lands. These public and private recreation uses are limited to passive activities listed in the Project Description. Recreation activities associated with Planwide Activities would occur in open space areas generally outside the TMV Planning Area at a relatively small scale, and have infrequent impacts. Recreational uses by TRC, its employees, and the public are limited by the access guidelines and best management practices in the Interim RWMP and will be further regulated in Public Access Plans, which are subject to permanent Service review and approval. We note that future development in the TMV Planning Area will likely lead to increased recreation demand by TMV Project residents and guests, but the type and nature of the use is the same. All such recreational use in the protected open space will also be regulated in the Public Access Plan, which will require monitoring and enforcement and is subject to permanent Service review and approval. An Interim Public Access Plan is currently in place that provides for docent-led public tours and requires pre-activity surveys prior to any ground-disturbing activities. We anticipate future levels of public access would be consistent with what occurs under the Interim Public Access Plan. The effects of recreation on the least Bell's vireo in the TMV Planning Area Open Space are discussed separately under Commercial and Residential Development Activities.

If recreation were to occur in occupied least Bell's vireo habitat, it could potentially alter vireo behavior, including feeding, breeding, or sheltering activities. This could lead to increased energy expenditure, avoidance of suitable habitat, or increased predation risk. To minimize the likelihood of this, under the TUMSHCP, all public and private recreation would be conducted in a manner that would avoid adverse impacts to the Covered Species and their habitats or result in less-than-significant impacts (see Table 2 of this biological opinion, and TUMSHCP Section 7.1.1.2.5), and recreation would be monitored and regulated by TRC staff, the Tejon Ranch Staff

Biologist, or Conservancy docents, including provision of educational materials and restrictions on the location and types of any organized events. In addition, given the rarity of the subspecies in the action area, the relatively small amount of modeled habitat outside the TMV Planning Area, and the expected infrequent nature of recreation associated with Planwide Activities, any impacts to the least Bell's vireo would be rare and negligible. As previously stated, public recreational activities will be governed by a Public Access Plan, which will require monitoring and enforcement and is subject to the Service's review and approval, both during and following the end of the permit term into perpetuity. These measures would ensure that allowed recreational activities are conducted in a manner that is consistent with the conservation of the least Bell's vireo.

Irrigation/Water Diversion

The action area contains minor water diversions for irrigation of agriculture, and a few small agricultural areas totaling about 232 acres exist in the TMV Planning Area (e.g., small vineyards and an orchard near Castac Lake). Agricultural uses that remain in open space after TRC identifies the final development footprint will continue subject State and local regulations. We do not anticipate any adverse effects to the least Bell's vireo from on-going agricultural activity, because the Applicant is not proposing to expand agricultural operations, agricultural land is not suitable habitat for the subspecies, and we do not expect least Bell's vireo to occur in these areas.

Maintenance of irrigation/water diversion facilities could disturb least Bell's vireos or their habitat, and the vehicles and workers conducting the maintenance could alter vireo behavior and disrupt feeding, breeding, or sheltering activities, or damage least Bell's vireo nests causing nest abandonment or injury or death of eggs/nestlings. However, the Applicant is not proposing to expand the current irrigation capacity/diversion capacity, the facilities cover a very small percentage of the Covered Lands, and the operation of irrigation facilities does not cause additional impact to the least Bell's vireo. Maintenance and relocation work, if any, is subject to the survey and avoidance requirements in the TUMSHCP, and prior to TRC relocating water diversions, the Service would review and approve the proposed new locations. Given the lower-quality condition of least Bell's vireo habitat in the action area, the rarity of the subspecies in the action area, and the Applicant's proposed minimization measures under the RWA and the TUMSHCP, we expect impacts of irrigation/water diversion to be infrequent and negligible.

Roads/Trails

A network of generally unpaved roads exists in the action area as access for fire protection, security, ranching activities, and hunting. As described in the TUMSHCP, the roads outside the development areas would be maintained, relocated, or new roads could be constructed, in compliance with the 200-acre limit on disturbance by Planwide Activities, to facilitate the Planwide Activities. In general, the likelihood of impacts is low, because if the least Bell's vireo occupies the action area, it is at low density, and the majority of modeled suitable habitat is in areas with infrequent road/trail use. Road/trail use is expected to be irregular and of low intensity, and we do not expect the presence and use of roads/trails to preclude least Bell's vireos

from using nearby suitable habitat or to cause vireos to vacate occupied habitat. However, road construction and maintenance could destroy vireo habitat or disturb resident individuals. Because the least Bell's vireo often returns to the same general location to breed from year to year, individuals may be adversely affected by habitat loss that occurs during the non-breeding season. It is possible that motorized vehicles, off-highway vehicles, etc. could, on occasion, injure or kill least Bell's vireos if collisions occur; however, this scenario is extremely unlikely, because there is a relatively small amount of modeled habitat in the action area, and the subspecies has not been documented in the action area.

To minimize adverse effects, the Applicant would require that breeding bird surveys be conducted prior to grading; 500-foot buffers be established around least Bell's vireo nests; new roads/trails avoid impacts to sensitive resources and not significantly impair the conservation value of the affected land; and vehicles, hikers, etc. remain on established roads and trails. Therefore, the likelihood of adverse effects is low, and impacts to nesting least Bell's vireos, if any occur within the action area now or in the future, would be largely avoided. Given the absence of any documented use of the action area by the least Bell's vireo, the fact that any undetected use of the area likely reflects low density of the subspecies in the action area, and the small amount of modeled suitable habitat available, any effects would be minor. The least Bell's vireo occupies a relatively large range that includes riparian habitats in Southern California south of the Tehachapi Mountains, along with northwestern Baja California. Relative to the range-wide population and habitat availability (e.g., designated critical habitat totals 38,000 acres in 6 counties in southern California (Service 1994)), the anticipated effects of roads and trails in the action area would be negligible.

The direct and indirect effects of roads as a result of residential and commercial development are addressed below under Commercial and Residential Development Activities.

Utilities

The action area contains, or would contain, various minor utilities to support ranch activities. As described in Section 2.2.1 of the TUMSHCP, these utilities would be *de minimis* or would be located in previously disturbed areas (e.g., undergrounding utilities in road rights-of-way). Any utilities associated with Planwide Activities that are not *de minimis* or cannot be located in previously disturbed areas would require Service review and approval prior to relocation or construction. Installation or maintenance of utilities may affect least Bell's vireos by disturbing habitat or individuals, or damaging nests and/or nestlings. However, we do not expect utilities to have a measureable impact on the least Bell's vireo, because any existing utility posts have small footprints, the utilities affect a very small percentage of the action area, the subspecies is rare and not known to occur in the action area, and the Applicant's proposal to survey prior to grading and construction and apply avoidance buffers if least Bell's vireos are present should avoid adverse impacts to least Bell's vireos by utilities.

We address potential impacts by utilities associated with the proposed development below under Commercial and Residential Development Activities.

Backcountry Cabins

Eight backcountry cabins occur in the action area; however, there are no backcountry cabins in modeled suitable habitat for the least Bell's vireo. In addition, prior to TRC relocating an existing cabin, the Service would review and approve the proposed new location. This would ensure that the new cabin location is compatible with the conservation of the least Bell's vireo. Therefore, we do not expect the use of backcountry cabins to cause adverse effects to the subspecies.

Fencing

Fences exist throughout the action area. Fences would be maintained and new fencing could be constructed and maintained as required to support the Covered Activities, including exclusion of cattle from sensitive habitats that could support the least Bell's vireo. The Applicant proposes measures to avoid fencing-related impacts to sensitive resources, and the selective use of fencing, which could limit direct livestock interactions with natural water sources and have ancillary benefits for riparian habitats used by the least Bell's vireo. Under the TUMSHCP, the Applicant must submit grazing management plans to the Service every 5 years for review and approval. Our review of such plans will allow for the implementation of additional measures or modification of fencing practices to maintain riparian habitat. For these reasons, we expect fencing in the action area to have no appreciable impact on the least Bell's vireo.

Lebec/Existing Headquarters Area Uses

Existing activity in the Lebec/Existing Headquarters Area (i.e., corporate headquarters buildings, an antique shop, a post office, a church, and several single-family residences for ranch employees) would continue to occur. While additional development could occur here under the TUMSHCP, TRC has not included development plans for this area in the project description. We do not expect that activities associated with this area will affect the least Bell's vireo, because modeled suitable habitat for the subspecies does not occur in this area.

Mitigation, Monitoring, and Management

Mitigation, monitoring, and management activities to carry out identified biological goals and objectives for the California condor or other Covered Species included in the TUMSHCP or other resource agency permits for the commercial and residential Covered Activities, as well as mitigation, monitoring, and management activities imposed pursuant to any local, State, or Federal approval of development on Tejon Ranch would be carried out in accordance with the Act and would be subject to Service review. We acknowledge that other agencies may credit TRC for mitigation and protective measures included in the TUMSHCP for mitigation imposed by such other agencies. Any restoration, enhancement, or similar mitigation activities would not be allowed if they would result in unpermitted adverse effects to species or critical habitat under the Act. Additionally, any mitigation activities for other agencies would be subject to the

protective measures included in Tables 1 and 2, in the Description of the Proposed Action section of this biological opinion. Therefore, we anticipate that any potential threats to the least Bell's vireo as a result mitigation, monitoring, and management activities would be effectively minimized.

Estimate of Disturbance by Planwide Activities

The proposed TUMSHCP would cover 200 acres of ground disturbance associated with the Planwide Activities described above. These ground disturbances would occur outside of the proposed development (discussed below) and may be permanent or temporary. The disturbance would primarily be associated with construction of roads, backcountry cabins, and ancillary structures. If the Applicant restores a portion of this disturbance, an area equal in size may then be disturbed. Thus, no more than 200 acres may exist in a developed condition because of Planwide Activities at one time.

For the purposes of this effects analysis, we assume that all parts of the action area that could be affected by Planwide Activities have an equal chance of being affected and that all habitat types would be affected in equal proportion. This assumption is based upon the Applicant's inability to predict exactly where 200 acres of habitat disturbance due to Planwide Activities would occur. In addition, there is no indication that the distribution or location of least Bell's vireo modeled habitat would cause Planwide Activities to disproportionately occur in least Bell's vireo modeled habitat.

For the purposes of estimating species-specific habitat disturbance by Planwide Activities, we are not using the 8,817-acre development envelope used by the Applicant to estimate impacts from development (TUMSHCP Table 2-1, footnote 4), but rather we are using the 5,533-acre area that actually could be developed within the development footprint. We did this because, after development of the 5,533-acre development footprint, 3,284 acres of the 8,817-acre development envelope would remain and be subject to Planwide Activities, and modeled habitat for the least Bell's vireo could occur in the 3,284 acres. Therefore, we included 3,284 acres of the development envelope in this analysis to acquire an estimate of habitat lost by Planwide Activities that is as accurate as possible. When we combine this estimate with anticipated habitat loss from commercial and residential development in a summary effects analysis (discussed below), we will have slightly double-counted and overestimated the amount of least Bell's vireo habitat that would be lost in the action area. This slight overestimation of lost habitat does not compromise our analysis, because the overlap is very small relative to the size of the action area, and this approach ensures that potential species impacts are fully considered by analyzing a larger impact than would actually occur.

Adding together the acres of commercial and residential development, National Cement and La Liebre Mines, the VA Cemetery, and Not-A-Part lands (blocks of land within the boundary of the action area but not owned by the Applicant), a total of 12,423 acres in the action area are not subject to Planwide Activities. We expect that Planwide Activities could occur on the remaining 129,463 acres of the action area (141,886 acres within the action area minus the 12,423 acres of

excluded areas above). Therefore, the ratio of disturbance due to Planwide Activities (200 acres) to Covered Lands subject to Planwide Activities (129,463) equals 0.0015. We applied this ratio to least Bell's vireo habitat outside the excluded areas but in the action area and rounded the remainder up to a whole acre. Thus, 614 acres of modeled habitat within the action area minus 8 acres lost to development (discussed below) equals 606 acres of least Bell's vireo habitat subject to Planwide Activities. Using our ratio of 0.0015, we anticipate that Planwide Activities would disturb or remove up to approximately 1 acre of modeled suitable habitat for the least Bell's vireo over the permit duration. We acknowledge that this could be an overestimate because the Applicant is proposing measures to avoid and minimize disturbance to least Bell's vireo habitat.

Thus, while there could be a small loss of least Bell's vireo modeled suitable habitat due to Planwide Activities, in comparison to the modeled suitable habitat conserved, the loss would have a minimal effect on the subspecies. Consequently, we conclude that the effects of Planwide Activities on the least Bell's vireo and its habitat would be minimal under the TUMSHCP and would not appreciably reduce the subspecies' reproduction, numbers or distribution in the Covered Lands or rangewide.

Commercial and Residential Development Activities

Direct Effects

Development proposed to be covered by the TUMSHCP would permanently remove 8 acres of least Bell's vireo modeled habitat. (No modeled suitable habitat for the least Bell's vireo occurs within the Lebec/Existing Headquarters Area.). The remaining fragments of modeled habitat in the TMV Planning Area would occur in a matrix of development and preserved open space. Given that the least Bell's vireo has not been observed in the action area, the modeled habitat in the TMV Planning Area is of relatively poor quality, that grading and construction under the TUMSHCP would avoid any occupied least Bell's vireo habitat during the breeding season, and the Applicant would establish 500-foot buffers around any least Bell's vireo nests, we do not expect direct effects on individual vireos. Eight acres represents 1.3 percent of available modeled suitable habitat within the action area; the vast majority of modeled habitat for the subspecies in the action area is outside the TMV Planning Area. Therefore, we do not expect this negligible loss of habitat to reduce the ability of the action area to support breeding, foraging, or migrating least Bell's vireos.

Indirect Effects

Development-related indirect impacts to the least Bell's vireo and modeled suitable habitat could occur where modeled habitat is near developed areas. Most of the modeled least Bell's vireo habitat in the TMV Planning Area occurs around Castac Lake. This habitat may have increased lighting and noise that may disturb individual least Bell's vireos or increase predation risk. Under the TUMSHCP, lighting would be directed away from sensitive habitats to reduce this effect.

Recreational activities allowed within Open Space areas are limited to passive recreation as described above under Planwide Activities. Even so, in the EIS for the TUMSHCP, we estimated that the TUMSHCP would increase the human population of the TMV Planning Area, the only development area containing modeled suitable least Bell's vireo habitat, by 11,441 people, and we expect the recreational activities of future residents of the TMV Planning Area to cause a higher level of disturbance and impacts in this area than in other parts of the action area that are more remote. If recreation occurs in occupied least Bell's vireo habitat, it could potentially alter vireo behavior, including feeding, breeding, or sheltering activities. To minimize impacts of recreation in the action area, TRC would provide Home Owners' Association(s) with educational information regarding acceptable activities in open space areas, including recreational activities and pet restrictions. In addition, TRC would require that recreation in Open Space areas be conducted in a manner that would avoid adverse impacts to the Covered Species and their habitats or result in less-than-significant impacts. At a minimum, the recreation activities would be planned to avoid sensitive species and known occurrences, and TRC would require the use of existing roads and trails where possible. However, despite the environmental education and other measures proposed by the Applicant (Table 2 of this biological opinion; Sections 2.2.1 and 7.1.1.2.5 of the TUMSHCP), we expect residents, TRC employees, and others using the action area to recreate in or near least Bell's vireo modeled habitat either because of apathy or unfamiliarity with sensitive species and habitats. Such use could potentially alter vireo behavior, including feeding, breeding, or sheltering activities. That said, we expect these impacts to be minor and to occur infrequently, because if the least Bell's vireo occurs in the action area, it does so at low density; least Bell's vireos are less likely to use habitat around Castac lake, because riparian habitat around lakes is not the subspecies' primary habitat; the majority of least Bell's vireo modeled habitat in the action area occurs outside development areas (primarily along the southeastern boundary); least Bell's vireos are known to successfully breed in areas near roads, recreation, and development (Ventura County 2009); and the Applicant proposed measures to avoid impacts to the subspecies (see Table 2 of this biological opinion, and TUMSHCP Section 7.1.1.2.5). To further minimize potential effects, recreational activities will be subject to the Public Access Plan to be reviewed and approved by the Service in perpetuity and approved conservation easements or other appropriately restricted conveyances over those lands. These measures would ensure that allowed recreational activities are conducted in a manner that avoids or minimizes impacts to the least Bell's vireo.

The Applicant proposes to clear and thin vegetation within 200 feet of the proposed development, creating a 1,773-acre fuel modification zone. The expected intensity of disturbance associated with these activities alone would not preclude least Bell's vireos from using modeled habitat near this area; however, the ongoing maintenance of this area, whether by grazing or mechanized means, could cause vireos to temporarily avoid suitable habitat. The estimated areal extent in which fuel modification may affect the least Bell's vireo is included in the 8 acres of modeled habitat estimated to be lost within the 8,817-acre development envelope.

Roads and trails receiving the most use would be located in the TMV Planning Area. Under the TUMSHCP, we expect road use in the development areas to be typical of residential/commercial areas. In the EIS for the TUMSHCP, we estimated that the TUMSHCP would increase the

human population of the TMV Planning Area by 11,441 people resulting in 79,514 additional vehicle trips per day. We expect most of these vehicle trips to occur near commercial areas, and the number of vehicle trips to decrease with distance from Interstate 5. Nonetheless, use of roads in the development areas would increase substantially over baseline conditions and could adversely affect the least Bell's vireo, if the subspecies occurs in the action area. Noise and human/vehicle presence associated with frequent road use could flush vireos from nests or occupied habitat exposing them to higher predation risk and increased energy expenditure, and vehicles could, on occasion, injure or kill least Bell's vireos if collisions occur. However, access to the open space will continue to be controlled by the Public Access Plan and is not anticipated to increase significantly in remote open space areas where the vast majority of modeled suitable habitat is located.

To minimize adverse effects of roads and trails, the TUMSHCP requires that that breeding bird surveys be conducted prior to grading; 500-foot buffers be established around least Bell's vireo nests; new roads/trails avoid impacts to sensitive resources and not significantly impair the conservation value of the affected land; and vehicles, hikers, etc. remain on established roads and trails. Given the absence of any documented use of the action area by the least Bell's vireo, the fact that any undetected use of the area likely reflects low density of the subspecies in the action area, the small amount and low quality of modeled suitable habitat available in the TMV Planning Area, the chance of adverse effects on the least Bell's vireo from roads would be highly unlikely. In addition, least Bell's vireos are known to successfully breed in habitat adjacent to roads, recreation, and nearby development (Ventura County 2009), and we do not expect the presence of roads or vehicles to preclude vireos from using nearby habitat or to cause vireos to vacate occupied habitat. Therefore, we expect that impacts of roads to least Bell's vireos, if any occur within the action area, now or in the future would be minor. The least Bell's vireo occupies a relatively large range covering riparian areas in Southern California and northern Baja, Mexico. Given the relatively small amount of habitat in the TMV Planning Area relative to the larger geographic range, the anticipated effects of roads and trails in the TMV Planning Area would be negligible.

New utilities to support development would be undergrounded, except that the two communication towers described under Communication Towers in the Description of the Proposed Action section above (also on page 4-52 and elsewhere in Section 4 of the TUMSHCP) would be installed above ground. Once underground, new utilities would not cause ongoing impacts. The two communication towers theoretically pose a limited collision risk for least Bell's vireos; however, the towers are not in modeled suitable habitat for the subspecies, and the towers occupy a very small fraction of the action area. In addition, the two communication towers will include design restrictions identified by the Service to minimize the potential for collisions. These restrictions must be reviewed and approved by the Service and require that (1) the towers be self-supporting (i.e., no guide wires must be included as part of the design); and (2) the tower facades will be primarily solid (e.g., through use of panels or other sidings, wider or denser lattice work, or alternative tower solutions as approved by the Service) to increase their visibility. Therefore, we determined that the risk of collision for least Bell's vireos is negligible.

Although the least Bell's vireo could expand its range, it is unlikely that least Bell's vireos will occur in the TMV Planning Area, because the subspecies was not observed during surveys of the area, and the habitat in the TMV Planning Area is of lower quality. Relative to the larger geographic range of the subspecies, which includes riparian habitats in Southern California south of the Tehachapi Mountains, along with northern Baja, Mexico, the anticipated indirect effects of development and the loss of 8 acres of modeled habitat would be negligible.

TUMSHCP Mitigation

The Applicant proposes to conserve in perpetuity the balance of the action area outside the development areas, including 582 of the 614 acres of modeled suitable habitat for the least Bell's vireo in the action area. The Applicant proposes to maintain the preserved land in its current condition, thus maintaining its current capacity to support least Bell's vireos. The proposed conservation is consistent with conservation biology principles calling for large, interconnected blocks of habitat that support a given species' life history requirements. The proposed preservation would contribute to the subspecies' conservation by permanently preventing future habitat loss in the action area and securing part of a migration corridor that could become stop-over or breeding habitat for the subspecies in the future.

Summary of Effects

In determining whether a proposed action is likely to jeopardize the continued existence of a species, we consider the effects of the action with respect to the reproduction, numbers, and distribution of the species. We also consider the effects of the action on the recovery of the species. In that context, the following paragraphs summarize the effects of the proposed TUMSHCP on the least Bell's vireo.

The Planwide Activities and the proposed development could have some effect on the least Bell's vireo. As stated above, TRC estimates that up to 8 acres of modeled suitable habitat could be lost due to development, and we have calculated that Planwide Activities could affect an additional 1 acre of modeled suitable habitat for the least Bell's vireo, for a total of 9 acres of lost modeled suitable habitat for the subspecies. Nine acres is a small percentage of the 614 acres of modeled habitat in the action area, and a negligible amount of habitat compared to the habitat available to the subspecies throughout its larger geographic range. Although occupied habitat would be avoided during the breeding season, loss of habitat could affect vireos returning to the habitat in subsequent breeding seasons. In addition, the Planwide Activities, including livestock and recreation, and the indirect effects of development, including recreation and roads, could result in impacts to the least Bell's vireo. These potential impacts include flushing of individuals, disturbance of nests, or otherwise altering feeding, breeding, or sheltering behavior. As described in the effects analyses above, we expect these impacts to occur rarely, if at all, and have minor effects on the subspecies in the action area.

Under the TUMSHCP, 582 of the 614 acres (95 percent) of modeled suitable habitat for the least Bell's vireo in the action area would be permanently conserved, helping to secure connectivity

between suitable habitat areas to the north and south of the action area. In addition, the TUMSHCP includes measures to avoid adverse effects and to minimize the effects of Planwide Activities and development-related effects on the least Bell's vireo (see Table 2 of this biological opinion, and TUMSHCP Section 7.1.1.2.5). We conclude that the combination of avoidance and minimization proposed by TRC to reduce the effects of both Planwide Activities and Commercial and Residential Development Activities, and the conservation of almost all of the modeled suitable habitat in the action area to mitigate for unavoidable impacts, would allow the Covered Activities to proceed under the proposed ITP without appreciably reducing the reproduction, numbers, or distribution of the least Bell's vireo.

Recovery

The Service has completed a draft recovery plan for the least Bell's vireo (Service 2006a). In general, the draft downlisting criterion requires stable least Bell's vireo populations in major river systems from Santa Barbara County to the border with Mexico. The draft delisting criteria generally consider the long-term management of the subspecies and require substantial reestablishment of the least Bell's vireo in the San Joaquin and Sacramento Valleys.

Since listing, the Service has been tracking the subspecies status through recovery actions, survey efforts, recovery permit reports, 5-year reviews, etc. The least Bell's vireo has been reoccupying the historical range and establishing consistent breeding populations, generally in a south to north progression. The Service estimates that the range-wide population has increased approximately 10-fold since listing (Service 2006a). The proposed action would cause, at most, an imperceptible reduction in the numbers (using habitat loss as a surrogate) of least Bell's vireos and would not affect the distribution or reproduction of the subspecies. The action area does not contain any of the core riparian systems mentioned in the draft recovery plan, but the proposed permanent preservation of habitat in the action area would help secure connectivity between suitable habitat areas to the north and south of the action areas identified for reestablishment of least Bell's vireo populations. For these reasons, the proposed action would not diminish, and may contribute to the subspecies' recovery.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section, because they require separate consultation pursuant to section 7 of the Act.

Hunting

Private and commercial hunting operations occur on Tejon Ranch, including the action area; however, hunting is not an activity covered by the TUMSHCP. The Applicant proposes to continue hunting operations throughout the ranch during the proposed permit term. Hunting activities involve travel on existing paved and unpaved roads, overnight use of backcountry

cabins, hiking, discharging hunting weapons, etc. The effects from hunting will generally be consistent with, and to a considerable extent are captured in, the descriptions of effects for Roads/Trails, Backcountry Cabins, and Recreation described above. The Applicant proposes to manage the hunting program to avoid take of any federally protected species. Hunting in the TMV Planning Area would be limited to guided hunts. As feral pigs are known to cause extensive damage to riparian areas and directly or indirectly could affect least Bell's vireos, the hunting program could benefit vireos by removing some disturbance pressure from feral pigs. Therefore, we expect that hunting in the action area will have negligible cumulative effects on the least Bell's vireo.

Mining

Two commercial mining operations occur in the action area, La Liebre and National Cement; these mining operations are not covered activities under the TUMSHCP. The total area used for the two operations is about 2,636 acres, and the Applicant would maintain the mining leases through the proposed permit term. The two mining operations are on the southern/southeastern edge of the action area, in the vicinity of where most of the modeled suitable habitat for the least Bell's vireo occurs, and a combined 64.5 acres of modeled habitat occurs in the mining areas. We expect that much of the modeled habitat in the mining areas is already directly or indirectly disturbed and that very little, if any, suitable habitat for the least Bell's vireo exists in the mining areas. It is possible that the vehicles and earthmoving activities cause a reduction in air quality in modeled suitable habitat adjacent to the mines. However, only a small area of modeled habitat is adjacent to the National Cement operation and any air quality reduction is likely minor. In addition, any use of chemicals in mining must be in conformance with Federal, State and local laws. For these reasons, we expect that continued mining in the action area will have negligible cumulative effects on the least Bell's vireo.

Other Activities

As discussed above under the Project Description, within the external boundaries of the action area, there are existing inholdings and utilities. The Bakersfield National Cemetery also occurs inside the action area. These projects and activities are not Covered Activities under the TUMSHCP. We are not aware of any reasonably foreseeable activities within the 3,870 acres of inholdings that may affect the least Bell's vireo. Activities associated with existing utilities, transmission lines, and related structures, such as maintenance activities, would be restricted to currently established easement areas and would have minor, if any, effects on the least Bell's vireo. Therefore we do not anticipate any cumulative effects from the ongoing maintenance and operation of non-covered existing utilities. The Bakersfield National Cemetery is in place, and we are not aware of any activities associated with the cemetery that may have an adverse effect on least Bell's vireos.

CONCLUSION

After reviewing (1) the current status of the least Bell's vireo; (2) the environmental baseline for this subspecies in the action area; (3) the effects of the proposed action; and (4) the cumulative effects, it is our biological opinion that the Service's issuance of the proposed ITP is not likely to jeopardize the continued existence of the least Bell's vireo.

We have reached this conclusion because:

1. The action areas constitutes a small portion of the large geographic range of the least Bell's vireo, contains little suitable modeled habitat for the subspecies, and no least Bell's vireos have been documented in the action area. The proposed activities would affect a small portion of the overall range and distribution of the least Bell's vireo; the effects on the least Bell's vireo would be minor and would not appreciably reduce the reproduction, numbers, or distribution of the subspecies, which has increased in numbers since its listing under the Act.

2. The majority of the action area would be conserved in perpetuity, including the vast majority (95 percent) of the least Bell's vireo modeled suitable habitat, preventing future loss of least Bell's vireo habitat in the action area. This would have long-term benefits to the least Bell's vireo and the stability of its remaining habitat.

3. The Applicant will implement protective measures under the TUMSHCP, including surveying project areas prior to grading or construction activities, providing avoidance buffers around nests, and avoiding the least Bell's vireo and its habitat to the maximum extent practicable. These measures should reduce or avoid any impacts to the subspecies.

4. Development covered under the TUMSHCP would have few impacts on the least Bell's vireo, because a small amount of modeled suitable habitat would be lost, the habitat is generally of poorer quality (i.e., next to a lake rather than a riverine system), and protocol surveys in 2007 in the TMV Planning Area did not detect the presence of this subspecies.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise

lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

Amount or Extent of Take

The proposed development and Planwide Activities would cause the potential loss of an estimated 9 acres of modeled suitable habitat for the least Bell's vireo. While this habitat loss could theoretically cause adverse effects to the subspecies over the duration of the permit term, we do not anticipate any take of the least Bell's vireo as a result of the proposed activities, because the habitat that would be lost is of lower quality, the least Bell's vireo is not known to occur in the action area, and the Applicant has proposed (1) to avoid and minimize disturbance of the species' habitat, and (2) survey and avoidance measures that will preclude impacts to the species during the breeding season.

Effect of the Take

Because the Service anticipates in the accompanying biological opinion that no take of least Bell's vireo will occur under the proposed TUMSHCP, no jeopardy to the species would occur as a result of take.

REASONABLE AND PRUDENT MEASURES / TERMS AND CONDITIONS

As described above, the proposed TUMSHCP and associated documents identify anticipated impacts to the least Bell's vireo as well as measures that are necessary and appropriate to minimize those impacts. These measures will effectively avoid take of the least Bell's vireo from the Covered Activities. Therefore, no reasonable and prudent measures and implementing terms and conditions to minimize take are required or included in this incidental take statement.

SOUTHWESTERN WILLOW FLYCATCHER

STATUS OF THE SPECIES

Regulatory History

The Service listed the southwestern willow flycatcher as endangered on February 27, 1995 (Service 1995a) and completed a recovery plan for the subspecies in August 2002 (Service 2002). The Service first designated critical habitat for the southwestern willow flycatcher on July 22, 1997 (Service 1997). A second final critical habitat designation was published on October 19, 2005 (Service 2005a). Most recently, the Service proposed a revised critical habitat rule for the southwestern willow flycatcher on January 3, 2013 (Service 2013), which does not include any critical habitat on Tejon Ranch.

Natural History/Habitat Requirements

Southwestern willow flycatchers occur in riparian woodlands along streams and rivers with mature, dense stands of willows (*Salix* spp.) and cottonwoods, or in smaller spring-fed areas with willows or alders (*Alnus* spp.). They forage within, and occasionally above, the canopy of riparian vegetation, taking insects on the wing or gleaning them from vegetation. Nesting habitat consists of even-aged, structurally homogeneous, and dense riparian vegetation (Brown 1988, Sedgwick and Knopf 1992). Historically, they nested primarily in willows and mulefat with a scattered overstory of cottonwood (Grinnell and Miller 1944). Following recent changes in riparian plant communities, nesting occurs in willows where available, but can also include thickets dominated by tamarisk (*Tamarix* spp.) and Russian olive (*Elaeagnus angustifolia*) (Brown 1988). Fragmented riparian zones with large distances between willow patches and individual willow plants are usually not selected for either nesting or singing (Sedgwick and Knopf 1992).

Southwestern willow flycatchers are typically present and singing on breeding territories by mid-May, although presence and status are often confused by migrating individuals of the northern subspecies (little willow flycatcher) passing through breeding habitat. The southwestern willow flycatcher builds nests and lays its eggs in late May to early June. They typically raise one brood per year, and clutch size is 3 to 4 eggs (Service 2002). Fledglings depart the nest at the age of 12 to 15 days in early July and usually disperse from the natal territory at the age of 26 to 30 days. Some variation in these dates has been observed and may be related to altitude, latitude, and re-nesting. Territories range in size from 0.25 to 5.7 acres, although most are 0.5 to 1.2 acres (Service 2002). Adults depart from breeding territories in mid-August to early September.

Southwestern willow flycatchers are somewhat site-tenacious across breeding seasons. Evidence gathered during multi-year studies of color-banded populations show that although most southwestern willow flycatchers return to former breeding areas, they regularly move among sites within and between years (Netter et al. 1998). From 1997 to 2000, 66 to 78 percent of

southwestern willow flycatchers returned to the same breeding site (Luff et al. 2000). Within drainage movements are more common than between drainage movements.

Distribution and Population Trends

The southwestern willow flycatcher's current breeding range extends from southern California to western Texas, including portions of southernmost Nevada and Utah, southwestern Colorado, and northernmost Sonora and Baja California del Norte. The subspecies' current range is similar to the historical range, but the quantity of suitable habitat within that range has been much reduced from historical levels. The historical range of the southwestern willow flycatcher in California included all lowland riparian areas in the southern third of the state (Service 2002). The flycatcher migrates to Mexico, Central America, and possibly northern South America during the non-breeding season.

In California, the southwestern willow flycatcher was historically common in all lower elevation riparian areas of the southern third of the State (Wheelock 1912, Willett 1912 and 1933, Grinnell and Miller 1944), including the Los Angeles basin, the San Bernardino/Riverside area, and San Diego County (Unitt 1984, 1987). River systems where the flycatcher persists include the Colorado, Owens, Kern, Mojave, Santa Ana, Pilgrim Creek, Santa Margarita, San Luis Rey, San Diego, San Mateo Creek, San Timoteo Creek, Santa Clara, Santa Ynez, Sweetwater, San Dieguito, and Temecula Creek (Service 2002).

When the Service proposed the southwestern willow flycatcher for listing in 1993, there were an estimated 111 southwestern willow flycatcher territories (Sogge et al. 2010). As of the 2001 breeding season, the minimum estimate of southwestern willow flycatchers was 986 territories, and the recovery plan estimated that an additional 200 to 300 nesting pairs may remain undiscovered, yielding an estimated total population of 1,200 to 1,300 pairs/territories for 2001. The known population of southwestern willow flycatchers appeared to be relatively stable through 2007, when 1,299 flycatcher breeding territories were estimated to occur throughout southern California, southern Nevada, southern Utah, southern Colorado, Arizona, and New Mexico (Durst et al. 2008).

Reasons for Decline

The decline of the southwestern willow flycatcher is attributed to numerous factors, including nest depredation and brood parasitism by the brown-headed cowbird. However, large scale loss of wetlands, particularly cottonwood-willow riparian habitat, is the principal reason for the southwestern willow flycatcher's current status. Habitat loss is a result of urban and agricultural development, water diversion and impoundment, livestock grazing, and hydrological changes attributable to these and other land uses (Service 1995a). In some cases, willow flycatchers are faced with situations that force movement, such as when catastrophic habitat loss occurs from fire or flood. Several such cases have been documented, with some of the resident willow flycatchers moving to remaining habitat within the breeding site, some moving to other sites 1.2

to 16.8 miles away (Paxton et al. 1997, Owen and Sogge 1997), and others disappearing without being seen again.

Recovery Plan/Status Reviews

The 2002 final recovery plan for the southwestern willow flycatcher states that the goal of recovery efforts is the reclassification of the subspecies from endangered to threatened and, ultimately, delisting of the subspecies. The plan states that reclassification to threatened status may be considered when either of the following criteria has been met:

- Criterion A: Increase the total known population to a minimum of 1,950 territories (equating to approximately 3,900 individuals), geographically distributed to allow proper functioning as metapopulations, so that the southwestern willow flycatcher is no longer in danger of extinction. For reclassification to threatened status, these prescribed numbers and distributions must be reached as minimum, and maintained over a 5-year period.

- Criterion B: Increase the total known populations to a minimum of 1,500 territories (equating to approximately 3,000 individuals), geographically distributed among Management Units and Recovery Units, so that the southwestern willow flycatcher is no longer in danger of extinction. Recovery Units are large watershed or hydrologic areas, while Management Units are a subset of the Recovery units and encompass local drainages and distinct geographic features. For reclassification to threatened status, these prescribed numbers and distributions must be reached as a minimum, and maintained over a 3-year period, and the habitats supporting this subspecies must be protected from threats and loss.

The plan states that the southwestern willow flycatcher may be removed from the list of threatened and endangered species when both of the following criteria have been met:

- Criterion 1: Meet and maintain, at a minimum, the population levels and geographic distribution specified under reclassification to threatened Criterion A.

- Criterion 2: Provide protection from threats and create/secure sufficient habitat to assure maintenance of these populations and/or habitat over time. The sites containing southwestern willow flycatcher breeding groups, in sufficient number and distribution to warrant downlisting, must be protected into foreseeable future through development and implementation of conservation management agreements (e.g., public land management planning process for Federal lands, habitat conservation plans (under Section 10 of the Act), conservation easements, and land acquisition agreements for private lands, and intergovernmental conservation agreements with Tribes). Prior to delisting, the Service must confirm that the agreements have been created and executed in such a way as to achieve their role in southwestern willow flycatcher recovery, and individual agreements for all areas within all Management Units (public, private, and Tribal) that are critical to

metapopulation stability (including suitable, unoccupied habitat) must have demonstrated their effectiveness for a period of at least 5 years.

The recovery plan groups recovery actions into nine categories: (1) increase and improve occupied, suitable, and potential breeding habitat; (2) increase metapopulation stability; (3) improve demographic parameters; (4) minimize threats to wintering and migration habitat; (5) survey and monitor; (6) conduct research; (7) provide public education and outreach; (8) assure implementation of laws, policies, and agreements that benefit the southwestern willow flycatcher; and (9) track recovery progress.

ENVIRONMENTAL BASELINE

The Applicant conducted protocol-level surveys for the southwestern willow flycatcher in the TMV Planning Area from May through July 2007 (Dudek 2009). Several individuals of the willow flycatcher species were observed adjacent to Castac Lake, near Cuddy Creek, in Beartrap Canyon, in Rising Canyon, and along Grapevine Creek (Dudek 2007b). These individuals were observed during the first two surveys and not during the third survey, and were most likely migrant southwestern or little willow flycatchers. The Applicant also conducted surveys for the southwestern willow flycatcher (and other wildlife) in parts of the action area in 2003 (Impact Sciences, Inc. 2004), 2005 (Jones and Stokes 2006a), and 2011 (Dudek 2011). These survey efforts were not comprehensive of the action area. Individuals of the willow flycatcher species were also observed several times during surveys in 2003 and 2005 (Impact Sciences, Inc. 2004, Jones and Stokes 2006a); however, no willow flycatchers were observed during subsequent visits, and these birds were likely migrants. During surveys in 2011 (Dudek 2011), two willow flycatchers were observed foraging and calling in May and one individual was observed in June. This suggests possible breeding behavior; however, subsequent surveys failed to locate these individuals, leading to an inconclusive migrant/breeding status of these individuals. The closest CNDDB record of southwestern willow flycatcher is in the Santa Clara River, about 30 miles south of the action area.

The Applicant modeled a total of 986 acres of breeding/foraging habitat for the southwestern willow flycatcher in the action area. This is a very small percentage of the southwestern willow flycatcher's larger geographic breeding range, which extends from southern California to western Texas, including portions of southernmost Nevada and Utah, southwestern Colorado, and northernmost Sonora and Baja California del Norte. For example, the recent final rule designating critical habitat for the southwestern willow flycatcher includes approximately 208,973 acres throughout the subspecies' range and includes nine California counties (Service 2013). Modeled breeding and foraging habitats in the action area include riparian scrub, riparian woodland, oak riparian, riparian/wetland, and desert wash/riparian seeps. The modeled habitat occurs primarily in the south-facing drainages on the southern/southeastern edge of the action area east of the National Cement mining area. Smaller segments of modeled habitat occur around Castac Lake; in Bear Trap Canyon; and in the western portion of the action area in Rising Canyon, north of Grapevine Ridge, and adjacent to I-5.

Based on available modeled suitable habitat and positive survey results, we expect southwestern willow flycatchers to occur in modeled suitable habitat in the action area. Although the action area is near the northern limit of the subspecies' range, we expect southwestern willow flycatchers to occur during migration. Based on the most recent surveys in which willow flycatchers were observed late in the breeding season and were heard vocalizing, we expect that southwestern willow flycatchers occasionally could breed in modeled suitable habitat in the action area. However, we expect the subspecies to occur at low densities and to occupy large home ranges. We base this on the facts that (1) few individual southwestern willow flycatchers were observed during surveys, and (2) the modeled suitable habitat in the action area has been affected by past and ongoing livestock grazing, range management, off-road vehicle travel, and other ranch activities. These activities have reduced the quality of the riparian habitat in the action area and likely affected the ability of the action area to support breeding southwestern willow flycatchers. Southwestern willow flycatchers will find fewer resources per unit area in lower quality habitat, and therefore, lower quality habitat should support a lower density of southwestern willow flycatchers.

It is difficult to estimate the number of southwestern willow flycatchers that could occur in the action area, because the subspecies occurs at low density, population numbers will vary from year to year, the modeled suitable habitat is of lower quality, and the Applicant's model uses fairly coarse input parameters which likely overestimates the amount of suitable habitat in the action area. These factors make application of known home range sizes to modeled habitat in the action area less reliable. Therefore, we are using modeled suitable habitat as an index of potential southwestern willow flycatcher presence to anticipate effects of the proposed action.

EFFECTS OF THE ACTION

Planwide Activities

Livestock

The Applicant proposes to graze livestock on the balance of the action area outside development areas, consistent with the types and level of historical grazing and ranch management practices. If southwestern willow flycatchers attempt breeding in the action area, livestock may disturb or destroy nests while moving through vegetation. The Applicant proposes measures such as the selective use of fencing and distribution of supplements and water sources away from stream and riparian areas. These measures could limit direct livestock interactions with natural water sources and have ancillary benefits for riparian habitats used by the southwestern willow flycatcher and minimize effects of livestock on breeding flycatchers. Migrating southwestern willow flycatchers are unlikely to be directly impacted by livestock, but livestock could indirectly affect the subspecies by damaging vegetation in which southwestern willow flycatchers could build nests and suppressing growth of new vegetation that could support the subspecies. Also, brown-headed cowbird density is known to be higher in proximity to livestock and agriculture (Goguen and Mathews 2000), and if breeding is attempted, the flycatcher may be indirectly impacted by livestock through cowbird nest parasitism.

Livestock generally have negative effects on riparian habitat and the native species that rely on that habitat, and the continuation of historical grazing practices under the TUMSHCP would maintain the lower-quality, baseline condition of riparian habitat in the action area during the permit term. That said, the southwestern willow flycatcher occupies a large range covering riparian areas from southern California to western Texas, including portions of southernmost Nevada and Utah, southwestern Colorado, and northernmost Sonora and Baja California del Norte. For example, the recent final rule for critical habitat for the southwestern willow flycatcher includes approximately 208,973 acres throughout the subspecies' range and includes habitat in nine California counties (Service 2013). Given the small amount of habitat in the action area relative to this range, any effects on the subspecies from grazing in the action area would be negligible. In addition, under the TUMSHCP, the Applicant must submit grazing management plans to the Service every 5 years for review and approval. Our review of such plans will allow for the implementation of additional measures or modification of grazing practices (e.g., the selective use of fencing, which could limit direct livestock interactions with natural water sources and have ancillary benefits for riparian habitats used by the southwestern willow flycatcher) to promote the compatibility of grazing in the action area with the conservation of the southwestern willow flycatcher.

Range Management/Ancillary Ranch Structures

Range management activities support livestock operations and consist of construction, operation, and maintenance of watering facilities, feeding areas, fences, and corrals, consistent with the types and level of historical grazing and ranch management practices; repair, reconstruction, and relocation of roads to accommodate historical grazing and ranch management practices; and repair, maintenance, or installation of ranch management communication equipment (e.g., whip antennas) less than 20 feet high. The repair, reconstruction and relocation of roads to accommodate historical grazing and ranch management practices are evaluated below under Roads. Range management also incorporates ancillary ranch structures including squeezes, loading chutes, holding and feeding fields, corrals, branding traps, barns, sewage disposal facilities, livestock and wildlife watering facilities, and utilities serving existing ranch uses.

As described above under Planwide Activities in the Description of the Proposed Action section, *de-minimis* activities associated with ancillary ranch structures would be covered under the TUMSHCP. Non–*de minimis* activities associated with ancillary ranch structures are also allowed (1) if the activity is located in disturbed areas (e.g., undergrounding utilities in road rights-of-way), or (2) following a meet-and-confer process with the Service to ensure that the activity associated with an ancillary ranch structure avoids or adequately minimizes impacts to Covered Species and their habitats.

These activities occur at a small scale relative to the size of the action area, and range management facilities already exist in the action area. However, the workers or equipment, as well as placement of ancillary ranch structures, may create enough noise or disturbance to cause southwestern willow flycatchers to avoid suitable habitat or abandon a nest. However, given the

irregular nature of range management activities, the Applicant's proposal to avoid occupied breeding habitat, and the Service's ability to review and approve the Applicant's grazing management plan (which would include protections for riparian areas (TUMSHCP Section 7.2)), we expect impacts to southwestern willow flycatchers by range management activities to be rare and negligible.

Fuel Management

Fuel management practices would consist primarily of grazing, and the effects of fuel management by grazing would be largely subsumed within the effects identified for livestock. Other fuel management activities include fuel modification zones created by existing roads, and through irrigation and/or vegetation clearing and mowing within 120 feet surrounding existing structures (i.e., backcountry cabins, ancillary ranch structures, and other existing structures). Mowing may create enough noise to cause southwestern willow flycatchers to avoid suitable habitat or abandon a nest. However, mowing for fuel management would occur infrequently/irregularly, and there are no backcountry cabins in southwestern willow flycatcher modeled habitat. Therefore, we expect adverse effects from mowing and other fuel management activities to be rare and negligible.

Fuel modification associated with proposed development is discussed below under Commercial and Residential Development Activities.

Filming

Filming activities generally consist of temporary on-scene filming and photography-related uses, including, but not limited to the filming and staging of movies, television shows, and commercials; photo shoots; and still photography and related uses. Such activities may include the erection and dismantling of props, temporary installation of trailers and equipment for film crews, filming of on-camera action, catering, rehabilitation of disturbed areas, and the movement of film crews to and from locations.

Film shoots that include explosives or other loud noises could disturb southwestern willow flycatchers that occur in the action area. Explosions (louder than gunshots) or other abnormally loud noises are prohibited throughout the TUMSHCP Mitigation Lands unless the Service-approved Tejon Staff Biologist, in consultation with the Service, determines that no California condors are present, and explosions (louder than gunshots) are strictly prohibited in the Condor Study Area portion of the action area. These restrictions on explosions in the action area would also benefit southwestern willow flycatchers in the action area by minimizing the potential for disturbance to this subspecies from explosions.

We expect filming to cause only minimal impacts to southwestern willow flycatcher habitat, because filming occurs over a relatively short time frame, the Applicant would require that habitat disturbed by filming activities be restored to pre-filming conditions, and the Applicant would require that temporary construction avoid sensitive resources. We do not expect direct

impacts to individual flycatchers or nests from filming, because the Applicant would conduct surveys prior to filming related uses, establish 500-foot buffers around southwestern willow flycatcher nests, and have a qualified biologist monitor filming activities to ensure the terms of the TUMSHCP are implemented (see Table 2 of this biological opinion and Section 2.2.1 of the TUMSHCP). Food and trash left in or near southwestern willow flycatcher habitat could attract predators and indirectly increase predation; however, the Applicant's proposal to manage open space lands to maintain the existing habitat conditions, including reducing noise-related disturbance, described in the TUMSHCP would minimize adverse effects from filming. Therefore, we do not expect filming activities to cause substantial impacts to the southwestern willow flycatcher within the action area.

Recreation

Recreation associated with the Planwide Activities includes private recreation by TRC, its employees and guests and public access is governed by the Interim RWMP and managed by the Conservancy. Such recreational use is also subject to the terms of the TUMSHCP and the terms of Service-approved conservation easements. While the private recreation by TRC occurs currently throughout the Covered Lands, public recreation, which generally consists of docent led tours by the Conservancy per the Interim RWMP, occurs in the Established Open Space portion of the Mitigation Lands. These public and private recreation uses are limited to passive activities listed in the Project Description. Recreation activities associated with Planwide Activities would occur in open space areas generally outside the TMV Planning Area at a relatively small scale, and have infrequent impacts. Recreational uses by TRC, its employees, and the public are limited by the access guidelines and best management practices in the Interim RWMP and will be further regulated in Public Access Plans, which are subject to permanent Service review and approval. We note that future development in the TMV Planning Area will likely lead to increased recreation demand by TMV Project residents and guests, but the type and nature of the use is the same. All such recreational use in the protected open space will also be regulated in the Public Access Plan, which will require monitoring and enforcement and is subject to permanent Service review and approval. An Interim Public Access Plan is currently in place that provides for docent-led public tours and requires pre-activity surveys prior to any ground-disturbing activities. We anticipate future levels of public access to be consistent with what occurs under the Interim Public Access Plan. The effects of recreation on the southwestern willow flycatcher in the TMV Planning Area Open Space are discussed separately under Commercial and Residential Development Activities.

If recreation were to occur in occupied southwestern willow flycatcher habitat, it could potentially alter flycatcher behavior, including feeding, breeding, or sheltering activities. This could lead to increased energy expenditure, avoidance of suitable habitat, and increased predation risk. To minimize the likelihood of this, under the TUMSHCP, all public and private recreation would be conducted in a manner that would avoid adverse impacts to the Covered Species and their habitats or result in less-than-significant impacts (see Table 2 of this biological opinion, and TUMSHCP Section 7.1.1.2.8), and recreation would be monitored and regulated by

TRC staff, the Tejon Ranch Staff Biologist, or Conservancy docents, including provision of educational materials and restrictions on the location and types of any organized events. In addition, given the low density of the subspecies in the action area, the relatively small amount of modeled habitat in the action area, and the expected infrequent nature of recreation associated with Planwide Activities, any impacts to the southwestern willow flycatcher would be rare and negligible. As previously stated, public recreational activities will be governed by a Public Access Plan, which is subject to permanent Service review and approval, both during and following the end of the permit term into perpetuity. These measures would ensure that allowed recreational activities are conducted in a manner that is consistent with the conservation of the southwestern willow flycatcher.

Irrigation/Water Diversion

The action area contains minor water diversions for irrigation of agriculture, and a few small agricultural areas totaling about 232 acres exist in the TMV Planning Area (e.g., small vineyards and an orchard near Castac Lake). Agricultural uses that remain in open space after TRC identifies the final development footprint will continue subject to State and local regulations. We do not anticipate any adverse impacts to southwestern willow flycatchers from on-going agricultural activity, because the Applicant is not proposing to expand agricultural operations, agricultural land is not suitable habitat for the subspecies, and we do not expect southwestern willow flycatchers to occur in these areas.

Maintenance of these facilities could disturb southwestern willow flycatchers or their habitat, and the vehicles and workers conducting the maintenance could alter flycatcher behavior and disrupt feeding, breeding, or sheltering activities. If southwestern willow flycatchers attempt breeding in the action area, irrigation/water diversion activities could damage nests causing nest abandonment or injury or death of eggs/nestlings. However, the Applicant is not proposing to expand the current irrigation capacity/diversion capacity, the facilities cover a very small percentage of the action area, and the operation of irrigation facilities does not cause additional impact to the southwestern willow flycatcher. Maintenance and relocation work, if any, is subject to the survey and avoidance requirements in the TUMSHCP, and prior to TRC relocating water diversions, the Service would review and approve the proposed new locations. Given the existing condition of southwestern willow flycatcher habitat in the action area, the low population numbers of the subspecies in the action area, and the Applicant's proposed minimization measures (Table 2 of this biological opinion, and TUMSHCP Section 7.1.1.2.8); we expect impacts of irrigation/water diversion to be infrequent and negligible.

Roads/Trails

A network of generally unpaved roads exists in the action area as access for fire protection, security, ranching activities, and hunting. As described in the TUMSHCP, the roads outside the development areas would be maintained, relocated, or new roads could be constructed, in compliance with the 200-acre limit on disturbance by Planwide Activities, to facilitate the proposed Planwide Activities. In general, the likelihood of impacts is low, because the

subspecies occupies the action area at low density, and the majority of modeled suitable habitat is in areas with infrequent road/trail use. Road/trail use from Planwide Activities is expected to be irregular and of low intensity, and we do not expect the presence and use of roads/trails to preclude southwestern willow flycatchers from using nearby suitable habitat or to cause flycatchers to vacate occupied habitat. However, road construction and maintenance could destroy flycatcher habitat or disturb resident individuals. Because southwestern willow flycatchers often return to the same general location to breed from year to year, individuals may be adversely affected by habitat loss that occurs during the non-breeding season. Although unlikely, motorized vehicles, off-highway vehicles, etc. could, on occasion, injure or kill southwestern willow flycatchers if collisions occur.

To minimize adverse effects, the Applicant would require that breeding bird surveys be conducted prior to grading; 500-foot buffers be established around southwestern willow flycatcher nests; new roads/trails avoid impacts to sensitive resources and do not significantly impair the conservation value of the affected land; and vehicles, hikers, etc. remain on established roads and trails. Therefore, we expect the likelihood of adverse effects to be low, and impacts to nesting southwestern willow flycatchers, if such nesting were to occur, would be largely avoided. Given the low density of the subspecies in the action area, and the small amount of modeled suitable habitat available, the effects would be minor. Relative to the large geographic range of the southwestern willow flycatcher, which covers riparian areas from southern California to western Texas, including portions of southernmost Nevada and Utah, southwestern Colorado, and northernmost Sonora and Baja California del Norte, the anticipated effects of roads and trails in the action area would be negligible.

The direct and indirect effects of roads as a result of residential and commercial development are addressed below under Commercial and Residential Development Activities.

Utilities

The action area contains, or would contain, various minor utilities to support ranch activities. As described in Section 2.2.1 of the TUMSHCP, these utilities would be *de minimis* or would be located in previously disturbed areas (e.g., undergrounding utilities in road rights-of-way). Any utilities associated with Planwide Activities that are not *de minimis* or cannot be located in previously disturbed areas would require Service review and approval prior to relocation or construction. Installation or maintenance of utilities may affect southwestern willow flycatchers by disturbing habitat or individuals, or damaging nests and/or nestlings. However, we do not expect utilities to have a substantial impact on the southwestern willow flycatcher, because utility posts and towers have small footprints, the utilities affect a very small percentage of the action area, the subspecies occurs at low density within the action area, breeding has not been confirmed in the action area, and the Applicant’s proposal to survey project areas and apply avoidance buffers if southwestern willow flycatchers are present should minimize the potential for adverse impacts to southwestern willow flycatchers by utilities.

We address potential impacts by utilities associated with the proposed development under Commercial and Residential Development Activities.

Backcountry Cabins

Eight back-country cabins occur in the action area; however, there are no backcountry cabins in modeled suitable habitat for the southwestern willow flycatcher. In addition, prior to TRC relocating an existing cabin, the Service would review and approve the proposed new location. This would ensure that the new cabin location is compatible with the conservation of the southwestern willow flycatcher. Therefore, we do not expect the use of backcountry cabins to cause adverse effects to the subspecies.

Fencing

Fences exist throughout the action area. Fences would be maintained and new fencing could be constructed and maintained as required to support the Covered Activities, including exclusion of cattle from sensitive habitats that support the southwestern willow flycatcher. The Applicant proposes measures to avoid fencing-related impacts to sensitive resources, and the selective use of fencing, which could limit direct livestock interactions with natural water sources and have ancillary benefits for the southwestern willow flycatcher and its habitat. Under the TUMSHCP, the Applicant must submit grazing management plans to the Service every 5 years for review and approval. Our review of such plans will allow for the implementation of additional measures or modification of fencing practices to maintain riparian habitat. For these reasons, we expect fencing in the action area to have inconsequential impacts on the southwestern willow flycatcher.

Lebec/Existing Headquarters Area Uses

Existing activity in the Lebec/Existing Headquarters Area (i.e., corporate headquarters buildings, an antique shop, a post office, a church, and several single-family residences for ranch employees) would continue to occur. While additional development could occur here under the TUMSHCP, TRC has not included development plans for this area in the project description. We do not expect that activities associated with this area will affect the southwestern willow flycatcher, because modeled suitable habitat for the subspecies does not occur in this area.

Mitigation, Monitoring, and Management

Mitigation, monitoring, and management activities to carry out identified biological goals and objectives for the California condor or other Covered Species included in the TUMSHCP or other resource agency permits for the commercial and residential Covered Activities, as well as mitigation, monitoring, and management activities imposed pursuant to any local, State, or Federal approval of development on Tejon Ranch would be carried out in accordance with the Act and would be subject to Service review. We acknowledge that other agencies may credit TRC for mitigation and protective measures included in the TUMSHCP for mitigation imposed by such other agencies. Any restoration, enhancement, or similar mitigation activities would not

be allowed if they would result in unpermitted adverse effects to species or critical habitat under the Act. Additionally, any mitigation activities for other agencies would be subject to the protective measures included in Tables 1 and 2, in the Description of the Proposed Action section of this biological opinion. Therefore, we anticipate that any potential threats to the southwestern willow flycatcher as a result mitigation, monitoring, and management activities would be effectively minimized.

Estimate of Disturbance by Planwide Activities

The proposed TUMSHCP would cover 200 acres of ground disturbance associated with the Planwide Activities described above. These ground disturbances would occur outside of the proposed development (discussed below) and may be permanent or temporary. The disturbance would primarily be associated with construction of roads, backcountry cabins, and ancillary structures. If the Applicant restores a portion of this disturbance, an area equal in size may then be disturbed. Thus, no more than 200 acres may exist in a developed condition because of Planwide Activities at one time.

For the purposes of this effects analysis, we assume that all parts of the action area that could be affected by Planwide Activities have an equal chance of being affected and that all habitat types would be affected in equal proportion. This assumption is based upon the Applicant's inability to predict exactly where 200 acres of habitat disturbance due to Planwide Activities would occur. In addition, there is no indication that the distribution or location of southwestern willow flycatcher modeled habitat would cause Planwide Activities to disproportionately occur in southwestern willow flycatcher modeled habitat.

For the purposes of estimating species-specific habitat disturbance by Planwide Activities, we are not using the 8,817-acre development envelope used by the Applicant to estimate impacts from development (TUMSHCP Table 2-1, footnote 4), but rather we are using the 5,533-acre area that actually could be developed within the development envelope. We did this, because after development of the 5,533-acre development footprint, 3,284 acres of the 8,817-acre development envelope would remain and be subject to Planwide Activities, and modeled habitat for the southwestern willow flycatcher could occur in the 3,284 acres. Therefore, we included 3,284 acres of the development envelope in this analysis to acquire an estimate of habitat lost by Planwide Activities that is as accurate as possible. When we combine this estimate with anticipated habitat loss from commercial and residential development in a summary effects analysis (discussed below), we will have slightly double-counted and overestimated the amount of southwestern willow flycatcher habitat that would be lost in the action area. This slight overestimation of lost habitat does not compromise our analysis, because the overlap is very small relative to the size of the action area, and this approach ensures that potential species impacts are fully considered by analyzing a larger impact than would actually occur.

Adding together the acres of commercial and residential development, National Cement and La Liebre Mines, the VA Cemetery, and Not-A-Part lands (blocks of land within the boundary of the action area but not owned by the Applicant), a total of 12,423 acres in the action area are not

subject to Planwide Activities. We expect that Planwide Activities could occur on the remaining 129,463 acres of the action area (141,886 acres within the action area minus the 12,423 acres of excluded areas above). Therefore, the ratio of disturbance due to Planwide Activities (200 acres) to Covered Lands subject to Planwide Activities (129,463) equals 0.0015. We applied this ratio to southwestern willow flycatcher habitat outside the excluded areas but in the action area and rounded the remainder up to a whole acre. Thus, 986 acres of modeled habitat in the action area minus 8 acres lost to development (discussed below) equals 978 acres of southwestern willow flycatcher modeled habitat subject to Planwide Activities. Using our ratio of 0.0015, we anticipate that Planwide Activities would disturb or remove up to approximately 2 acres of modeled suitable habitat for the southwestern willow flycatcher over the permit duration. We acknowledge that this could be an overestimate because the Applicant is proposing measures to avoid and minimize disturbance to southwestern willow flycatcher habitat.

Thus, while there could be a small loss of southwestern willow flycatcher modeled suitable habitat due to Planwide Activities, in comparison to the modeled suitable habitat conserved, the loss would have a minimal effect on the subspecies. Consequently, we conclude that the effects of Planwide Activities on the southwestern willow flycatcher and its habitat would be minimal under the TUMSHCP and would not appreciably reduce the subspecies' reproduction, numbers or distribution in the Covered Lands or rangewide.

Commercial and Residential Development Activities

Direct Effects

Development proposed to be covered under the TUMSHCP would permanently remove 8 acres of southwestern willow flycatcher modeled habitat. (No modeled suitable habitat for the southwestern willow flycatcher occurs with the Lebec/Existing Headquarters Area.). The remaining fragments of modeled habitat in the TMV Planning Area would occur in a matrix of development and preserved open space. Given the relatively poor quality of the modeled habitat in the TMV Planning Area, we do not expect the 8 acres that would be lost to support more than two southwestern willow flycatchers. Grading and construction under the TUMSHCP would avoid any occupied southwestern willow flycatcher nesting habitat during the breeding season, and we do not expect direct effects on individual flycatchers. In addition, the Applicant would establish 500-foot buffers around any southwestern willow flycatcher nests. Eight acres represents less than 1 percent of available modeled suitable habitat within the action area, and the majority of modeled habitat for the subspecies is outside the TMV Planning Area. Therefore, we do not expect this loss of habitat to reduce the ability of the action area to support breeding, foraging, or migrating southwestern willow flycatchers.

Indirect Effects

Development-related indirect effects to southwestern willow flycatchers and modeled suitable habitat could occur where modeled habitat is near developed areas. Most of the modeled southwestern willow flycatcher habitat in the TMV Planning Area occurs around Castac Lake.

This habitat may be subject to increased lighting and noise from development that may disturb individual flycatchers or increase predation risk. Under the TUMSHCP, lighting would be directed away from sensitive habitats to reduce this effect.

Recreational activities allowed within proposed Open Space areas are limited to passive recreation as described above under Planwide Activities. Even so, in the EIS for the TUMSHCP, we estimated that the TUMSHCP would increase the human population of the TMV Planning Area by 11,441 people, and we expect the recreational activities of future residents of the proposed development to cause a higher level of disturbance and impacts in this area than in other parts of the action area that are more remote. If recreation occurs in occupied southwestern willow flycatcher habitat, it could potentially alter flycatcher behavior, including feeding, breeding, or sheltering activities. This could lead to increased energy expenditure, avoidance of suitable habitat, and increased predation risk. To minimize impacts of recreation, TRC would provide Home Owners' Association(s) with educational information regarding acceptable activities in open space areas, including recreational activities and pet restrictions. In addition, TRC would require that recreation be conducted in a manner that would avoid adverse impacts to the Covered Species and their habitats or result in less-than-significant impacts. At a minimum, the recreation activities would be planned to avoid sensitive species and known occurrences, and TRC would require the use of existing roads and trails where possible. However, despite the environmental education and other measures proposed by the Applicant (see Table 2 of this biological opinion, and TUMSHCP Sections 2.2.1 and 7.1.1.2.8), we expect residents, TRC employees, and others using the action area to recreate in or near southwestern willow flycatcher modeled habitat either because of apathy or unfamiliarity with sensitive species and habitats. That said, we expect these impacts to be minor and to occur infrequently, because the southwestern willow flycatcher occupies the action area at low density; riparian habitat around lakes is not primary southwestern willow flycatcher habitat; the majority of modeled habitat on Covered Lands occurs outside development areas; and the Applicant proposes measures to avoid impacts to the subspecies (see Table 2 of this biological opinion, and TUMSHCP Section 7.1.1.2.8). To further minimize potential effects, recreational activities will be subject to the Public Access Plan to be reviewed and approved by the Service in perpetuity and approved conservation easements or other appropriately restricted conveyances over those lands. These measures would ensure that allowed recreational activities are conducted in a manner that avoids or minimizes impacts to the southwestern willow flycatcher.

The Applicant proposes to clear and thin vegetation within 200 feet of the proposed development, creating a 1,773-acre fuel modification zone. The expected intensity of disturbance associated with these activities alone would not preclude southwestern willow flycatchers from using modeled habitat near this area; however, the ongoing maintenance of this area, whether by grazing or mechanized means, could cause flycatchers to temporarily avoid suitable habitat. The estimated areal extent in which fuel modification may affect the southwestern willow flycatcher is included in the 8 acres of modeled habitat estimated to be lost within the 8,817-acre development envelope.

Roads and trails receiving the most use would be located in the TMV Planning Area. Under the TUMSHCP, we expect road use in the development areas to be typical of residential/ commercial areas. In the EIS for the TUMSHCP, we estimated that the TUMSHCP would increase the human population of the action area by 11,441 people resulting in 79,514 additional vehicle trips per day. We expect most of these vehicle trips to occur near the commercial areas, and the number of vehicle trips would decrease with distance from Interstate 5. Vehicular traffic to the open space would be restricted and managed; nonetheless, use of roads in the development areas would increase substantially over baseline conditions and could adversely affect the southwestern willow flycatcher. Noise and human/vehicle presence associated with frequent road use could flush flycatchers from nests or occupied habitat exposing them to higher predation risk and increased energy expenditure. Vehicles could, on occasion, injure or kill southwestern willow flycatchers if collisions occur, although the density at which the subspecies occupies the action area makes collisions unlikely. However, access to the open space will continue to be controlled by the Public Access Plan and is not anticipated to increase significantly in the open space areas where the vast majority of modeled habitat is located.

To minimize adverse effects, the Applicant would require that breeding bird surveys be conducted prior to grading; 500-foot buffers be established around southwestern willow flycatcher nests; new roads/trails avoid impacts to sensitive resources and not significantly impair the conservation value of the affected land; and vehicles, hikers, etc. remain on established roads and trails. Given that the southwestern willow flycatcher occupies the action area at low density, and the TMV Planning Area contains a small amount of modeled suitable habitat for the subspecies, adverse effects on the southwestern willow flycatcher from roads would be rare, and impacts to nesting southwestern willow flycatchers, if such nesting were to occur, would be largely avoided.

New utilities to support development would be undergrounded within the development envelope, except that the two communication towers described under Communication Towers in the Description of the Proposed Action section above (also on page 4-52 and elsewhere in Section 4 of the TUMSHCP) would be installed above ground. Once underground, new utilities would not cause ongoing impacts. The two communication towers theoretically pose a limited collision risk for southwestern willow flycatchers; however, the towers are not in modeled suitable habitat for the subspecies, and the towers occupy a very small fraction of the action area. In addition, the two communication towers will include design restrictions identified by the Service to minimize the potential for collisions. These restrictions must be reviewed and approved by the Service and require that (1) the towers be self-supporting (i.e., no guide wires must be included as part of the design); and (2) the tower facades will be primarily solid (e.g., through use of panels or other sidings, wider or denser lattice work, or alternative tower solutions as approved by the Service) to increase their visibility. Therefore, we determined that the risk of collision for southwestern willow flycatchers is negligible.

We expect loss of habitat and other indirect effects to displace two southwestern willow flycatchers in the development footprint of the action area. This could have a minor localized effect on the southwestern willow flycatcher population in the action area, because the

subspecies occupies the action area at low density and any nesting population of southwestern willow flycatchers that may occur in the action area is also likely very small. Given the small amount of habitat in the TMV Planning Area relative to the subspecies' larger geographic range which extends from southern California to western Texas, including portions of southernmost Nevada and Utah, southwestern Colorado, and northernmost Sonora and Baja California del Norte, the anticipated effects of Commercial and Residential Development Activities would be negligible.

TUMSHCP Mitigation

The Applicant proposes to conserve in perpetuity the balance of the action area outside the development areas, including 954 of the 986 acres (97 percent) of modeled suitable habitat for the southwestern willow flycatcher in the action area. The proposed conservation is consistent with conservation biology principles calling for large, interconnected blocks of habitat that support a given species' life history requirements. The action area is near the northern boundary of the subspecies' range, and we are not aware of the extent to which the southwestern willow flycatcher historically occupied the action area. However, regular sightings of willow flycatchers in the action area indicate that the species does use the action area, at least during migration. The proposed conservation would contribute to the subspecies' conservation by permanently preventing future habitat loss in the action area, securing part of the subspecies' occupied range, and securing migratory stopover habitat.

Summary of Effects

In determining whether a proposed action is likely to jeopardize the continued existence of a species, we consider the effects of the action with respect to the reproduction, numbers, and distribution of the species. We also consider the effects of the action on the recovery of the species. In that context, the following paragraphs summarize the effects of the proposed TUMSHCP on the southwestern willow flycatcher.

The Planwide Activities and the Commercial and Residential Development Activities could have some effect on the southwestern willow flycatcher. As stated above, TRC estimates that up to 8 acres of modeled suitable habitat could be lost due to development, and we have calculated that Planwide Activities could affect an additional 2 acres of modeled suitable habitat for the southwestern willow flycatcher, for a total of 10 acres of lost modeled suitable habitat for the subspecies. Ten acres is a small percentage of the modeled habitat in the action area, and a negligible amount of habitat compared to the habitat available to the subspecies large geographic range (e.g., the subspecies' designated critical habitat includes approximately 208,973 acres). Although occupied habitat would be avoided during the breeding season, loss of habitat could affect flycatchers returning to the habitat in subsequent breeding seasons. In addition, the Planwide Activities, including livestock and recreation, and the indirect effects of development, including recreation and roads, could result in impacts to the southwestern willow flycatcher. These potential impacts include flushing of individuals, disturbance of nests, or otherwise altering feeding, breeding, or sheltering behavior. As discussed above, the TUMSHCP includes

measures to minimize or avoid these impacts and we expect these impacts to occur rarely and have minor effects on the subspecies in the action area.

Under the TUMSHCP, 954 of the 986 acres (97 percent) of modeled suitable habitat for the southwestern willow flycatcher in the action area would be permanently conserved, securing occupied habitat and preventing future habitat loss in the action area. In addition, the TUMSHCP includes measures to avoid adverse effects and to minimize the effects of Planwide Activities and development related effects on the southwestern willow flycatcher (see Table 2 of this biological opinion, and TUMSHCP Section 7.1.1.2.8). We conclude that the combination of avoidance and minimization proposed by TRC to reduce the effects of both Planwide Activities and development, and the conservation of almost all of the modeled suitable habitat in the action area to mitigate for unavoidable impacts, would allow the Covered Activities to proceed under the proposed ITP without appreciably reducing the reproduction, numbers, or distribution of the southwestern willow flycatcher.

Recovery

The Service has completed a recovery plan for the southwestern willow flycatcher (Service 2002). In general, the downlisting criteria require a stable, range-wide southwestern willow flycatcher population of more than 3,000 individuals. The delisting criteria generally require that threats to the subspecies are managed and sufficient habitat is conserved for the foreseeable future.

Since listing, the Service has been tracking the subspecies status through recovery actions, survey efforts, recovery permit reports, etc. The number of known southwestern willow flycatcher territories has increased from 359 in 1995 to 1,299 in 2007. The proposed action would result in a tiny reduction in the range-wide numbers (using habitat loss as a surrogate) of southwestern willow flycatchers but would not affect the distribution or reproduction of the subspecies. In addition, the proposed permanent preservation of habitat in the action area would secure part of the subspecies' range. For these reasons, the proposed action would not diminish, and should contribute to the subspecies' recovery.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section, because they require separate consultation pursuant to section 7 of the Act.

Hunting

Private and commercial hunting operations occur on Tejon Ranch, including the action area; however, hunting is not an activity covered by the TUMSHCP. The Applicant proposes to continue hunting operations throughout the ranch during the proposed permit term. Hunting

activities involve travel on existing paved and unpaved roads, overnight use of backcountry cabins, hiking, discharging hunting weapons, etc. The effects from hunting will generally be consistent with, and to a considerable extent, are captured in the description of effects for Roads/Trails, Backcountry Cabins, and Recreation described above. The Applicant proposes to manage the hunting program to avoid take of any federally protected species. Hunting in the TMV Planning Area would be limited to guided hunts. As feral pigs are known to cause extensive damage to riparian areas and directly or indirectly could affect southwestern willow flycatchers, the hunting program could benefit flycatchers by removing some disturbance pressure from feral pigs. Therefore, we expect that hunting in the action area will have negligible cumulative effects on the southwestern willow flycatcher.

Mining

Two commercial mining operations occur in the action area, La Liebre and National Cement; these mining operations are not covered activities under the TUMSHCP. The total area used for the two operations is about 2,636 acres, and the Applicant would maintain the mining leases through the proposed permit term. The two mining operations are on the southern/southeastern edge of the action area, in the vicinity of where most of the modeled suitable habitat for the southwestern willow flycatcher occurs, and a combined 65.3 acres of modeled habitat occurs in the mining areas. We expect that much of the modeled habitat in the mining areas is already directly or indirectly disturbed and that very little, if any, suitable habitat for the southwestern willow flycatcher exists in the mining areas. It is possible that vehicles and earthmoving activities could cause a reduction in air quality in modeled suitable habitat adjacent to the mines. However, only a small area of modeled habitat is adjacent to the National Cement operation and any air quality reduction is likely minor. In addition, any use of chemicals in mining must be in conformance with Federal, State and local laws. For these reasons, we expect that continued mining in the action area will have negligible cumulative effects on the southwestern willow flycatcher.

Other Activities

As discussed above under the Project Description, within the external boundaries of the Covered Lands, there are existing inholdings and utilities. The Bakersfield National Cemetery also occurs inside the Covered Lands. These projects and activities are not Covered Activities under the TUMSHCP. We are not aware of any reasonably foreseeable activities within the 3,870 acres of inholdings that may affect the southwestern willow flycatcher. Activities associated with existing utilities, transmission lines, and related structures, such as maintenance activities, would be restricted to currently established easement areas and would have minor, if any, effects on the southwestern willow flycatcher. Therefore we do not anticipate any cumulative effects from the ongoing maintenance and operation of non-covered existing utilities. The Bakersfield National Cemetery is in place, and we are not aware of any activities associated with the cemetery that may have an adverse effect on southwestern willow flycatchers.

CONCLUSION

After reviewing (1) the current status of the southwestern willow flycatcher; (2) the environmental baseline for this subspecies in the action area; (3) the effects of the proposed action; and (4) the cumulative effects, it is our biological opinion that the Service's issuance of the proposed ITP is not likely to jeopardize the continued existence of the southwestern willow flycatcher.

We have reached this conclusion because:

1. The action area constitutes a small portion of the large geographic range of the southwestern willow flycatcher and contains relatively little occupied habitat for the subspecies. The proposed activities would affect a very small portion of the overall range and distribution of the southwestern willow flycatcher; and the effects on the southwestern willow flycatcher would be minor and would not appreciably reduce the reproduction, numbers, or distribution of the subspecies, which has increased in numbers since its listing under the Act.

2. The majority of the action area, including 97 percent of modeled habitat for the southwestern willow flycatcher, would be conserved in perpetuity, preventing future loss of southwestern willow flycatcher habitat in the action area. This would have long-term benefits to the southwestern willow flycatcher and the stability of its remaining habitat.

3. The Applicant will implement protective measures under the TUMSHCP including surveying project areas prior to grading or construction, providing avoidance buffers around nests, and avoiding the southwestern willow flycatcher and its habitat to the maximum extent practicable. These measures should reduce or avoid impacts to the subspecies.

4. Development covered under the TUMHCP would have few impacts on the southwestern willow flycatcher because only a small amount of modeled habitat would be lost as a result, the habitat is generally of poorer quality, and the subspecies occupies the action area at a low density.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral

patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The proposed TUMSHCP and its associated documents identify anticipated impacts to the southwestern willow flycatcher likely to result from the proposed taking and the measures that are necessary and appropriate to minimize those impacts. All conservation measures described in the proposed TUMSHCP, together with the terms and conditions described in the associated Implementing Agreement and any section 10(a)(1)(B) permit issued with respect to the proposed TUMSHCP, are hereby incorporated by reference as reasonable and prudent measures and terms and conditions within this Incidental Take Statement pursuant to 50 CFR §402.14(i). Such terms and conditions are non-discretionary and must be undertaken for the exemptions under section 10(a)(1)(B) and section 7(o)(2) of the Act to apply. If the permittee fails to adhere to these terms and conditions, the protective coverage of the section 10(a)(1)(B) permit and section 7(o)(2) may lapse. The amount or extent of incidental take anticipated under the proposed TUMSHCP, associated reporting requirements, and provisions for disposition of dead or injured animals are as described in the TUMSHCP and its accompanying section 10(a)(1)(B) permit.

Amount or Extent of Take

The Service anticipates incidental take of the southwestern willow flycatcher will be difficult to detect because the action area is large, modeled suitable habitat is scattered, the southwestern willow flycatcher is difficult to identify, and the subspecies occupies the action area at a low density. As described in the Environmental Baseline section, we did not estimate the number of southwestern willow flycatchers that occur in the action area but are using modeled suitable habitat as a surrogate for potential southwestern willow flycatcher presence to anticipate take of the subspecies.

The proposed Commercial and Residential Development Activities and Planwide Activities would cause the loss of 10 acres of modeled suitable habitat for the southwestern willow flycatcher. While this modeled habitat loss could theoretically cause adverse effects to the southwestern willow flycatcher over the duration of the permit term, we do not anticipate any direct take of the southwestern willow flycatcher as a result of these activities, because the Applicant has proposed survey and avoidance measures that will preclude impacts during the breeding season. However, flycatchers often return to the same breeding area from year to year, and we anticipate that the loss of 10 acres, could result in harm of two southwestern willow flycatchers in the action area over the duration of the permit term. Full build-out of the development areas, resulting in the loss of 8 acres of modeled suitable habitat, plus disturbance of 2 acres of modeled suitable habitat for the southwestern willow flycatcher in the balance of the action area due to Planwide Activities, would indicate that the Service’s anticipated level of take has been reached.

Effect of the Take

In the accompanying biological opinion, the Service determined that harm associated with the loss of ten acres of southwestern willow flycatcher modeled habitat over the permit term is not likely to result in jeopardy to the southwestern willow flycatcher.

REASONABLE AND PRUDENT MEASURES / TERMS AND CONDITIONS

The measures described in the TUMSHCP, associated documents and the Section 10(a)(1)(B) permit will effectively minimize the effects of any potential take of southwestern willow flycatcher under the permit. Consequently, we are not including additional non-discretionary reasonable and prudent measures and implementing terms and conditions in this incidental take statement.

WESTERN YELLOW-BILLED CUCKOO

STATUS OF THE SPECIES

This species account is taken largely from the 2001 12-month petition finding for the yellow-billed cuckoo (Service 2001).

Regulatory History

The Service has twice been petitioned to list the western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) as endangered. The first petition was submitted in 1986. On December 29, 1988, the Service published a 12-month finding (Service 1988) determining that the petitioned action was not warranted. A second petition was submitted on February 9, 1998. On July 25, 2001, the Service released a 12-month finding (Service 2001) that listing the yellow-billed cuckoo western distinct population segment as threatened was warranted, but precluded by higher priority listing actions. Upon publication of the 12-month finding, the western yellow-billed cuckoo was added to the candidate species list but has not yet been proposed for listing. The western yellow-billed cuckoo is protected under the Migratory Bird Treaty Act (MBTA) (16 U.S.C. Sec. 703–712). The subspecies was listed by the State of California as threatened in 1971, and was reclassified as endangered in 1987. Because the western yellow-billed cuckoo is not federally listed, it does not have designated critical habitat.

Natural History/Habitat Requirements

The yellow-billed cuckoo is a medium-sized bird of about 12 inches in length and weighing about 2 ounces. The species has a slender, long-tailed profile, with a fairly stout and slightly down-curved bill which is blue/black with yellow on the base of the lower mandible. Plumage is grayish-brown above and white below, with red primary flight feathers. The tail feathers are boldly patterned with black and white below. The legs are short and bluish-gray, and adults have a narrow, yellow eye ring. Juveniles resemble adults, except the tail patterning is less distinct, and the lower bill may have little or no yellow.

Western yellow-billed cuckoos breed in riparian habitats (particularly woodlands with cottonwoods and willows), while eastern yellow-billed cuckoos breed in a wider range of habitats, including deciduous woodlands and parks (Ehrlich *et al.* 1988). Western yellow-billed cuckoos appear to require large blocks of riparian habitat for nesting. Along the Sacramento River in California, nesting yellow-billed cuckoos occupied home ranges of 25 or more acres (Gaines 1974; Laymon *et al.* 1993). Home ranges for yellow-billed cuckoos in the South Fork of the Kern River in California averaged about 42 acres (Laymon *et al.* 1993). In New Mexico, Howe (1986) estimated nesting densities ranging from 1 to 15 pairs per 99 acres, and in Arizona, Hughes (1999) estimated densities ranging 8.2 to 26.5 pairs per 99 acres.

Nesting west of the Continental Divide occurs almost exclusively close to water, and biologists have hypothesized that the species may be restricted to nesting in moist river bottoms in the west

because of humidity requirements for successful hatching and rearing of young (Hamilton and Hamilton 1965; Rosenberg *et al.* 1991). Nesting peaks later (mid-June through August) than in most co-occurring bird species, and may be triggered by an abundance of the cicadas, katydids, caterpillars, or other large prey which form the bulk of the species' diet (Hamilton and Hamilton 1965; Rosenberg *et al.* 1982). The species is inconspicuous on its breeding range, except when calling to attract or to contact mates. Dense understory foliage appears to be an important factor in nest site selection, and, in California, cottonwood trees appear to be an important foraging habitat (Laymon *et al.* 1993). Clutch size is usually two or three eggs, and development of the young is rapid, with a breeding cycle of 17 days from egg-laying to fledging of young. Although yellow-billed cuckoos usually raise their own young, they are facultative brood parasites, occasionally laying eggs in the nests of other yellow-billed cuckoos or other bird species (Hughes 1997).

Distribution and Population Trends

The yellow-billed cuckoo winters in Central America and northern South America. The breeding range of the species formerly included most of North America from southern Canada to the Greater Antilles and northern Mexico (AOU 1957, 1998). Based on historical accounts, the species' western distribution was widespread to locally common in California and Arizona, New Mexico, Oregon, and Washington; and generally local and uncommon in Colorado, Wyoming, Idaho, Nevada, Utah, and British Columbia (Phillips *et al.* 1964; Monson and Phillips 1981; Groschupf 1987). Hughes (1999) summarizes the species' historical range and status in these areas in greater detail. Analysis of population trends is difficult because quantitative data, including historical population estimates, are generally lacking. However, historical and recent data are sufficient to allow an evaluation of changes in the species' range in the western United States. Rough extrapolations, which use observed densities of yellow-billed cuckoos and historical habitat distribution, indicate that western populations were once substantial (Service 1985). The 2001 12-month finding (Service 2001) provides a detailed examination of the historical and present range and population estimates for the yellow-billed cuckoo.

The available data suggest that the yellow-billed cuckoo's range and population numbers have declined substantially across much of the western United States over the past 50 years. The northern limit of breeding in the coastal States is now in Sacramento Valley, California, and the northern limit of breeding in the western interior States is southern Idaho (AOU 1998; Hughes 1999). The yellow-billed cuckoo is likely extirpated from British Columbia, Washington, Oregon, and possibly Nevada. Arizona probably contains the largest remaining yellow-billed cuckoo population among States west of the Rocky Mountains.

Hughes (1999) provided an estimate of the California breeding population during the late nineteenth century of 15,000 pairs of breeding birds, and Gaines (1974) believed that pre-development yellow-billed cuckoo populations in California were even greater. Laymon and Halterman (1987a) estimated that in California the species' range was about 30 percent of its historical extent. Most modern investigators believe that a significant decline of the yellow-billed cuckoo in California occurred following the start of the major era of development

beginning about the mid-1800s (Gaines and Laymon 1984; Laymon and Halterman 1987a,b; Launer et al. 1990). Only a few areas in the Central Valley and Colorado River support more than about five breeding pairs on a regular basis (Laymon and Halterman 1987a,b). Although Laymon and Halterman (1987b) estimated 31–42 breeding pairs in the State, a decline of 66–81 percent from a 1977 survey (Gaines 1974; Gaines and Laymon 1984), more recent surveys (Dettling and Howell 2011 as cited in Dettling and Seavy 2012) estimated 32 to 38 occupied territories in the Sacramento River, suggesting that Laymon and Halterman (1987b) may have underestimated the statewide population. Nevertheless, any recent estimate of the western yellow-billed cuckoo population in California describes a population orders of magnitude smaller than that of the late nineteenth century as estimated by Hughes (1999).

Reasons for Decline

In the 2001 12-month finding, the Service recognized that the distribution and abundance of yellow-billed cuckoos has declined throughout the western States, primarily attributed to habitat loss, degradation and fragmentation, overgrazing, replacement of native riparian woodland species by tamarisk and other non-native plants, and river management, including altered flow and sediment regimes, and flood control practices, such as channelization and bank protection. Principal causes of riparian habitat losses are conversion to agricultural and other uses, dams and river flow management, stream channelization and stabilization, livestock grazing, groundwater pumping, and the replacement of native riparian habitats by invasive non-native plants, particularly tamarisk (Groschupf 1987; Rosenberg *et al.* 1991). Estimates of riparian habitat losses include 90–95 percent for Arizona, 90 percent for New Mexico, 90–99 percent for California, 52 percent for Nevada, 30 percent for Utah, and more than 70 percent nationwide (Dahl 1990, Noss *et al.* 1995, Ohmart 1994). Much of the remaining habitat is in poor condition and heavily affected by human use (Almand and Krohn 1978, DOI 1994). Fragmentation effects include the loss of patches large enough to sustain local populations, leading to local extinctions, and the potential loss of migratory corridors, affecting the ability to recolonize habitat patches (Hunter 1996).

The yellow-billed cuckoo is considered very vulnerable from deforestation of its wintering grounds (Morton 1992), and while losses of neotropical forests and woodlands have been substantial and ongoing, particularly in Central America and northern South America (Hartshorn 1992, Brown and Lomolino 1998), the relationship between overwintering habitat and yellow-billed cuckoo populations has not been studied or documented.

Brood parasitism of yellow-billed cuckoo nests by the brown-headed cowbird (*Molothrus ater*) has been documented only six times (Friedmann 1971, Wilson 1999). The cuckoo has a shorter incubation and fledging period than the brown-headed cowbird, making successful brood parasitism of a yellow-billed cuckoo nest by brown-headed cowbird less likely (Ehrlich et al. 1988).

ENVIRONMENTAL BASELINE

Historically, California's Central Valley was a primary breeding region for the western yellow-billed cuckoo, and the subspecies historically migrated from Mexico to the San Joaquin and Sacramento Valleys. It is likely that individuals travelled over the Tehachapi Mountains and used habitat in the Tejon Ranch area for breeding or stopover habitat. Suitable habitat for the western yellow-billed cuckoo was modeled on Covered Lands; however, we do not have any records of the subspecies using the Covered Lands. The Applicant conducted surveys for the western yellow-billed cuckoo in the TMV Planning Area from mid-June through mid-August 2007 (Dudek 2009). The Applicant also surveyed the Beartrap Turnout Improvement Project study area from May to July 2011. Yellow-billed cuckoo were not observed during either survey period and have not otherwise been observed in the action area. The closest CNDDB record of western yellow-billed cuckoo is in the Santa Clara River, about 30 miles south of the action area.

The Applicant modeled a total of 986 acres of breeding/foraging habitat for the western yellow-billed cuckoo in the action area. Modeled suitable breeding and foraging habitats in the action area include riparian scrub, riparian woodland, riparian/wetland, and wash. The modeled habitat occurs primarily in the south-facing drainages on the southern/southeastern edge of the action area east of the cement plant. There are smaller segments of modeled habitat around Castac Lake; in Bear Trap Canyon; and in the western portion of the action area in Rising Canyon, north of Grapevine Ridge, and adjacent to I-5.

We do not expect breeding by western yellow-billed cuckoos to occur in the action area because large blocks of mature, riparian habitat with cottonwoods and willows favored by western yellow-billed cuckoos do not occur in the action area. While the action area occurs within the species historical range between non-breeding areas in Mexico/Central/South America and historically important breeding grounds in California's Central Valley, the Applicant's survey results for the species were negative and other current distribution data do not document the presence of western yellow-billed cuckoo in the action area, suggesting that the species occurs, if at all, in low numbers. In addition, most, if not all, of the modeled suitable habitat for the western yellow-billed cuckoo has been affected by past and ongoing livestock grazing, range management, off-road vehicle travel, and other ranch activities. These activities have reduced the quality of the riparian habitat in the action area and affected the ability of the action area to support western yellow-billed cuckoos. Lastly, the modeled habitat is scattered, and some patches may not be large enough to support western yellow-billed cuckoos. Western yellow-billed cuckoos will find fewer resources per unit area in fragmented, lower-quality habitat.

Recovery

The western yellow-billed cuckoo is not listed under the Federal Endangered Species Act, so we have not developed a recovery plan for the subspecies to which we can refer to assess its recovery status. In the absence of a recovery plan, we default to the general conservation of the species. For a subspecies like the western yellow-billed cuckoo that has lost much of its former known occupied habitat, recovery would necessitate the conservation of much of the remaining

habitat that supports the subspecies. In addition, restoration of suitable habitat that has been disturbed but otherwise remains undeveloped would be a priority. Lastly, efforts to establish the subspecies in unoccupied but otherwise suitable habitat would contribute to its recovery.

Although the western yellow-billed cuckoo has not been observed on the Covered Lands, modeled suitable habitat has been identified that could support the subspecies (986 acres). Without data indicating the western yellow-billed cuckoo is present, the role of the Covered Lands in the species' recovery is difficult to assess. In general terms, where suitable habitat exists, it should be conserved and where possible, additional habitat should be created or restored.

EFFECTS OF THE ACTION

Planwide Activities

Livestock

The Applicant proposes to graze livestock on the balance of the action area outside development areas, consistent with the types and level of historical grazing and ranch management practices. Livestock generally have negative effects on riparian habitat and the native species that rely on that habitat. Because yellow-billed cuckoos do not breed in the action area, we do not expect livestock to directly impact yellow-billed cuckoos. However, livestock could indirectly affect yellow-billed cuckoos by damaging or suppressing vegetation in which yellow-billed cuckoos forage during migration. That said, the TUMSHCP includes the selective use of fencing, which could limit direct livestock interactions with natural water sources and may have ancillary benefits for riparian habitats used by the yellow-billed cuckoo. The proposed grazing in the TUMSHCP would perpetuate the reduced-quality, baseline condition of riparian habitat in the action area during the permit term. Under the TUMSHCP, the Applicant must submit a grazing management plan to the Service every 5 years for review and approval. Our review of such plans will allow for the implementation of additional measures or modification of grazing practices to promote the compatibility of grazing in the action area with the conservation of the western yellow-billed cuckoo. In addition, we expect the cuckoo to occur in the action area only rarely. Therefore, we do not expect livestock to cause adverse effects to the yellow-billed cuckoo.

Range Management/Ancillary Ranch Structures

Range management activities support livestock operations and consist of construction, operation, and maintenance of watering facilities, feeding areas, fences, and corrals, consistent with the types and level of historical grazing and ranch management practices; repair, reconstruction, and relocation of roads to accommodate historical grazing and ranch management practices; and repair, maintenance, or installation of ranch management communication equipment (e.g., whip antennas) less than 20 feet high. The repair, reconstruction and relocation of roads to accommodate historical grazing and ranch management practices are evaluated below under

Roads. Range management also incorporates ancillary ranch structures including squeezes, loading chutes, holding and feeding fields, corrals, branding traps, barns, sewage disposal facilities, livestock and wildlife watering facilities, and utilities serving existing ranch uses.

As described above under Planwide Activities in the Description of the Proposed Action section, *de-minimis* activities associated with ancillary ranch structures would be covered under the TUMSHCP. Non–*de minimis* activities associated with ancillary ranch structures are also allowed (1) if the activity is located in disturbed areas (e.g., undergrounding utilities in road rights-of-way), or (2) following a meet-and-confer process with the Service to ensure that the activity associated with an ancillary ranch structure avoids or adequately minimizes impacts to Covered Species and their habitats.

These activities occur at a small scale relative to the size of the action area, and range management facilities already exist in the action area. Workers and equipment, as well as placement of ancillary ranch structures, may create enough noise or disturbance to flush western yellow-billed cuckoos temporarily from suitable habitat or cause yellow-billed cuckoos to avoid small areas of suitable habitat. However, we expect impacts to the species by range management activities to occur rarely, if ever, because the subspecies has not been observed in the action area, individuals would only be present during migration, range management activities occur irregularly, and the Service has the opportunity to review and approve/deny the Applicant's grazing management plan, which would include protections for riparian areas (TUMSHCP Section 7.2). Therefore, we do not expect range management to cause adverse effects to the yellow-billed cuckoo.

Fuel Management

Fuel management practices would consist primarily of grazing, and the effects of fuel management by grazing should be largely consistent with the effects of livestock. Other fuel management activities include fuel modification zones created by existing roads, and through irrigation and/or vegetation clearing and mowing within 120 feet surrounding existing structures (i.e., backcountry cabins, ancillary ranch structures, and other existing structures). Mowing may create enough noise to cause western yellow-billed cuckoos to avoid temporarily suitable habitat. However, modeled habitat for the subspecies is primarily located away from the development areas, mowing for fuel management would occur infrequently/irregularly, and there are no backcountry cabins in western yellow-billed cuckoo modeled habitat. Therefore, we expect adverse effects from mowing to be rare and negligible.

Fuel modification associated with proposed development is discussed below under Commercial and Residential Development Activities.

Filming

Filming activities generally consist of temporary on-scene filming and photography-related uses, including, but not limited to the filming and staging of movies, television shows, and

commercials; photo shoots; and still photography and related uses. Such activities may include the erection and dismantling of props, temporary installation of trailers and equipment for film crews, filming of on-camera action, catering, rehabilitation of disturbed areas, and the movement of film crews to and from locations.

Film shoots that include explosives or other loud noises could disturb western yellow-billed cuckoos that occur in the action area. Explosions (louder than gunshots) or other abnormally loud noises are prohibited throughout the TUMSHCP Mitigation Lands unless the Service-approved Tejon Staff Biologist, in consultation with the Service, determines that no California condors are present, and explosions (louder than gunshots) are strictly prohibited in the Condor Study Area portion of the Covered Lands. These restrictions on explosions in the action area would also benefit western yellow-billed cuckoos in the action area by minimizing the potential for disturbance to this subspecies from explosions.

We expect filming to cause only minimal impacts to western yellow-billed cuckoo habitat, because filming occurs over a relatively short time frame, the Applicant would require that habitat disturbed by filming activities be restored to pre-filming conditions, and the Applicant would require that temporary construction avoid sensitive resources. We do not expect filming to cause direct impacts to individual cuckoos, because the Applicant proposes surveys prior to filming related uses, 500-foot buffers around cuckoo nests, and to have a qualified biologist monitor filming activities. Food and trash left in or near western yellow-billed cuckoo habitat could attract predators and indirectly increase predation, if any yellow-billed cuckoo were present; however, the Applicant would require daily removal of trash to minimize this effect. In addition, the Applicant's proposal to manage open space lands to maintain the existing habitat conditions would minimize adverse effects of filming. Therefore, we do not expect filming activities to cause adverse effects to the western yellow-billed cuckoo within the action area.

Recreation

Recreation associated with the Planwide Activities includes private recreation by TRC, its employees and guests and public access is governed by the Interim RWMP and managed by the Conservancy. Such recreational use is also subject to the terms of the TUMSHCP and the terms of Service-approved conservation easements. While the private recreation by TRC occurs currently throughout the Covered Lands, public recreation, which generally consists of docent led tours by the Conservancy per the Interim RWMP, occurs in the Established Open Space portion of the Mitigation Lands. These public and private recreation uses are limited to passive activities listed in the Project Description. Recreation activities associated with Planwide Activities would occur in open space areas generally outside the TMV Planning Area at a relatively small scale, and have infrequent impacts. Recreational uses by TRC, its employees, and the public are limited by the access guidelines and best management practices in the Interim RWMP and will be further regulated in Public Access Plans, which are subject to permanent Service review and approval. We note that future development in the TMV Planning Area will likely lead to increased recreation demand by TMV Project residents and guests, but the type and nature of the use is the same. All such recreational use in the protected open space will also be

regulated in the Public Access Plan, which will require monitoring and enforcement and is subject to permanent Service review and approval. An Interim Public Access Plan is currently in place that provides for docent-led public tours and requires pre-activity surveys prior to any ground-disturbing activities. We anticipate future levels of public access to be consistent with what occurs under the Interim Public Access Plan. The effects of recreation on the yellow-billed cuckoo in the TMV Planning Area Open Space are discussed separately under Commercial and Residential Development Activities.

If recreation were to occur in occupied western yellow-billed cuckoo habitat, it could potentially alter cuckoo behavior, including feeding or sheltering activities. This could lead to increased energy expenditure, avoidance of suitable habitat, and/or increased predation risk. To minimize the likelihood of this, under the TUMSHCP, all public and private recreation would be generally restricted to existing roads and trails and conducted in a manner that would avoid adverse impacts to the Covered Species and their habitats or result in less-than-significant impacts (see Table 2 of this biological opinion, and TUMSHCP Section 7.1.1.2.10); and recreation would be monitored and regulated by TRC staff, the Tejon Ranch Staff Biologist, or Conservancy docents, including provision of educational materials and restrictions on the location and types of any organized events. In addition, the subspecies is absent from or occurs at low density in the action area, the majority of western yellow-billed cuckoo modeled habitat occurs outside development areas, there is a relatively small amount of modeled habitat in the action area, and the recreation associated with Planwide Activities is expected to occur infrequently; therefore, any impacts to the western yellow-billed cuckoo would be rare and negligible. As previously stated, public recreational activities will be governed by a Public Access Plan, which is subject to permanent Service review and approval, both during and following the end of the permit term into perpetuity. These measures would ensure that allowed recreational activities are conducted in a manner that is consistent with the conservation of the western yellow-billed cuckoo.

Irrigation/Water Diversion

The action area contains existing water diversions for irrigation of agriculture inside the action area, and a few small agricultural areas totaling about 232 acres exist in the TMV Planning Area (e.g., small vineyards and an orchard near Castac Lake). Agricultural uses that remain in open space after TRC identifies the final development footprint will continue subject to State and local regulations. We do not anticipate any adverse effects to the western yellow-billed cuckoo from on-going agricultural activity, because the Applicant is not proposing to expand agricultural operations, agricultural land is not suitable habitat for the subspecies, and we do not expect western yellow-billed cuckoos to occur in these areas.

Maintenance of these facilities could disturb western yellow-billed cuckoos or their habitat, and the vehicles and workers conducting the maintenance could alter cuckoo behavior and disrupt feeding or sheltering activities. However, the Applicant is not proposing to expand the current irrigation capacity/diversion capacity, the facilities cover a very small percentage of the Covered Lands, and the operation of irrigation facilities does not cause additional impacts to the western yellow-billed cuckoo. Maintenance and relocation work, if any, is subject to the survey and

avoidance requirements in the TUMSHCP, and prior to TRC relocating water diversions, the Service would review and approve the proposed new locations. Given the lower-quality condition of western yellow-billed cuckoo habitat in the action area, the rarity of the subspecies in the action area, and the Applicant's proposed minimization measures, we expect impacts of irrigation/water diversion to be infrequent and negligible.

Roads/Trails

A network of generally unpaved roads exists in the action area as access for fire protection, security, ranching activities, and hunting. As described in the TUMSHCP, the roads outside the development areas would be maintained, relocated, or new roads could be constructed, in compliance with the 200-acre limit on disturbance by Planwide Activities, to facilitate the proposed Planwide Activities. In general, the likelihood of impacts is low, because if the western yellow-billed cuckoo occupies the action area, it does so only briefly during migration; and the majority of modeled suitable habitat is in remote areas with infrequent road/trail use. Road/trail use from Planwide Activities is expected to be irregular and of low intensity, and we do not expect the presence and use of roads/trails to preclude western yellow-billed cuckoos from using nearby suitable habitat or to cause cuckoos to vacate occupied habitat. While road construction and maintenance could destroy western yellow-billed cuckoo habitat or disturb resident individuals; and motorized vehicles, off-highway vehicles, etc. could injure or kill western yellow-billed cuckoos if collisions occur; given the rarity of the cuckoo in the action area, the chances of this occurring are negligible.

To minimize adverse effects, the Applicant would require that breeding bird surveys be conducted prior to grading; 500-foot buffers be established around western yellow-billed cuckoo nests; new roads/trails avoid impacts to sensitive resources and do not significantly impair the conservation value of the affected land; and vehicles, hikers, etc. remain on established roads and trails. Therefore, we expect the likelihood of adverse effects to be low, and impacts to western yellow-billed cuckoos, if any occur in the action area now or in the future, would be largely avoided. Given the absence or low density of the subspecies in the action area, and the amount of modeled suitable habitat available, any effects would be minor. Relative to the large geographic range of the western yellow-billed cuckoo, which covers riparian areas in southern California, Arizona, New Mexico, Utah, Colorado, Wyoming, and Idaho, the anticipated effects of roads and trails in the action area would be negligible.

The direct and indirect effects of roads as a result of residential and commercial development are addressed below under Commercial and Residential Development Activities.

Utilities

The action area contains, or would contain, various minor utilities to support ranch activities. As described in Section 2.2.1 of the TUMSHCP, these utilities would be *de minimis* or would be located in previously disturbed areas (e.g., undergrounding utilities in road rights-of-way). Any utilities associated with Planwide Activities that are not *de minimis* or cannot be located in

previously disturbed areas would require Service review and approval prior to relocation or construction. In addition, we do not expect utilities to adversely affect the western yellow-billed cuckoo, because the subspecies is not known to occur in the action area, utility posts and towers have small footprints, the utilities affect a very small percentage of the action area, and the Applicant proposes to survey prior to projects that require grading and apply avoidance buffers if yellow-billed cuckoo are present.

We address potential impacts by utilities associated with the proposed development under Commercial and Residential Development Activities.

Backcountry Cabins

Eight back-country cabins occur in the action area and could be maintained, improved, repaired, replaced, or reconstructed in their existing location. However, there are no backcountry cabins in modeled suitable habitat for the western yellow-billed cuckoo. In addition, prior to the Applicant relocating an existing cabin, the Service would review, and potentially approve the proposed new location. This would ensure that the new cabin location is compatible with the conservation of the western yellow-billed cuckoo. Therefore, we do not expect the use of backcountry cabins to cause adverse effects to the subspecies.

Fencing

Fences exist throughout the action area. Fences would be maintained and new fencing could be constructed and maintained as required to support the Covered Activities, including exclusion of cattle from sensitive habitats that could potentially support the western yellow-billed cuckoo. The Applicant proposes measures to avoid fencing-related impacts to sensitive resources, and presumably, the selective use of fencing could limit direct livestock interactions with natural water sources and have ancillary benefits for the western yellow-billed cuckoo and its habitat. Under the TUMSHCP, the Applicant must submit grazing management plans to the Service every 5 years for review and approval. Our review of such plans will allow for the implementation of additional measures or modification of fencing practices to maintain riparian habitat. For these reasons, we expect fencing to have no appreciable impact on the western yellow-billed cuckoo in the action area.

Lebec/Existing Headquarters Area Uses

Existing activity in the Lebec/Existing Headquarters Area (i.e., corporate headquarters buildings, an antique shop, a post office, a church, and several single-family residences for ranch employees) would continue to occur. While additional development could occur here under the TUMSHCP, the Applicant has not included development plans for this area in the project description. We do not expect that activities associated with this area will affect the western yellow-billed cuckoo, because modeled suitable habitat for the subspecies does not occur in this area.

Mitigation, Monitoring, and Management

Mitigation, monitoring, and management activities to carry out identified biological goals and objectives for the California condor or other Covered Species included in the TUMSHCP or other resource agency permits for the commercial and residential Covered Activities, as well as mitigation, monitoring, and management activities imposed pursuant to any local, State, or Federal approval of development on Tejon Ranch would be carried out in accordance with the Act and would be subject to Service review. We acknowledge that other agencies may credit TRC for mitigation and protective measures included in the TUMSHCP for mitigation imposed by such other agencies. Any restoration, enhancement, or similar mitigation activities would not be allowed if they would result in unpermitted adverse effects to species or critical habitat under the Act. Additionally, any mitigation activities for other agencies would be subject to the protective measures included in Tables 1 and 2, in the Description of the Proposed Action section of this biological opinion. Therefore, we anticipate that any potential threats to the western yellow-billed cuckoo as a result of mitigation, monitoring, and management activities would be effectively minimized.

Estimate of Disturbance by Planwide Activities

The proposed TUMSHCP would cover 200 acres of ground disturbance associated with the Planwide Activities described above. These ground disturbances would occur outside of the proposed development (discussed below) and may be permanent or temporary. The disturbance would primarily be associated with construction of roads, backcountry cabins, and ancillary structures. If the Applicant restores a portion of this disturbance, an area equal in size may then be disturbed. Thus, no more than 200 acres may exist in a developed condition because of Planwide Activities at one time.

For the purposes of this effects analysis, we assume that all parts of the action area that could be affected by Planwide Activities have an equal chance of being affected and that all habitat types would be affected in equal proportion. This assumption is based upon the Applicant's inability to predict exactly where 200 acres of habitat disturbance due to Planwide Activities would occur. In addition, there is no indication that the distribution or location of western yellow-billed cuckoo modeled habitat would cause Planwide Activities to disproportionately occur in western yellow-billed cuckoo modeled habitat.

For the purposes of estimating species-specific habitat disturbance by Planwide Activities, we are not using the 8,817-acre development envelope used by the Applicant to estimate impacts from development (TUMSHCP Table 2-1, footnote 4), but rather we are using the 5,533-acre area that actually could be developed within the development footprint. We did this, because after development of the 5,533-acre development footprint, 3,284 acres of the 8,817-acre development envelope would remain and be subject to Planwide Activities, and modeled habitat for the western yellow-billed cuckoo could occur in the 3,284 acres. Therefore, we included 3,284 acres of the development envelope in this analysis to acquire an estimate of habitat lost by Planwide Activities that is as accurate as possible. When we combine this estimate with

anticipated habitat loss from commercial and residential development in a summary effects analysis (discussed below), we will have slightly double-counted and overestimated the amount of western yellow-billed cuckoo habitat that would be lost in the action area. This slight overestimation of lost habitat does not compromise our analysis, because the overlap is very small relative to the size of the action area, and this approach ensures that potential species impacts are fully considered by analyzing a larger impact than would actually occur.

Adding together the acres of commercial and residential development, National Cement and La Liebre Mines, the VA Cemetery, and Not-A-Part lands (blocks of land within the boundary of the action area but not owned by the Applicant), a total of 12,423 acres are not subject to Planwide Activities. We expect that Planwide Activities could occur on the remaining 129,463 acres of the action area (141,886 acres within the action area minus the 12,423 acres of excluded areas above). Therefore, the ratio of disturbance due to Planwide Activities (200 acres) to Covered Lands subject to Planwide Activities (129,463) equals 0.0015. We applied this ratio to western yellow-billed cuckoo habitat outside the excluded areas but in the action area and rounded the remainder up to a whole acre. Thus, 986 acres of modeled habitat in the action area minus 8 acres lost to development (discussed below) equals 978 acres of western yellow-billed cuckoo habitat subject to Planwide Activities. Using our ratio of 0.0015, we anticipate that Planwide Activities would disturb or remove up to approximately 2 acres of modeled suitable habitat for the yellow-billed cuckoo over the permit duration. We acknowledge that this could be an overestimate because the Applicant is proposing measures to avoid and minimize disturbance to western yellow-billed cuckoo habitat.

Thus, while there could be a small loss of western yellow-billed cuckoo modeled suitable habitat due to Planwide Activities, in comparison to the modeled suitable habitat conserved, that loss would have a minimal effect on the subspecies. Consequently, we conclude that the effects of Planwide Activities on the western yellow-billed cuckoo and its habitat would be minimal under the TUMSHCP and would not appreciably reduce the subspecies' reproduction, numbers or distribution in the Covered Lands or rangewide.

<u>Commercial and Residential Development Activities</u>

Direct Effects

Development proposed to be covered under the TUMSHCP would permanently remove 8 acres of western yellow-billed cuckoo modeled habitat. (No modeled suitable habitat for the western yellow-billed cuckoo occurs within the Lebec/Existing Headquarters Area). The remaining fragments of modeled habitat in the TMV Planning Area would occur in a matrix of development and preserved open space. Grading and construction under the TUMSHCP would avoid any occupied western yellow-billed cuckoo nesting habitat during the breeding season; however, given the relatively poor quality of the modeled habitat in the TMV Planning Area, we do not expect the 8 acres that would be lost to support any breeding western yellow-billed cuckoos. Eight acres represents less than 1 percent of available modeled habitat within the action area, and the majority of modeled habitat for the subspecies in the action area is outside

the TMV Planning Area. Therefore, we do not expect this loss of habitat to reduce the ability of the action area to support foraging or migrating western yellow-billed cuckoos.

Indirect Effects

Development-related indirect effects to western yellow-billed cuckoos and modeled habitat could occur where modeled habitat is near developed areas. Most of the modeled western yellow-billed cuckoo habitat in the TMV Planning Area occurs around Castac Lake. This habitat may have increased lighting and noise that may disturb individual cuckoos or increase predation risk. Under the TUMSHCP, lighting would be directed away from sensitive habitats to reduce this effect.

Recreational activities allowed within proposed Open Space areas are limited to passive recreation as described above under Planwide Activities. Even so, in the EIS for the TUMSHCP, we estimated that the TUMSHCP would increase the human population of the TMV Planning Area by 11,441 people, and we expect the recreational activities of future residents of the proposed development to cause a higher level of disturbance and impacts in this area than in other parts of the action area that are more remote. If recreation occurs in occupied western yellow-billed cuckoo habitat, it could potentially alter cuckoo behavior, including feeding or sheltering activities. This could lead to increased energy expenditure, avoidance of suitable habitat, and increased predation risk. To minimize impacts of recreation, the Applicant would provide Home Owners' Association(s) with educational information regarding acceptable activities in open space areas, including recreational activities and pet restrictions. In addition, the Applicant would require that recreation be conducted in a manner that would avoid adverse impacts to the Covered Species and their habitats or result in less-than-significant impacts. At a minimum, the recreation activities would be planned to avoid sensitive species and known occurrences, and the Applicant would require the use of existing roads and trails where possible. However, despite the environmental education and other measures proposed by the Applicant (see Table 2 of this biological opinion, and TUMSHCP Sections 2.2.1 and 7.1.1.2.10), we expect residents, TRC employees, and others using the action area to recreate in or near western yellow-billed cuckoo modeled habitat either because of apathy or unfamiliarity with sensitive species and habitats. That said, we expect these impacts to be minor and to occur infrequently, because the western yellow-billed cuckoo occupies the action area at low density, if at all; yellow-billed cuckoos are less likely to use habitat around Castac lake, because riparian habitat around lakes is not the subspecies' primary habitat; the majority of modeled habitat occurs outside development areas and the Applicant proposes measures to avoid impacts to the subspecies (see Table 2 of this biological opinion, and TUMSHCP Section 7.1.1.2.10). To further minimize potential effects, recreational activities will be subject to the Public Access Plan to be reviewed and approved by the Service in perpetuity and approved conservation easements or other appropriately restricted conveyances over those lands. These measures would ensure that allowed recreational activities are conducted in a manner that avoids or minimizes impacts to the western yellow-billed cuckoo.

The Applicant proposes to clear and thin vegetation within 200 feet of the proposed development, creating a 1,773-acre fuel modification zone. The expected intensity of

disturbance associated with these activities alone would not preclude western yellow-billed cuckoos from using modeled habitat near this area; however, the ongoing maintenance of this area, whether by grazing or mechanized means, could cause cuckoos to temporarily avoid suitable habitat. The estimated areal extent in which fuel modification may affect the western yellow-billed cuckoo is included in the 8 acres of modeled habitat estimated to be lost within the 8,817-acre development envelope.

Roads and trails receiving the most use would be located in the TMV Planning Area. Under the TUMSHCP, we expect road use in the development areas to be typical of residential/ commercial areas. In the EIS for the TUMSHCP, we estimated that the TUMSHCP would increase the human population of the action area by 11,441 people resulting in 79,514 additional vehicle trips per day. We expect most of these vehicle trips to occur near commercial areas, and the number of vehicle trips to decrease with distance from Interstate 5. Nonetheless, use of roads in the development areas would increase substantially over baseline conditions and could adversely affect the western yellow-billed cuckoo, if the subspecies occurs in the action area.

In general, the likelihood of impacts from roads is low, because, if the western yellow-billed cuckoo occupies the action area, it does so at low density and only during migration. Noise and human/vehicle presence associated with frequent road use could flush cuckoos from suitable habitat exposing them to higher predation risk and increased energy expenditure. Motorized vehicles could injure or kill western yellow-billed cuckoos if collisions occur; however, given the small amount of modeled habitat and that the cuckoo has not been documented in the action area, the chances of this occurring are negligible.

To minimize adverse effects, the TUMSHCP requires that breeding bird surveys be conducted prior to grading; 500-foot buffers be established around western yellow-billed cuckoo nests; new roads/trails avoid impacts to sensitive resources and do not significantly impair the conservation value of the affected land; and vehicles, hikers, etc. remain on established roads and trails. Given that the western yellow-billed cuckoo occupies the action area at low density, if at all, and the TMV Planning Area contains a small amount of modeled suitable habitat for the subspecies, effects on the western yellow-billed cuckoo from roads would be negligible.

New utilities to support development would be undergrounded, except that the two communication towers described under Communication Towers in the Description of the Proposed Action section above (also on page 4-52 and elsewhere in Section 4 of the TUMSHCP) would be installed above ground. Once underground, new utilities would not cause ongoing impacts. The two communication towers theoretically pose a limited collision risk for western yellow-billed cuckoos; however, the towers are not in modeled suitable habitat for the subspecies, and the towers occupy such a small fraction of the action area. In addition, the two communication towers will include design restrictions identified by the Service to minimize the potential for collisions. These restrictions must be reviewed and approved by the Service and require that (1) the towers be self-supporting (i.e., no guide wires must be included as part of the design); and (2) the tower facades will be primarily solid (e.g., through use of panels or other sidings, wider or denser lattice work, or alternative tower solutions as approved by the Service)

to increase their visibility. Therefore, we determined that the risk of collision for western yellow-billed cuckoos is negligible.

We expect loss of habitat and other indirect effects to have at most, minor effects on the western yellow-billed cuckoo, because only a small amount of modeled suitable habitat is being removed, the subspecies is not known to occur in the action area, and any occupancy of the action area would most likely be during migration due to its requirement for large riparian habitat patches (i.e., more than 25 acres) for nesting that are generally lacking on the Covered Lands. Relative to the larger geographic range of the subspecies, which includes riparian areas in southern California, Arizona, New Mexico, Utah, Colorado, Wyoming, and Idaho, the loss of 8 acres (less than 1 percent of modeled suitable habitat) would have a negligible effect on the western yellow-billed cuckoo.

TUMSHCP Mitigation

The Applicant proposes to preserve in perpetuity the balance of the action area outside the development areas, including 954 of the 986 acres (97 percent) of modeled habitat for the western yellow-billed cuckoo in the action area. The proposed preservation will contribute to the conservation of the subspecies by permanently preventing future habitat loss in the action area and securing part of a migration corridor between habitat north and south of the Tehachapi Mountains.

Summary of Effects

In determining whether a proposed action is likely to jeopardize the continued existence of a species, we consider the effects of the action with respect to the reproduction, numbers, and distribution of the species. We also consider the effects of the action on the recovery of the species. In that context, the following paragraphs summarize the effects of the proposed TUMSHCP on the western yellow-billed cuckoo.

The western yellow-billed cuckoo has not been observed in the action area, and we did not estimate the number of western yellow-billed cuckoos that could be in the action area. However, the action area could potentially support migrating cuckoos in the future; therefore, the Planwide Activities and the Commercial and Residential Development Activities could have some effect on the western yellow-billed cuckoo. As stated above, the Applicant estimates that up to 8 acres of modeled suitable habitat could be lost due to development, and we have calculated that Planwide Activities could affect an additional 2 acre of modeled suitable habitat for the western yellow-billed cuckoo, for a total of 10 acres of lost modeled suitable habitat for the subspecies. Ten acres is a small percentage of the modeled habitat in the action area, and a negligible amount of habitat compared to the habitat available in the subspecies' larger geographic range. If the western yellow-billed cuckoos were observed in the action area, occupied habitat would be avoided during the breeding season to prevent adverse effects to individual cuckoos. Planwide Activities, including livestock and recreation, and the indirect effects of development, including recreation and roads, could result in minor impacts to the western yellow-billed cuckoo. These

potential impacts include flushing of individuals, or otherwise altering feeding or sheltering behavior. As described in the effects analyses above, we expect these impacts to occur rarely, if at all, and have minor effects on the subspecies in the action area.

Under the TUMSHCP, 954 of the 986 acres (97 percent) of modeled suitable habitat for the western yellow-billed cuckoo in the action area would be permanently conserved, helping to secure connectivity between suitable habitat areas to the north and south of the action area. In addition, the TUMSHCP includes measures to avoid and minimize the effects of Planwide Activities and development related effects on the western yellow-billed cuckoo (see Table 2 of this biological opinion, and TUMSHCP Section 7.1.1.2.10). We conclude that the combination of avoidance and minimization proposed by the Applicant to reduce the effects of both Planwide Activities and Commercial and Residential Development Activities, and the conservation of almost all of the modeled suitable habitat in the action area to mitigate for unavoidable impacts, would allow the Covered Activities to proceed under the proposed ITP without appreciably reducing the reproduction, numbers, or distribution of the western yellow-billed cuckoo.

Recovery

The western yellow-billed cuckoo is a candidate for listing but is not currently a federally listed species. Therefore, the Service has not prepared a recovery plan for the western yellow-billed cuckoo, and there are no recovery criteria with which to compare the current and future status of the subspecies. In the absence of a recovery plan, we default to the general conservation of the species, and recovery would focus on determining the species' distribution and the conservation of much of the remaining habitat that supports the species. In general terms, where suitable habitat exists, it should be conserved and where possible, additional habitat should be created or restored. The proposed action would not cause a reduction in the reproduction, numbers, or distribution of the western yellow-billed cuckoo; and the proposed permanent preservation of habitat in the action area would secure habitat in a migration corridor. The proposed action would result in the permanent conservation of 97 percent of modeled habitat for the subspecies within the action area, which would have long-term, stabilizing benefits to the species by securing a portion of the species' range from future habitat loss, thus addressing a primary reason for the subspecies' decline.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section, because they require separate consultation pursuant to section 7 of the Act.

Hunting

Private and commercial hunting operations occur on Tejon Ranch, including the action area; however, hunting is not an activity covered by the TUMSHCP. The Applicant proposes to

continue hunting operations throughout the ranch during the proposed permit term. Hunting activities involve travel on existing paved and unpaved roads, overnight use of backcountry cabins, hiking, discharging hunting weapons, etc. The effects from hunting will generally be consistent with, and to a considerable extent, are captured in the description of effects for Roads/Trails, Backcountry Cabins, and Recreation described above. The Applicant proposes to manage the hunting program to avoid take of any federally protected species. Hunting in the TMV Planning Area would be limited to guided hunts. Also, as feral pigs are known to cause extensive damage to riparian areas and indirectly could affect western yellow-billed cuckoos, the hunting program could benefit cuckoos by removing some disturbance pressure from feral pigs. Therefore, we expect that hunting in the action area will have negligible cumulative effects on the western yellow-billed cuckoo.

Mining

Two commercial mining operations occur in the action area, La Liebre and National Cement; these mining operations are not covered activities under the TUMSHCP. The total area used for the two operations is about 2,636 acres, and the Applicant would maintain the mining leases through the proposed permit term. The two mining operations are on the southern/southeastern edge of the action area, in the vicinity of where most of the modeled suitable habitat for the western yellow-billed cuckoo occurs, and a combined 65.3 acres of modeled habitat occurs in the mining areas. We expect that much of the modeled habitat in the mining areas is already directly or indirectly disturbed and that very little, if any, suitable habitat for the western yellow-billed cuckoo exists in the mining areas. It is possible that vehicles and earthmoving activities could cause a reduction in air quality in modeled suitable habitat adjacent to the mines. However, only a small area of modeled habitat is adjacent to the National Cement operation and any air quality reduction is likely minor. In addition, any use of chemicals in mining must be in conformance with Federal, State and local laws. For these reasons, we expect that continued mining in the action area will have negligible cumulative effects on the western yellow-billed cuckoo.

Other Activities

As discussed above under the Project Description, within the external boundaries of the action area there are existing inholdings and utilities. The Bakersfield National Cemetery also occurs inside the action area. These projects and activities are not Covered Activities under the TUMSHCP. We are not aware of any reasonably foreseeable activities within the 3,870 acres of inholdings that may affect the western yellow-billed cuckoo. Activities associated with existing utilities, transmission lines, and related structures, such as maintenance activities, would be restricted to currently established easement areas and would have minor, if any, effects on the western yellow-billed cuckoo. Therefore, we do not anticipate any cumulative effects from the ongoing maintenance and operation of non-covered existing utilities. The Bakersfield National Cemetery is in place, and we are not aware of any activities associated with the cemetery that may have an adverse effect on the western yellow-billed cuckoo.

CONCLUSION

After reviewing (1) the current status of the western yellow-billed cuckoo; (2) the environmental baseline for this subspecies in the action area; (3) the effects of the proposed action; and (4) the cumulative effects, it is our biological opinion that the Service's issuance of the proposed ITP is not likely to jeopardize the continued existence of the western yellow-billed cuckoo.

We have reached this conclusion because:

1. The western yellow-billed cuckoo has not been observed in the action area, the TUMSHCP would remove a very small amount of modeled habitat relative to that available in the action area, and the proposed activities would not affect the overall distribution of the western yellow-billed cuckoo within the action area. Therefore, the effects on the western yellow-billed cuckoo will not reduce the reproduction, numbers, or distribution of the species rangewide.

2. The vast majority of the action area would be preserved in perpetuity, including 97 percent of modeled habitat for the western yellow-billed cuckoo. This would have long-term benefits to the western yellow-billed cuckoo and the stability of its remaining habitat.

3. The Applicant will implement protective measures as part of the proposed activities, including surveying project areas prior to grading or construction activities and avoiding the western yellow-billed cuckoo and its habitat to the maximum extent practicable. These measures should reduce or avoid impacts to the western yellow-billed cuckoo.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

Amount or Extent of Take

The proposed Commercial and Residential Development Activities and Planwide Activities would cause the loss of 10 acres of modeled suitable habitat for the western yellow-billed cuckoo. We do not anticipate any take of the western yellow-billed cuckoo as a result of the proposed activities, because:

1. The western yellow-billed cuckoo has not been observed in the action area, and we expect the subspecies would only occur in the action area during migration;

2. Most of the modeled suitable habitat for the subspecies is located away from development areas, in areas with a lower likelihood of disturbance;

3. The loss of 10 acres of modeled suitable habitat would not appreciably reduce the ability of the action area to support foraging, sheltering, or migrating western yellow-billed cuckoos; and

4. The Applicant proposes to avoid the western yellow-billed cuckoo and its habitat to the maximum extent practicable in addition to other measures intended to avoid and minimize adverse effects (e.g., contractor and resident training/education, pet restrictions, etc.).

Effect of the Take

Because the Service anticipates in the accompanying biological opinion that no take of the yellow-billed cuckoo will occur under the proposed TUMSHCP, no jeopardy to the species would occur as a result of take.

REASONABLE AND PRUDENT MEASURES / TERMS AND CONDITIONS

As described above, the proposed TUMSHCP and associated documents identify anticipated impacts to the western yellow-billed cuckoo as well as measures that are necessary and appropriate to minimize those impacts. These measures will effectively avoid take of western yellow billed cuckoo from the Covered Activities. Therefore, no reasonable and prudent measures and implementing terms and conditions to minimize take are required or included in this incidental take statement.

WESTERN SPADEFOOT

STATUS OF THE SPECIES

Regulatory History

The western spadefoot (*Spea hammondii*) has no Federal designation, but it is a CDFG Species of Special Concern (CDFG 2007a). The species was included by the Service in the Recovery Plan for Vernal Pool Ecosystems in California and Southern Oregon (Service 2005b).

Natural History/Habitat Requirements

Western spadefoots prefer open areas with sandy or gravelly soils in a variety of habitats, including mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washes, river floodplains, alluvial fans, playas, and alkali flats (Stebbins 2003, Holland and Goodman 1998), and riparian habitats with suitable water resources (Holland and Goodman 1998). The species is most common in grasslands with vernal pools or mixed grassland/coastal sage scrub areas (Holland and Goodman 1998). Within these habitats, the species requires rain pools with water temperatures of between 9 degrees Celsius (degrees C) and 30 degrees C (Brown 1967), and which persist with more than 3 weeks of standing water in which to reproduce (Feaver 1971). Jennings and Hayes (1994) report that rain pools must lack fish, bullfrogs, and crayfish for successful reproduction and metamorphosis to occur; this predator-free condition is also likely to apply to waters (e.g., backwater areas) within riparian areas used for breeding.

The western spadefoot is almost completely terrestrial, entering water only to breed (Jennings and Hayes 1994). The species aestivates in upland habitats near potential breeding sites in burrows approximately 3 feet in depth (Stebbins 1972) and has been observed using small mammal burrows during periods of aestivation (Jennings and Hayes 1994). The species remains underground 8 to 10 months of the year (Jennings and Hayes 1994, Holland and Goodman 1998, Storey et al. 1999), after which adults emerge from underground burrows to breed during relatively warm (less than or equal to 10.0 degrees C to 12.8 degrees C) rainfall events. While adults typically emerge from burrows from January through March, they may also emerge between October and April if rain thresholds are met (Stebbins 1972, Morey and Guinn 1992, Jennings and Hayes 1994, Holland and Goodman 1998). Though not observed specifically for this species, soil characteristics of burrow refuge sites likely become fairly hard and compact during the period of summer aestivation (Jennings and Hayes 1994, Ruibal et al. 1969).

After periods of warm rains, western spadefoots emerge from burrows and form highly vocal, and sometimes large, aggregations of greater than 1,000 individuals (Jennings and Hayes 1994). Because the critical thermal minimum is 9 degrees C (Brown 1967), western spadefoots wait until water temperature is at least 10 degrees C before egg deposition (Jennings and Hayes 1994). Eggs are deposited in irregular small clusters that are attached to vegetation or debris in shallow temporary pools or sometimes ephemeral streamcourses (Stebbins 1985, Jennings and Hayes 1994). Eggs usually hatch within 6 days. Complete metamorphosis can occur within 3

weeks (Holland and Goodman 1998) but may last up to 11 weeks (Burgess 1950, Feaver 1971, Jennings and Hayes 1994). The rate of development is regulated by water temperature, water evaporation, and food resources (Holland and Goodman 1998, Denver et al. 1998, Newman 1998).

Western spadefoots are almost entirely nocturnal (Holland and Goodman 1998), with most aboveground movement and breeding occurring during rainy nights (Zeiner et al. 1990a). Though little is known of the socio-spatial behavior of western spadefoots, they likely do not move far from their breeding pool during the year (Zeiner et al. 1990a), and their entire post-metamorphic home range is likely situated around a few pools. Detailed information on movements of the western spadefoot is not available, but opportunistic field observations indicate that they readily move up to at least several hundred meters from breeding sites (NatureServe 2013), while Basey and Sinclear (1980) report that the home range of the western spadefoot is approximately 1 acre.

Western spadefoot tadpoles consume planktonic organisms and algae but are also carnivorous and will forage on dead vertebrates and invertebrates (Bragg 1964). Adult western spadefoots are known to consume caterpillars, beetles, termites, ants, crickets, flies, earthworms, and other invertebrates (Dimmett and Ruibal 1980a, Whitaker et al. 1977, Stebbins 1972, Morey and Guinn 1992).

Distribution and Population Trends

The western spadefoot is endemic to California and northern Baja California. The species ranges from the north end of California's Central Valley near Redding south, through the Central Valley, into northwest Baja California (Jennings and Hayes 1994, Stebbins 2003). Although the species primarily occurs in lowlands, it also occupies foothill and mountain habitats. Within its range, the western spadefoot occurs from sea level to 4,000 feet amsl, but mostly at elevations below 3,000 feet amsl (Stebbins 2003). The CNDDB (CDFG 2012b) lists 414 occurrences of the western spadefoot throughout California. Only 9 of these occurrences are from Kern County, mostly in the San Joaquin Valley or foothills of the Temblor Range.

The western spadefoot has been extirpated throughout most of the lowlands of southern California and from many locations within the Central Valley (Service 2005b). The western spadefoot has undergone serious population declines in the Sacramento Valley, with more moderate declines in the San Joaquin Valley and the Coastal Ranges (Service 2005b). Jennings and Hayes (1994) concluded that western spadefoot was extant in 18 California counties and had been extirpated from six others. About 80 percent of the habitat once known to be occupied by western spadefoot in southern California has been developed or converted to uses incompatible with successful reproduction or recruitment (Jennings and Hayes 1994).

Reasons for Decline

In addition to the direct loss of aquatic and upland habitat, other factors are contributing to declining western spadefoot populations. The planting of mosquito fish by mosquito abatement programs in breeding pools threatens some populations (Jennings and Hayes 1994). Like many California amphibians, the species' successful reproduction appears to be partially dependent on the absence of non-native predators (e.g., bullfrogs, crayfish, and fish), and the spread of these or other predatory species into breeding sites poses a threat to western spadefoots. Additional potential threats related to urban development include artificial lighting, urban-related predators such as cats and dogs, and noise. Western spadefoots are primarily nocturnal and nighttime lighting in close proximity to breeding sites may increase their vulnerability to predation from nocturnal predators such as raccoons, skunks, opossums, foxes, and coyotes. Likewise, an increase in free-roaming cats and dogs could increase predation around breeding sites. With regard to potential noise effects, emergence from dormancy depends on low frequency sound caused by rainfall events, but work completed by Dimmett and Ruibal (1980b) showed that the vibration caused by an electric motor consistently induced 100 percent emergence from dormancy under very arid conditions; therefore, construction-related noise could result in the premature emergence of the western spadefoot from burrows.

Other factors that pose a threat to the species include overgrazing; off-road vehicles and other activities that affect fluvial processes in burrow areas; the spread of exotic plant species (e.g., tamarisk (*Tamarix* spp.), giant reed (*Arundo donax*), hottentot fig (*Carpobrotus edulis*), and pampas grass (*Cortaderia selloana*)) which may degrade western spadefoot habitat by contributing to altered hydrology, eliminating breeding pools, and restricting access to and quality of upland habitats; human-related degradation of habitat (e.g., trampling of vegetation); and pesticides that may poison western spadefoots directly or have the indirect effect of reducing insect prey.

ENVIRONMENTAL BASELINE

The Applicant's consultants conducted presence/absence surveys for western spadefoot in 2007 in all suitable habitat within the TMV Planning Area. The species was not observed. Based upon a review of pertinent literature, the western spadefoot has not been recorded in the Covered Lands. We conclude from these data that the western spadefoot has a low potential to occur in the TMV Planning Area or in other Covered Lands. Because the species was not observed during surveys conducted in the TMV Planning Area, a specific description of habitat used by this species in the Covered Lands is not available.

Based upon published literature and observations in other areas where western spadefoots are known to occur, the Applicant's consultants modeled suitable habitat for the species on all Covered Lands. The model included primary habitat using vegetation communities plus all seeps and springs at elevations up to 4,500 feet amsl in the Covered Lands. The modeling indicated that the Covered Lands potentially support up to 1,175 acres of western spadefoot habitat.

Although 1,175 acres of suitable habitat for western spadefoot were modeled on Covered Lands, it is unknown whether the modeled habitat is occupied. The habitat parameters used by the Applicant's consultants to model habitat for the species may not capture all the microhabitat features required by this species. Most significantly, the species has not been observed on the Covered Lands in areas surveyed by the Applicant's consultants, so we do not expect the western spadefoot to be common, if present. Due to widely fluctuating populations at individual breeding sites (range-wide) as reported in the literature, where the species does occur, numbers may be relatively high in a small area during the breeding season.

Recovery

The western spadefoot is not listed under the Act, so we have not developed a recovery plan for the species to which we can refer to assess its recovery status. In the absence of a recovery plan, we default to the general conservation of the species. For a species like the western spadefoot that has lost up to 80 percent of its former known occupied habitat, recovery would necessitate the conservation of much of the remaining habitat that supports the species. In addition, restoration of suitable habitat that has been disturbed but otherwise remains undeveloped would be a priority. Lastly, efforts to establish the species in unoccupied but otherwise suitable habitat (either natural or man-made) would contribute to its recovery.

Although the western spadefoot has not been observed on the Covered Lands (although focused surveys have been limited to the TMV Planning Area), suitable habitat has been identified that could support the species (1,175 acres of modeled suitable habitat). Without data indicating the western spadefoot is present, the role of the Covered Lands in the species' recovery is difficult to assess. In general terms, where suitable habitat exists, it should be conserved and where possible, additional habitat should be created or restored.

EFFECTS OF THE ACTION

Planwide Activities

Livestock

The Applicant proposes to graze livestock on the balance of the action area outside the development areas, consistent with the types and level of historical grazing and ranch management practices. If livestock are allowed to access any ponds or other areas where western spadefoots occur and are breeding, individual spadefoots (including eggs, tadpoles, juveniles, and adults) could be trampled. Overgrazing is commonly identified as a threat to amphibian species that rely on vernal spools to complete reproductive cycles (Jennings and Hayes 1994), and overgrazing likely affects the western spadefoot in a similar manner. The Applicant proposes to manage grazing in a manner that would minimize impacts to wetlands that may be used by western spadefoots; however, we expect some adverse effects to the species could occur where cattle are allowed to access water sources that may also be used as breeding sites by the

spadefoot. Because the western spadefoot has a low likelihood of being present on the Covered Lands and the incidences of cattle accessing ponds occupied by the species would be lower still, and because the Applicant proposes pre-activity surveys for such ponds, we expect such effects to be negligible.

Range Management/Ancillary Ranch Structures

Range management activities support livestock operations and consist of construction, operation, and maintenance of watering facilities, feeding areas, fences, and corrals, consistent with the types and level of historical grazing and ranch management practices; repair, reconstruction, and relocation of roads to accommodate historical grazing and ranch management practices; and repair, maintenance, or installation of ranch management communication equipment (e.g., whip antennas) that are less than 20 feet high. The repair, reconstruction and relocation of roads to accommodate historical grazing and ranch management practices are evaluated below under Roads. Range management also incorporates ancillary ranch structures including squeezes, loading chutes, holding and feeding fields, corrals, branding traps, barns, sewage disposal facilities, livestock and wildlife watering facilities, and utilities serving existing ranch uses.

As described above under Planwide Activities in the Description of the Proposed Action section, *de-minimis* activities associated with ancillary ranch structures would be covered under the TUMSHCP. Non–*de minimis* activities associated with ancillary ranch structures are also allowed (1) if the activity is located in disturbed areas (e.g., undergrounding utilities in road rights-of-way), or (2) following a meet-and-confer process with the Service to ensure that the activity associated with an ancillary ranch structure avoids or adequately minimizes impacts to Covered Species and their habitats.

The activities associated with range management are subject to the 200-acre disturbance limit and occur at a small scale relative to the size of the action area, so we do not anticipate any additional loss of western spadefoot habitat. The maintenance of watering facilities should provide habitat for the species where it may not otherwise exist. Pre-activity surveys will be conducted to determine presence/absence of western spadefoot for ranch management activities that could adversely affect breeding habitat for western spadefoot, such as eliminating stockponds (see Section 7.1.1.1.2 of the TUMSHCP). In addition, the TUMSHCP requires development of a grazing management plan for open space that regulates livestock grazing and range management activities to continue to maintain the habitats that are defined by the parameters in the suitable habitat model for western spadefoot while continuing to provide for commercial ranching and fire protection. Consequently, the effects on the western spadefoot from range management activities are expected to be negligible.

Fuel Management

Fuel management practices would consist primarily of grazing to keep grasses and weeds at bay, and the effects of fuel management should be largely consistent with the effects of livestock. The effects on western spadefoots of fuel management by grazing should be largely consistent

with the effects of livestock, as described above. We do not expect fuel management to occur adjacent to western spadefoot habitat because the vegetation in those areas would be mostly wetland species that provide little fuel, nor do we anticipate any injury or mortality of the species during fuel management activities.

Other fuel management activities include fuel modification zones created (1) by existing roads, and (2) through irrigation and/or vegetation clearing and mowing within 120 feet surrounding existing structures (i.e., backcountry cabins, ancillary ranch structures, and other existing structures). Vegetation thinning and mowing are the current practices around cabins and roads. These other fuel modification methods are not likely to have a direct impact on the western spadefoot.

Existing roads do not provide suitable habitat for the species so the maintenance of these roads should not have an effect on western spadefoots. The species would be most vulnerable on roads during rainy periods when they may move above ground or out of their refugia; however, road maintenance is not likely to occur during wet periods due to the difficulty of grading muddy roads.

Irrigation of fuel modification zones is not likely to affect western spadefoots because they require moist habitats and seek refuge under debris, in burrows, and other locations where moisture is maintained. Mowing may have the effect of removing vegetative cover, but western spadefoots are more likely to be under cover that cannot be mowed, except during rainy periods when they may be moving above ground. However, above-ground movements are usually at night, when mowing is not likely to be occurring, so the likelihood that western spadefoots would be directly affected by mowing is low.

Filming

Filming activities generally consist of temporary on-scene filming and photography-related uses, including, but not limited to the filming and staging of movies, television shows, and commercials; photo shoots; and still photography and related uses. Such activities may include the erection and dismantling of props, temporary installation of trailers and equipment for film crews, filming of on-camera action, catering, rehabilitation of disturbed areas, and the movement of film crews to and from locations.

Filming activities may affect western spadefoots by disturbing habitat or directly impacting individual animals. Film crews, workers, vehicles, and equipment may injure or kill western spadefoots if the filming area is occupied. These effects would be exacerbated during the rainy season at night if western spadefoots are moving above ground. Also, any modification of suitable cover, such as removal of debris or disturbance of talus slopes, or destruction of rodent burrows, could kill or injure western spadefoots and expose them to predators, unfavorable weather conditions (i.e., dry), and desiccation. The TUMSHCP requires BMPs prior to installation or other ground disturbing activities, including avoiding ground disturbance near western spadefoot habitat, as well as surveys and capture and relocation of any individuals

observed that could be at risk from the activities (Table 2 of this biological opinion and Sections 2.2.1 and 7.1.1.1.1 of the TUMSHCP). These measures should effectively reduce the potential effects of filming on the western spadefoot. Given the fact that no western spadefoots have been detected on the Covered Lands despite surveys in suitable habitat, we expect that effects to western spadefoots from filming activities would be negligible if they occur at all.

Recreation

Recreation associated with the Planwide Activities includes private recreation by TRC, its employees and guests and public access is governed by the Interim RWMP and managed by the Conservancy. Such recreational use is also subject to the terms of the TUMSHCP and the terms of Service-approved conservation easements. TRC currently engages in private recreation throughout the Covered Lands; public recreation, which generally consists of docent led tours by the Conservancy per the Interim RWMP, occurs in the Established Open Space portion of the Mitigation Lands. These public and private recreation uses are limited to passive activities listed in the Project Description. Recreation activities associated with Planwide Activities would occur in open space areas generally outside the TMV Planning Area at a relatively small scale, and have infrequent impacts. Recreational uses by TRC, its employees, and the public are limited by the access guidelines and best management practices in the Interim RWMP and will be further regulated in Public Access Plans, which are subject to permanent Service review and approval. We note that future development in the TMV Planning Area will likely lead to increased recreation demand by TMV Project residents and guests, but the type and nature of the use is the same. All such recreational use in the protected open space will also be regulated in the Public Access Plan, which will require monitoring and enforcement and is subject to permanent Service review and approval. The effects of recreation on the western spadefoot in the TMV Planning Area Open Space are discussed separately under Commercial and Residential Development Activities.

The direct effect of recreation on the western spadefoot would be physical contact (i.e., collecting, trampling). Indirectly, recreation may affect areas of modeled suitable habitat for the western spadefoot by disturbing the ponds and pools the species inhabits when people or their animals enter water bodies to swim or drink. To prevent this, under the TUMSHCP, all public and private recreation would be conducted in a manner that would avoid adverse impacts to the Covered Species and their habitats, and effects that cannot be avoided would be minimized to the extent practicable (see Section 2.2.1 of the TUMSHCP). In addition, access in the Established Open Space run by the Conservancy would be restricted, recreational users will be subject to pet restrictions, provided with educational briefing explaining the adverse impacts of recreational activities, such as collecting or trampling, which should help discourage this type of activity. Because no western spadefoots have been detected or reported from the Covered Lands, we would expect such effects to be infrequent, if they ever occur. Combined with the avoidance and minimization measures described above and listed in Table 2 of this biological opinion and section 7.1.1.1.2 of the TUMSHCP, we conclude that these measures will effectively reduce the potential effects of recreation on the western spadefoot to a negligible level.

Recreation associated with proposed development is discussed below under Commercial and Residential Development Activities.

Irrigation/Water Diversion

The action area contains existing water diversions for irrigation of agriculture, and a few small agricultural areas totaling about 232 acres exist in the TMV Planning Area (e.g., small vineyards and an orchard near Castac Lake). Water use is limited to the level of use as of 2008, so no additional impacts are anticipated from groundwater use or surface alteration. Agricultural uses that remain in open space after TRC identifies the final development footprint will continue subject to State and local regulations. Maintenance of these facilities could disturb western spadefoots, if present, or their habitat, and the vehicles and workers conducting the maintenance could alter the species' behavior and disrupt feeding, breeding, or sheltering activities, or damage habitat by entering ponded areas where the western spadefoot is most likely to occur. However, the Applicant is not proposing to expand the current irrigation capacity/diversion capacity, the facilities cover a very small percentage of the covered lands, and the operation of irrigation facilities does not cause additional impacts to the western spadefoot. In addition, maintenance and relocation work, if any, is subject to the survey and avoidance requirements in the TUMSHCP, and prior to TRC relocating water diversions, the Service would review and approve the proposed new locations. Given the lack of observations and records of the species in the action area, and the Applicant's proposed minimization measures (Table 2 and section 7.1.1.1.2 of the TUMSHCP), we expect impacts of irrigation/water diversion to the species would be negligible.

Agricultural uses that remain in open space after the Applicant identifies the final development footprint will continue. We do not anticipate any adverse impacts to western spadefoots from ongoing agricultural activity because these areas do not support suitable habitat for the species and it would not be present.

Roads/Trails

A network of generally unpaved roads exists in the action area outside development areas. As described in the TUMSHCP, the roads outside the development areas would be maintained, relocated, or new roads could be constructed, in compliance with the 200-acre limit on disturbance by Planwide Activities, to facilitate the proposed Planwide Activities. New road or trail construction could injure or kill individuals. Any new or relocated roads would require efforts to minimize the footprint and use BMPs for the design and installation, including surveys prior to grading, contractor education, staking and temporary construction fencing. Road construction would have minimal effects on the spadefoot or its habitat, as habitat would be avoided, and construction is unlikely to proceed when the spadefoots are active, if they are present. Road maintenance would also have a minimal effect, because existing roads are not suitable spadefoot habitat, and road maintenance is unlikely to occur at night during the rainy season when spadefoots are typically active. Therefore, effects of construction and maintenance of these unpaved roads would be negligible.

Existing roads do not provide suitable aestivation, refuge, or foraging habitat for the species so the maintenance of these roads should not have an effect on western spadefoot. Use of roads for Planwide Activities uses includes the private recreation analyzed above and road maintenance, construction to accommodate ranch activities. However, road kills of western spadefoots would be rare, if they occur at all, because, if the species occurs in the action area, it is likely in low numbers, the species is not likely to wander far from its preferred cover (i.e., buried in friable soils near breeding sites), and it limits its above-ground activities to nighttime during the rainy season when vehicle traffic on roads outside of development areas is likely to be very low to nonexistent. Considering the lack of records and observations of the western spadefoot in the action area, we expect the effects to the species from roads would be negligible.

The direct and indirect effects of roads in the development areas as a result of residential and commercial development are addressed below under Commercial and Residential Development Activities.

Utilities

The action area contains, or would contain, various small utilities to support ranch activities. As described in Section 2.2.1 of the TUMSHCP, these utilities would be *de minimis* or would be located in previously disturbed areas (e.g., undergrounding utilities in road rights-of-way). Any utilities associated with Planwide Activities that are not *de minimis* or cannot be located in previously disturbed areas would require Service review and approval prior to relocation or construction.

We expect that installation or maintenance of utilities to support ranch activities may affect western spadefoots by disturbing habitat, or injuring or killing individuals. We expect utilities to have at most, a minor impact on the western spadefoot, because if the species occurs in the action area, it is likely in low numbers, utility posts and towers have small footprints, the utilities affect a very small percentage of the action area, and TRC's proposal to survey project areas and relocate observed western spadefoots (Section 7.1.1.1.2 of the TUMSHCP) should minimize the potential for adverse impacts to western spadefoots during utility installation/maintenance. Overall, the impact to western spadefoot from the activities associated with utilities would be negligible.

Potential impacts by utilities associated with the proposed development are included in the discussion of effects of Commercial and Residential Development Activities below.

Backcountry Cabins

Eight backcountry cabins occur in the action area and could be maintained, improved, repaired, replaced, or reconstructed in their existing location. Human use of the cabins should not cause meaningful new habitat disturbance because those activities are not proposed to increase or change, and the Applicant proposes to ensure that all cabin use be conducted in a manner that

would minimize effects to the Covered Species (see Table 2 of this biological opinion and section 7.1.1.1.2 of the TUMSHCP). The Interim RWMP and TUMSHCP requires that new or relocated cabins be first subject to a site evaluation by the Service to avoid impacts to sensitive natural resources, such as western spadefoot habitat. In addition, under the TUMSHCP, prior to relocating an existing cabin, the Service would review and approve the location of any new or relocated cabin. These measures would likely minimize the impacts of cabins and their use on the species.

Fencing

Fences exist throughout the action area. Fences would be maintained and new fencing could be constructed and maintained as required to support the proposed activities, including exclusion of cattle from sensitive habitats that support Covered Species. The Applicant proposes to design and locate new fencing to avoid occurrences of the western spadefoots, if any are located during pre-activity surveys (Sections 2.2.1 and 7.1.1.1.2 of the TUMSHCP). New fences are also subject to best management practices provided in the RWMP for fencing. This should avoid any direct impact of fences on western spadefoots. Considering the lack of records and observations of the western spadefoot in the action area, we expect the effects to the species from fencing would be negligible.

Lebec/Existing Headquarters Area Uses

Existing activity in the Lebec/Existing Headquarters Area (i.e., corporate headquarters buildings, an antique shop, a post office, a church, and several single-family residences for ranch employees) would continue to occur. While additional development could occur here under the TUMSHCP, the Applicant has no current development plans for this area in the project description. We expect that activities associated with use of this area will have a negligible to no effect on the western spadefoot because the species has not been recorded or reported from the Covered Lands, and the TUMSHCP requires measures to avoid and minimize effects on any western spadefoot populations or habitat that are encountered (see Table 2 of this biological opinion and section 7.1.1.1.2 of the TUMSHCP).

Potential development related impacts in the Lebec/Existing Headquarters Area are addressed below under Commercial and Residential Development Activities.

Mitigation, Monitoring, and Management

Mitigation, monitoring, and management activities to carry out identified biological goals and objectives for the California condor or other Covered Species included in the TUMSHCP or other resource agency permits for the Commercial and Residential Development Activities, as well as mitigation, monitoring, and management activities imposed pursuant to any local, State, or Federal approval of development on Tejon Ranch would be carried out in accordance with the Act and would be subject to Service review. We acknowledge that other agencies may credit the Applicant for mitigation and protective measures included in the TUMSHCP for mitigation

imposed by such other agencies. Any restoration, enhancement, or similar mitigation activities would not be allowed if they would result in unpermitted adverse effects to species or critical habitat under the Act. Additionally, any mitigation activities for other agencies would be subject to the protective measures included in Tables 1 and 2, in the Description of the Proposed Action section of this biological opinion. Therefore, we anticipate that any potential threats to the western spadefoot as a result mitigation, monitoring, and management activities would be effectively minimized.

Estimate of Disturbance Due to Planwide Activities

The Applicant proposes a maximum of 200 acres of ground disturbance associated with the Planwide Activities described above. These ground disturbances would occur outside of the proposed development (discussed below) and may be permanent or temporary. The disturbance would primarily be associated with construction of roads, backcountry cabins, and ancillary structures. If the Applicant restores a portion of this disturbance, an area equal in size may then be disturbed. Thus, no more than 200 acres may exist in a developed condition because of Planwide Activities at one time.

For the purposes of this effects analysis, we assume that all parts of the action area that could be affected by Planwide Activities have an equal chance of being affected and that all habitat types would be affected in equal proportion. This assumption is based upon the Applicant's inability to predict exactly where 200 acres of habitat disturbance due to Planwide Activities would occur. In addition, there is no indication that the distribution or location of western spadefoot modeled habitat would cause Planwide Activities to disproportionately occur in western spadefoot modeled habitat.

Also, for the purposes of estimating species-specific habitat disturbance by Planwide Activities, we are not using the 8,817-acre development envelope used by TRC to estimate impacts from development (TUMSHCP Table 2-1, footnote 4), but rather we are using the 5,533-acre area that actually could be developed within the TMV Planning Area. We did this, because after the 5,533-acre development footprint is developed, 3,284 acres of the 8,817-acre development envelope would remain and be subject to Planwide Activities, and modeled habitat for the western spadefoot could occur in the 3,284 acres. Therefore, we included 3,284 acres of the development envelope in this analysis to acquire an estimate of habitat lost by Planwide Activities that is as accurate as possible. When we combine this estimate with anticipated habitat loss from commercial and residential development in a summary effects analysis (discussed below), we will have slightly double-counted and overestimated the amount of western spadefoot habitat that would be lost in the action area. This slight overestimation of lost habitat does not compromise our analysis because the overlap is very small relative to the size of the action area and this approach ensures that potential species impacts are fully considered by analyzing a larger impact than would actually occur.

Adding together the acres of commercial and residential development, the National Cement and La Liebre Mines, the VA Cemetery, and Not-A-Part lands (blocks of land within the boundary of

the action area but not owned by TRC), a total of 12,423 acres within the exterior boundaries of the plan area are not subject to Planwide Activities. We expect that Planwide Activities could occur on the remaining 129,463 acres of the action area (141,886 acres within the action area minus the 12,423 acres of excluded areas above). Therefore, the ratio of disturbance due to Planwide Activities (200 acres) to covered lands subject to Planwide Activities (129,463 acres) equals 0.0015. We applied this ratio to western spadefoot habitat outside the excluded areas but in the action area and rounded the remainder up to a whole acre. Thus, 1,175 acres of modeled habitat minus 30 acres lost to development (discussed below) equals 1,145 acres of modeled western spadefoot habitat subject to Planwide Activities. Using our ratio of 0.0015, we anticipate that Planwide Activities would disturb or remove an additional approximately 2 acres of modeled suitable habitat for the western spadefoot over the permit duration.

This could be an overestimate because the Applicant is proposing measures to minimize disturbance to western spadefoot habitat, as discussed above and listed in Table 2 and section 7.1.1.1.2 of the TUMSHCP. Thus, while there could be a very small loss of western spadefoot modeled suitable habitat due to Planwide Activities, in comparison to the modeled suitable habitat conserved, we conclude that the loss would not appreciably reduce the numbers, reproduction, or distribution of the species. Consequently, we expect the effects of Planwide Activities on the western spadefoot and its habitat to be minimal under the TUMSHCP.

<u>Commercial and Residential Development Activities</u>

Direct Effects

Development could result in temporary impacts, including habitat loss, construction noise, dust, night lighting, and equipment movement, to modeled suitable habitat for the western spadefoot. We do not have an exact acreage for these temporary effects. The total area of permanent loss of modeled suitable habitat is expected to be 30 acres (no modeled suitable habitat for the western spadefoot occurs within the Lebec/Existing Headquarters Area), so the temporary effects should be less because TRC has proposed to minimize the footprint of work areas and mark the limits within which Covered Activities that result in habitat loss may occur. Also, because TRC proposes to restore wetland habitat following disturbance (per other likely permit requirements from the CDFW and U.S. Army Corps of Engineers), we would expect remaining and restored modeled suitable habitat for the western spadefoot to be able to support the species in the future.

The principal permanent effect of the proposed development on the western spadefoot would be from habitat loss. Development proposed under the TUMSHCP would result in the permanent loss of 30 acres of modeled suitable habitat for western spadefoot within Covered Lands. Based on estimated home range size of this species of approximately 1 acre (U.S. Forest Service (USFS) 2006b), and assuming saturation of all modeled suitable habitat and a uniform distribution, the TUMSHCP includes an estimate of the potential loss of habitat supporting up to 30 individuals.

The reality is likely more complicated than this calculation. Where western spadefoots occur, they are not going to be distributed such that one individual will be found on each acre. Such a distribution would not be conducive to the species' reproductive strategy. During appropriate breeding conditions, males and females congregate in a small area and can be found in relatively dense concentrations; the number of western spadefoots may be much greater than one individual per acre. However, the distribution of spadefoots will vary from this "clumped" condition during the breeding season to a more widely dispersed pattern when they move to estivation habitat. So, while we expect that more than one western spadefoot may occur within a one acre home range, we also consider it unlikely that every acre of suitable habitat would be occupied.

Taking into account these factors, combined with the fact that no western spadefoots have been detected during surveys of modeled habitat, and even if present on the Covered Lands, the species is not likely to occupy all modeled suitable habitat, we conservatively conclude that the number of individuals that could be lost with the permanent loss of 30 acres due to development within Covered Lands would be approximately 30 individuals projected based upon the suitable habitat model. Further, we conclude that the permanent loss of less than 3 percent of modeled suitable habitat within Covered Lands (including both 30 acres due to development and 2 acres due to Planwide Activities) and a small number of individuals potentially associated with that habitat would not substantially reduce the species' reproduction, numbers or distribution range-wide. With the additional avoidance and minimization measures required for development activities (Section 2.2.3 of the TUMSHCP), including pre-construction surveys, capture and relocation of individual western spadefoots, and 300-foot setbacks from breeding habitat, the loss of individual western spadefoot caused by development would likely be lower than the 30 individuals estimated.

Indirect Effects

Several of the potential indirect effects of proposed development under the TUMSHCP, including recreational use and road /trail use, are addressed above under Planwide Activities. Proposed development under the plan may also result in the following additional indirect effects to the western spadefoot: introduction of non-native species; lighting effects on any habitat occupied by the western spadefoot; and pollution.

As noted earlier, the release of non-native mosquito fish by mosquito abatement programs in western spadefoot breeding pools threatens some populations (Jennings and Hayes 1994). We are not aware that such abatements programs are in place on the Covered Lands; however, with the advent of the development and continual presence of residents, mosquito control may become an issue. If mosquito fish are introduced into ponds supporting western spadefoots, the species may be adversely affected. We are not aware of any other non-native species that pose an immediate threat to the western spadefoot, and TRC has proposed measures to minimize the introduction of exotic plants and animals into conserved open space areas (Section 2.2.3 of the TUMSHCP), such as restrictions on landscape watering, grading so as to direct runoff away from

open space, landscaping restrictions to prohibit use of invasive, nonnative species, and restrictions on pesticide use provided in the Integrated Pest Management Plan also constitute design measures.

Night lighting can affect the normal diurnal/nocturnal cycles of some wildlife. If the lighting is bright enough or directed toward areas used by primarily nocturnal species, they may respond by becoming active later and be displaced by the physiological stress caused by the disruption. We anticipate that night-lighting in development areas, if adjacent to western spadefoot breeding ponds, could have an adverse effect on the species through disruption of normal activities. These effects should be minimal because the TUMSHCP requires that lighting, where it is needed, be directed away from natural areas (Sections 2.2.3 and 7.1.1.2).

In addition, the increased population of the development areas is likely to increase the pressure for recreational activities, particularly in the TMV Planning Area. Recreational activities allowed within the TMV Planning Area Open Space are limited to passive recreation as described above under Planwide Activities and in the Project Description. Even so, in the SDEIS for the TUMSHCP, we estimated that the TUMSHCP would increase the human population of the TMV Planning Area by 11,441 people and we expect the recreational activities of future residents of the TMV Planning Area to cause a higher level of disturbance and impacts in this area than in other parts of the action area that are more remote. If recreation occurs in occupied habitat, it could potentially alter western spadefoot behavior, including feeding, breeding, or sheltering activities, if present.

To minimize impacts of recreation, TRC would provide Home Owners' Association(s) with educational information regarding acceptable activities in open space areas, including recreational activities and pet restrictions. In addition, the TUMSHCP would require that recreation in the TMV Planning Area Open Space, be conducted in a manner that would avoid adverse impacts to the Covered Species and their habitats or result in less-than-significant impacts. At a minimum, the recreation activities would be planned to avoid sensitive species and known occurrences, and the TUMSHCP would require the use of existing roads and trails where possible. Because the species' occurrences would be rare, encounters between humans and western spadefoots are unlikely to occur. Therefore, we anticipate that recreation would have minor impacts on the western spadefoot population.

Another potential indirect effect involves changes to water quality as a result of construction activities and occupancy after buildout. Because amphibians have permeable skin (to facilitate respiration) and eggs that may readily absorb toxins, the introduction of chemicals to the environment as a result of construction activities may have an effect on western spadefoots. Pollutants, runoff of pesticides, waterborne pathogens, and sediment can all affect water quality, and these factors can in turn affect amphibians such as the western spadefoot. For the most part, the discharge of such chemicals will be avoided through best management practices and compliance with laws (such as the Clean water Act) regulating the release of pollutants into water bodies or the environment in general. Exposure of the species to pollutants is likely to be rare because TRC would implement storm water pollution prevention and best management

practices to minimize and avoid discharges into aquatic environments such as those used by western spadefoots.

The TUMSHCP provides for clearing and thinning vegetation within 200 feet of development, creating an up to 1,773 acre fuel modification zone. (Most of this zone will occur within the development envelope, so affected habitat is already treated as lost habit in this analysis.) However, as noted above, fuel modification would not be needed in wetland habitats, and the western spadefoot is active at night during rainy periods when fuel modification would not be conducted.

TUMSHCP Mitigation

The Applicant proposes to preserve in perpetuity 1,055 acres of modeled suitable habitat for the western spadefoot (TUMSHCP Section 7.1.1.1.1). The proposed conservation of 90 percent of modeled suitable habitat is consistent with conservation biology principles calling for large, interconnected blocks of habitat that support a given species' life history requirements

The combination of habitat preservation and measures to avoid and minimize impacts to the western spadefoot resulting from Covered Activities will reduce the potential effects to the species on the Covered Lands. Because we expect the effects to the western spadefoot at both the individual level and rangewide will be minor as a result of development associated with the implementation of the TUMSHCP, we conclude that the proposed action will not reduce the numbers, reproduction, or distribution of the western spadefoot in the wild.

Summary of Effects Analysis

In determining whether a proposed action is likely to jeopardize the continued existence of a species, we consider the effects of the action with respect to the reproduction, numbers, and distribution of the species. We also consider the effects of the action on the recovery of the species. In that context, the following paragraphs summarize the effects of the proposed TUMSHCP on the western spadefoot.

The Planwide Activities and the proposed Commercial and Residential Development Activities could have some effect on the western spadefoot. As stated above, TRC estimates that up to 30 acres of modeled suitable habitat could be lost due to Commercial and Residential Development Activities, and we have calculated that in the remainder of the action area Planwide Activities could affect an additional 2 acres of modeled suitable habitat for the western spadefoot, for a total of 32 acres of lost modeled suitable habitat for the species. In addition, the Planwide Activities and the indirect effects of development, as described above, could result in impacts to the western spadefoot. Under the TUMSHCP, 1,055 acres, the large majority (approximately 90 percent) of the modeled suitable habitat on the Covered Lands, would be permanently conserved in designated open space. In addition the TUMSHCP includes measures to avoid and minimize the effects of Planwide Activities and development related impacts to the western spadefoot, as discussed earlier. We conclude that the combination of avoidance and minimization proposed by

TRC to reduce the effects of both Planwide and development Covered Activities, and the conservation of almost all of modeled suitable habitat on the Covered Lands to mitigate for unavoidable impacts, would allow the Covered Activities to proceed under the proposed ITP without appreciably reducing the reproduction, numbers, and distribution of the western spadefoot in the wild.

Recovery

The large area of modeled suitable habitat for the species that would be permanently conserved in relation to what is available on the Covered Lands is consistent with accepted principles of conservation biology. Combined with the measures to minimize any effects that could occur to individual western spadefoots, should they be found on the Covered Lands, we conclude that the proposed action will not diminish and will likely contribute to the species' recovery.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Hunting

Private and commercial hunting operations occur on Tejon Ranch, including the action area; however, hunting is not an activity covered by the TUMSHCP. The Applicant proposes to continue hunting operations throughout the ranch during the proposed permit term. The Applicant proposes to manage the hunting program to avoid take of any federally protected species. Hunting in the TMV Planning Area would be limited to guided hunts. Hunting activities involve travel on existing paved and unpaved roads, overnight use of backcountry cabins, hiking, discharging hunting weapons, etc. The effects from hunting will generally be consistent with, and to a considerable extent are captured in, the descriptions of effects for Roads/Trails, Backcountry Cabins, and Recreation described above. Therefore, we expect that hunting in the action area will have negligible cumulative effects on the western spadefoot.

Mining

Two commercial mining operations occur in the action area, La Liebre and National Cement; these mining operations are not covered activities under the TUMSHCP. The total area used for the two operations is about 2,636 acres, and the Applicant would maintain the mining leases through the proposed permit term. The western spadefoot is not known to occur in proximity to the mines; however, the Applicant has estimates that the two mining areas may support approximately 65 acres of modeled suitable habitat for the western spadefoot. Because much of the mining areas is already disturbed and is subject to daily activity, we do not expect the species to be present. In addition, the effects of mining occur in a small area relative to the amount of

modeled suitable habitat in the action area. We expect that continued mining in the action area will have no cumulative effect on the western spadefoot.

Other Activities

As discussed above under project description, within the external boundaries of the Covered Lands there are existing inholdings and utilities. The Bakersfield National Cemetery also occurs inside the Covered Lands. These projects and activities are not Covered Activities under the TUMSHCP. We are not aware of any reasonably foreseeable activities within the 3,870 acres of inholdings that may affect the western spadefoot. Activities associated with existing utilities, transmission lines and related structures, such as maintenance activities, would be restricted to currently establish easement areas and would have minor, if any, effects on the western spadefoot. Therefore we do not anticipate any cumulative effects from the ongoing maintenance and operation of non-covered existing utilities. The Bakersfield National Cemetery is in place, and we are not aware of any activities associated with the cemetery that may have an adverse effect on western spadefoot.

CONCLUSION

After reviewing the current status of the western spadefoot, the environmental baseline for the action area, the effects of the proposed TUMSHCP and the cumulative effects, it is the Service's biological opinion that the implementation of the TUMSHCP, as proposed, is not likely to jeopardize the continued existence of the western spadefoot. We have reached this conclusion for the following reasons:

1. The action area constitutes a very small portion of the range of the western spadefoot and appears to contain little, if any, occupied habitat for the species. Despite the lack of occurrence data, the Applicant proposes to conserves 90 percent of the modeled suitable habitat for the western spadefoot within the Covered Lands in perpetuity, while only 3 percent of suitable habitat would be permanently lost to development.

2. While the western spadefoot has not been documented within the Covered Lands, TRC has proposed to continue surveys for the species and implement measures to avoid and minimize the effects of Covered Activities.

The proposed action will not interfere with potential future efforts to aid in the western spadefoot’s recovery, but should instead contribute to the species’ conservation by protecting in perpetuity 90 percent of the modeled suitable habitat for the species on the Covered Lands.

The western spadefoot is not federally listed; therefore, no critical habitat has been designated for this species, and none will be affected.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened wildlife species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The proposed TUMSHCP and its associated documents identify anticipated impacts to the western spadefoot likely to result from the proposed taking and the measures that are necessary and appropriate to minimize those impacts. All conservation measures described in the proposed plan, together with the terms and conditions described in the associated Implementing Agreement and any section 10(a)(1)(B) permit issued with respect to the proposed plan, are hereby incorporated by reference as reasonable and prudent measures and terms and conditions within this Incidental Take Statement pursuant to 50 CFR §402.14(i). Such terms and conditions are non-discretionary and must be undertaken for the exemptions under section 10(a)(1)(B) and section 7(o)(2) of the Act to apply. If the permittee fails to adhere to these terms and conditions, the protective coverage of the section 10(a)(1)(B) permit and section 7(o)(2) may lapse. The amount or extent of incidental take anticipated under the proposed TUMSHCP, associated reporting requirements, and provisions for disposition of dead or injured animals are as described in the TUMSHCP and its accompanying section 10(a)(1)(B) permit.

Amount or Extent of Take

We anticipate that the incidental take of western spadefoot will be difficult to detect for the following reasons: (1) no occurrences of the species have been documented within the Covered Lands, and if it does occupy the Covered Lands, it is likely at a low density; (2) the species is only seen above ground under specific conditions (night, during the wet season); and (3) its small body size means that killed or injured individuals would be difficult to find. As described above, we estimated take of western spadefoot using the loss of suitable modeled western spadefoot habitat expected under the TUMSHCP (30 acres due to development and 2 acres due to Planwide Activities) in combination with the typical 1 acre home range of this species to derive an estimate of 32 western spadefoots that could be taken as a result of the Covered Activities under the proposed ITP. For reasons explained in the Effects Analysis section, we consider the potential loss of up to 32 western spadefoots due to habitat conversion to be an overestimate and

anticipate that significantly fewer than 32 western spadefoots would be taken. Because using a numerical estimate almost certainly overstates the level of take likely under the proposed action, we consider loss of habitat to be a more reliable measure of take of western spadefoots.

The Applicant has also proposed to survey for and capture and relocate any western spadefoots that may be in harm's way to minimize or avoid potential take in the form of harm to western spadefoot. Any individual western spadefoots captured to avoid or minimize harm are also considered taken. For reasons given above, we anticipate that the number of western spadefoots that would be captured is very low, and likely would be a subset of the 32 individuals that could possibly occupy affected modeled suitable habitat. Therefore, we anticipate that given all possible sources of take, all western spadefoots within a total of 32 acres of modeled suitable habitat may be harmed or captured during the proposed activities.

Effect of the Take

In the accompanying biological opinion, the Service determined that the take of western spadefoots associated with the loss of 32 acres of modeled suitable habitat is not likely to result in jeopardy to the species.

REASONABLE AND PRUDENT MEASURES / TERMS AND CONDITIONS

The measures described in the TUMSHCP, associated documents and the Section 10(a)(1)(B) permit will effectively minimize the effects of any potential take of western spadefoot under the permit. Consequently, we are not including additional non-discretionary reasonable and prudent measures and implementing terms and conditions in this incidental take statement.

TEHACHAPI SLENDER SALAMANDER

STATUS OF THE SPECIES

Regulatory History

The Tehachapi slender salamander was listed by the State of California as threatened in 1971 (CDFG 2013a). On October 10, 2011, in response to a petition to list the Tehachapi slender salamander as threatened or endangered under the Federal Act, the Service published a finding that listing is not warranted (Service 2011a). The species is not federally listed; therefore no critical habitat has been designated.

Natural History/Habitat Requirements

The Tehachapi slender salamander inhabits moist canyons and ravines in oak and mixed woodlands (CaliforniaHerps 2013). Tehachapi slender salamanders occur on north-facing slopes within talus piles, often where oaks occur (AmphibiaWeb 2013). The habitat is also defined by Morey (2005) as including valley-foothill, hardwood-conifer, and valley-foothill riparian habitats; and by the Service (2011a) as including all stages of blue oak savannah, gray pine-oak woodland, riparian deciduous habitat types, mountain meadow, and all successional stages of mixed conifer forest.

In 2011, Dr. Sam Sweet posted an account on the "Field Herp Forum" website (www.fieldherpforum.com) about finding Tehachapi slender salamanders under decaying yucca clumps. These yuccas were not associated with the "typical" Tehachapi slender salamander habitat described above. Potentially, this indicates the species may be more widespread than originally assumed, and that some of the specifics about its habitat requirements have been too restrictive.

During the moist periods of fall, winter, and spring precipitation, individual Tehachapi slender salamanders seek cover under surface objects, especially rock talus (Brame and Murray 1968). Other substrates that may be used for cover include rocks, logs, bark, and other debris in moist areas, especially in areas with much leaf-litter (CaliforniaHerps 2013), but this species is primarily associated with talus (AmphibiaWeb 2013). As noted above, Tehachapi slender salamanders have also been found under yucca stumps in less moist areas (well away from drainage bottoms and talus slopes).

Along Caliente Creek (east of the action area), Tehachapi slender salamanders are usually restricted to the lower margins of north-facing slopes bordering the creek and a few small side canyons. They are associated with granitic or limestone talus and scattered rocks. Gray pine (*Pinus sabiniana*), interior live oak, canyon live oak, blue oak, Fremont cottonwood, sycamores (*Platanus spp.*), and California buckeye (*Aesculus californica*) can be found in this area (Brame and Murray 1968). California juniper (*Juniperus californica)*, yucca (*Yucca* spp.), bush lupine (*Lupinus* spp.), and buckwheat (*Eriogonum spp.)* grow at more exposed locations where

Tehachapi slender salamanders are found in Caliente Creek. Substrates range from sandy–gravelly loam to decomposed granite (AmphibiaWeb 2013). At the higher elevations of the canyons of the Tehachapi Mountains, Tehachapi slender salamanders occur in areas of downed wood or talus rather than the rocks of the Caliente Creek populations (AmphibiaWeb 2013).

Western species of plethodontid salamanders, including the Tehachapi slender salamander, are completely terrestrial amphibians and do not need standing or flowing water for any stage of their life cycle. Because their entire life cycle occurs on land and they require moist skin to breathe, they are vulnerable to desiccation. Thus, the Tehachapi slender salamander requires moist microhabitats, and its above-surface activity is greatly reduced outside of the rainy season (Feder 1983). Peak periods of surface activity for the Tehachapi slender salamander occur during the rainy season, typically evenings February through March, but may occur earlier depending on the timing of late-fall/early-winter rains (Hansen and Wake 2005). During wetter years, peak activity may extend to April or early May at higher elevations (Hansen and Wake 2005). Tehachapi slender salamanders retreat to underground refugia (up to 3 feet; 0.9 meter) below the surface during the warmer months or during periods of freezing temperatures and are believed to aestivate during this time (Hansen and Wake 2005). Plethodontid salamanders, like the Tehachapi slender salamander, are able to sustain themselves on their energy reserves when surface conditions are not suitable for foraging, so they are inactive (e.g., do not forage) while underground (Feder 1983).

Although the specific feeding habits of the Tehachapi slender salamander are not described, other members of the genus *Batrachoseps* feed on small arthropods, such as spiders and mites, insects (especially collembolans, coleopterans, and hymenopterans), earthworms, and snails, and the Tehachapi slender salamander likely has similar feeding habits (Zeiner et al. 1990a). *Batrachoseps* are generally sit-and-wait predators (CaliforniaHerps 2013); they search or wait for small insects and other invertebrates under surface objects (USFS 2006a). Like all *Batrachoseps* species observed thus far, Tehachapi slender salamanders likely capture small invertebrates using a projectile tongue (AmphibiaWeb 2013). The Tehachapi slender salamander is able to enter termite tunnels, earthworm burrows, and other small openings not accessible to larger salamanders (Morey 2005).

Predators of the Tehachapi slender salamander are not well known. Other salamander species are known to be preyed upon by birds, such as American crows (*Corvus brachyrhynchos*), common ravens (*Corvus corax*), and jays, as well as raccoons (*Procyon lotor*), skunks, opossums (*Didelphis virginiana*), and snakes. The only documented predator of the Tehachapi slender salamander was a ring-necked snake (*Diadophis punctatus*) (Burkhardt *et al.* 2001). We are not aware of any information about parasites or diseases affecting this species or information about symbiotic or mutualistic interactions with other organisms.

Tehachapi slender salamanders lay their eggs in moist places under surface objects. The juveniles hatch fully formed (USFS 2006a, CaliforniaHerps 2013). Breeding season likely extends from November to February, with peak activity in November and December. The Tehachapi slender salamander probably lays eggs during the rainy periods of winter and early

spring (Morey 2005). Clutch size remains unknown, although related forms lay eggs in clusters of 4 to 21 (USFS 2006a, Stebbins 1954). Unlike its relative, the California slender salamander (*B. attenuatus*), most Tehachapi slender salamander populations are associated with small, discrete patches of suitable habitat (Anderson 1960); and therefore are not likely to demonstrate extensive surface movements within the breeding season.

The Tehachapi slender salamander's home range is estimated to be approximately 0.5 acre (USFS 2006a). The area of Tehachapi slender salamander surface activity probably covers its area of underground activity (Morey 2005).

Distribution and Population Trends

The CNDDB lists 16 occurrences of Tehachapi slender salamander, all within Kern County (CDFG 2012b). The species is generally known from two areas in Kern County; Caliente Canyon outside of Covered Lands at the junction of the Sierra Nevada and Tehachapi Mountains, and in several isolated canyons on the northern slopes of the Tehachapi Mountains (Yanev 1980, Stebbins 1985, Jockusch 1996, Wake 1996, Wake and Jockusch 2000, AmphibiaWeb 2013). In 1957, a specimen was found from the north slope of Black Mountain in the vicinity of Tehachapi Pass, between the Tehachapi Mountains and Caliente Canyon populations (Brame and Murray 1968). Tehachapi slender salamanders have been recorded at elevations of 506 to 1,430 meters [1,660 to 4,692 feet amsl (above sea level)] (Brame and Murray 1968, AmphibiaWeb 2013, Yanev 1980, Stebbins 1985, Jockusch 1996, Wake 1996, Wake and Jockusch 2000, AmphibiaWeb 2013).

The numbers of individual Tehachapi slender salamanders in occupied locations have not been determined, and we are not aware of any information on actual population trends. The best available information indicates that the number of occurrences has remained relatively stable (Hansen 2009). We do know that one occurrence (Tehachapi Pass) has been extirpated as a result of road construction, and five new occurrences (Monroe Canyon, Tollhouse Canyon, Indian Creek, an unnamed canyon south of Indian Creek, and Silver Creek) have been found. These circumstances do not indicate anything about overall trends because where new occurrences are found it does necessarily mean that the numbers are increasing; only that additional extant occurrences have been found. Despite the absence of any obvious population trend, the Tehachapi slender salamander has been listed as threatened by the State of California since June 1971 (CDFG 2013a) due to its limited distribution and the risk that impacts to one population could have a large impact on the species.)

ENVIRONMENTAL BASELINE

The CNDDB lists 16 occurrences of the Tehachapi slender salamander, with 5 of the occurrences within the Covered Lands, including two in Bear Trap Canyon, one along a tributary to Pastoria Creek, one in Grapevine Creek, and one in Tejon Canyon in the northeastern section of the southern portion of the Covered Lands. The Applicant's consultants conducted presence/absence surveys for Tehachapi slender salamanders in suitable habitat within the TMV Planning Area,

during which the species was observed only in Monroe Canyon out of the 77 drainages surveyed, raising the number of known occurrences on the Covered Lands to six. All observations were made in moist drainages with leaf litter, generally in mixed oak and canyon live oak woodlands, often with California buckeye as an associated species (Dudek 2007b).

Because the Covered Lands contain one of the core areas for this species, the Tehachapi slender salamander is expected to occur throughout suitable habitat within areas of the Covered Lands similar to habitats found within the TMV Planning Area. To make an estimate of the potentially occupied habitat, the Applicant's consultants modeled suitable habitat for the Tehachapi slender salamander based upon their observations and the published literature. The model included primary habitat between approximately 490 and 1,500 meters (1,600 and 5,000 feet amsl) using vegetation communities containing canyon live oak with greater than 40 percent canopy cover with a 150-foot buffer around drainages, on north-facing slopes. The modeling produced approximately 4,071 acres of potentially suitable habitat for Tehachapi slender salamander on all Covered Lands; however, all modeled habitat is not likely to be saturated with Tehachapi slender salamanders, and because some modeled habitat may not contain the microhabitat features required by this species, not all modeled habitat is expected to be occupied by Tehachapi slender salamander. While we expect the area of occupied localities to be less than the 4,071 acres of modeled suitable habitat, we consider this estimated acreage a reasonable basis for analyzing the overall effects of the proposed action on the Tehachapi slender salamander.

Recovery

The Tehachapi slender salamander is not listed under the Federal Endangered Species Act, so we have not developed a recovery plan for the species to which we can refer to assess its recovery status. In the absence of a recovery plan, we default to the general conservation of the species. For a species like the Tehachapi slender salamander with a narrow distribution, recovery would focus on determining the species' distribution and the conservation of much of the remaining habitat that supports the species. Suitable habitat has been identified on the Covered Lands that could support the species (4,071 acres of modeled suitable habitat). In general terms, where suitable habitat exists, it should be conserved and where possible, additional habitat should be created or restored.

EFFECTS OF THE ACTION

Planwide Activities

Livestock

The Applicant proposes to graze livestock on the balance of the action area outside the development areas, consistent with the types and levels of historical grazing and ranch management practices. We are not aware of any direct or indirect effects of cattle grazing on Tehachapi slender salamanders. We do not expect that cattle would trample Tehachapi slender salamanders because the species spends the majority of its life under cover protected from the

weather and presumably direct trampling. The highest risk to the Tehachapi slender salamander would occur in winter during rains when the species may be above ground, but we conclude that risk is negligible because the odds of cattle being present in the vicinity of occupied habitat coinciding with the time the species is above-ground are very low. In addition, under the TUMSHCP, the Applicant must submit a grazing management plan to the Service for our review, which regulates livestock grazing in order to continue to maintain the habitats that are defined by the parameters in the suitable habitat model for the Tehachapi slender salamander. Therefore, we conclude that the effects of livestock on the Tehachapi slender salamander would be negligible.

Range Management/Ancillary Ranch Structures

Range management activities support livestock operations and consist of construction, operation, and maintenance of watering facilities, feeding areas, fences, and corrals, consistent with the types and level of historical grazing and ranch management practices; repair, reconstruction, and relocation of roads to accommodate historical grazing and ranch management practices; and repair, maintenance, or installation of ranch management communication equipment (e.g., whip antennas) that are less than 20 feet high. The repair, reconstruction and relocation of roads to accommodate historical grazing and ranch management practices are evaluated below under Roads. Range management also incorporates ancillary ranch structures including squeezes, loading chutes, holding and feeding fields, corrals, branding traps, barns, sewage disposal facilities, livestock and wildlife watering facilities, and utilities serving existing ranch uses.

As described above under Planwide Activities in the Description of the Proposed Action section, *de-minimis* activities associated with ancillary ranch structures would be covered under the TUMSHCP. Non–*de minimis* activities associated with ancillary ranch structures are also allowed (1) if the activity is located in disturbed areas (e.g., undergrounding utilities in road rights-of-way), or (2) following a meet-and-confer process with the Service to ensure that the activity associated with an ancillary ranch structure avoids or adequately minimizes impacts to Covered Species and their habitats.

We do not know of any range management activities that would have an effect on Tehachapi slender salamanders. The activities associated with range management are subject to the 200-acre disturbance limit, and occur at a small scale relative to the size of the action area and are mostly in place and are unlikely to require much if any additional space to accommodate livestock care, so we do not anticipate any additional loss of Tehachapi slender salamander habitat. In addition, the TUMSHCP requires a grazing management plan submitted as a component of the RWMP to the Service every 5 years for review and approval to ensure that grazing activities maintain existing modeled suitable habitat for the species. We therefore anticipate that the effects of range management and ancillary ranch structures on Tehachapi slender salamander would be negligible.

Fuel Management

Fuel management practices would consist primarily of grazing to keep grasses and weeds at bay. The effects on Tehachapi slender salamanders of fuel management by grazing should be largely consistent with the effects of livestock, as described above (i.e., potential trampling during the rainy season, but small potential for effects from grazing to control fuel).

Other fuel management activities include fuel modification zones created (1) by existing roads, and (2) through irrigation and/or vegetation clearing and mowing within 120 feet surrounding existing structures (i.e., backcountry cabins, ancillary ranch structures, and other existing structures). These other fuel modification methods are not likely to have a direct impact on the Tehachapi slender salamander because the species is found in habitat where fuel modification is not likely to be necessary.

Irrigation of fuel modification zones is not likely to affect Tehachapi slender salamanders because the species requires moist habitats and seek refuge under talus and other structure where moisture is maintained and fuel modification is not necessary. Mowing may have the effect of removing vegetative cover, but Tehachapi slender salamanders are more likely to be under cover that cannot be mowed, except during rainy periods when they may be moving above ground within vegetation that may be mowed. At these times, mowing is not likely to be occurring so the likelihood that Tehachapi slender salamanders would be directly affected by mowing is low.

Fuel management associated with proposed development is discussed below under Commercial and Residential Development Activities.

Filming

Filming activities generally consist of temporary on-scene filming and photography-related uses, including, but not limited to the filming and staging of movies, television shows, and commercials; photo shoots; and still photography and related uses. Such activities may include the erection and dismantling of props, temporary installation of trailers and equipment for film crews, filming of on-camera action, catering, rehabilitation of disturbed areas, and the movement of film crews to and from locations.

Filming activities may affect Tehachapi slender salamanders by disturbing habitat or directly impacting individual animals. Film crews, workers, vehicles, and equipment may injure or kill Tehachapi slender salamanders if the filming area is occupied by the species. These effects would be exacerbated during the rainy season if Tehachapi slender salamanders are moving above ground. Also, any modification of suitable cover, such as removal of debris or disturbance of talus slopes, could kill or injure Tehachapi slender salamanders and expose them to predators, unfavorable weather conditions (i.e., dry), and desiccation. The TUMSHCP requires BMPs prior to installation or other ground disturbing activities, including avoiding ground disturbance near Tehachapi slender salamander habitat, as well as surveys and capture and relocation of any individuals observed that could be at risk from the activities (Table 2 and Sections 2.2.1 and

7.1.1.1.1 of the TUMSHCP). These measures should effectively minimize the potential effects of filming on the Tehachapi slender salamander

Recreation

Recreation associated with the Planwide Activities includes private recreation by TRC, its employees and guests and public access is governed by the Interim RWMP and managed by the Conservancy. Such recreational use is also subject to the terms of the TUMSHCP and the terms of Service-approved conservation easements. While TRC currently engages in private recreation throughout the Covered Lands, public recreation, which generally consists of docent led tours by the Conservancy per the Interim RWMP, occurs in the Established Open Space portion of the Mitigation Lands. These public and private recreation uses are limited to passive activities listed in the Project Description. Recreation activities associated with Planwide Activities would occur in open space areas generally outside the TMV Planning Area at a relatively small scale, and have infrequent impacts. Recreational uses by TRC, its employees, and the public are limited by the access guidelines and best management practices in the Interim RWMP and will be further regulated in Public Access Plans, which are subject to permanent Service review and approval. We note that future development in the TMV Planning Area will likely lead to increased recreation demand by TMV Project residents and guests, but the type and nature of the use is the same. All such recreational use in the protected open space will also be regulated in the Public Access Plan, which will require monitoring and enforcement and is subject to permanent Service review and approval. The effects of recreation on the Tehachapi slender salamander in the TMV Planning Area Open Space are discussed separately under Commercial and Residential Development Activities.

If recreation were to occur in occupied Tehachapi slender salamander habitat, it could result in capture, injury or other alteration of Tehachapi slender salamander behavior and disrupt feeding, breeding, or sheltering activities by moving or altering cover. However, wherever recreation activities take place, they would occur at a relatively small scale. Further, the Applicant proposes to ensure that all public and private recreation be conducted in a manner that would avoid adverse impacts to the Covered Species and their habitats (see Table 2 and Sections 2.2.1 and 7.1.1.1.1 of the TUMSHCP). This proposal would minimize impacts to the Tehachapi slender salamander, but we expect recreation to still have some effect on the species in the action area were it to occur in those locations identified in the Baseline section where the species is known to occur on the Covered Lands. The proposed recreation activities should not cause meaningful new habitat disturbance, but Tehachapi slender salamanders could occasionally be injured, killed, or disturbed by recreation activities. In addition, despite the environmental education proposed by the Applicant, residents, TRC employees, and others using the action area may capture, potentially injure, or otherwise alter Tehachapi slender salamander behavior and disrupt feeding, breeding, or sheltering activities by moving or altering cover. We conclude that such occurrences would be rare because the species is scattered and uncommon, such that few such encounters between humans and salamanders are likely to occur. Thus, we anticipate that recreation would have negligible effects on the Tehachapi slender salamander population.

Recreation associated with proposed development is discussed below under Commercial and Residential Development Activities.

Irrigation/Water Diversion

The action area contains existing water diversions for irrigation of agriculture inside and outside the action area, and a few small agricultural areas totaling about 232 acres exist in the TMV Planning Area (e.g., small vineyards and an orchard near Castac Lake). Agricultural uses that remain in open space after the Applicant identifies the final development footprint will continue subject to State and local regulations.

We do not expect habitat loss for the Tehachapi slender salamander due to these water diversions because the Applicant has proposed to avoid construction in areas where the species occurs (see Baseline section for known occurrences) and where it is found during pre-activity surveys. In addition, maintenance and relocation work, if any, is subject to the survey and avoidance requirements in the TUMSHCP, and prior to TRC relocating water diversions, the Service would review and approve the proposed new locations. Also, due to repeated disturbance, irrigation of agricultural areas by these facilities is unlikely to have an effect on Tehachapi slender salamanders because the species would not be present (i.e., irrigated lands do not support suitable habitat for Tehachapi slender salamander).

Agriculture is a very small percentage of the land use in the action area and will remain so throughout the life of the proposed ITP. We do not anticipate any adverse impacts to Tehachapi slender salamanders from ongoing agricultural activity because these areas do not support suitable habitat for the species.

Roads/Trails

A network of generally unpaved roads exists in the action area. As described in the TUMSHCP, roads outside of the development areas would be maintained, relocated, or new roads could be constructed, to facilitate the proposed Planwide Activities, subject to the 200-acre limit. Motorized vehicles, horses, off-highway vehicles, bicycles, etc. using roads/trails outside of development areas could injure or kill Tehachapi slender salamanders that may away from their preferred cover (i.e., during breeding season); however, we expect that use of roads outside of the development areas would be infrequent, and that Tehachapi slender salamanders would rarely be on roads, and then usually at night when vehicles or people are not using the roads and trails. Also, Tehachapi slender salamanders are not likely to be found far from their preferred cover. We conclude that injury or mortality of Tehachapi slender salamanders would be unlikely as a result.

Road maintenance could also injure and kill individuals. However, we expect road maintenance to have a minimal effect on Tehachapi slender salamanders because they are not likely to be found far from their preferred cover and the Applicant has proposed measures to avoid known locations of the Tehachapi slender salamander and to survey suitable habitat prior to such

activities and avoid newly discovered occurrences, as well (see Table 2 and Sections 2.2.1 and 7.1.1.1.1 of the TUMSHCP). Overall, we expect road kills of Tehachapi slender salamanders to be rare because the species is not common and is not likely to wander far from its preferred cover.

The direct and indirect effects of roads in the development areas as a result of residential and commercial development are addressed below under Commercial and Residential Development Activities.

Utilities

The action area contains, or would contain, various small utilities to support ranch activities. As described in Section 2.2.1 of the TUMSHCP, these utilities would be *de minimis* or would be located in previously disturbed areas (e.g., undergrounding utilities in road rights-of-way). Any utilities associated with Planwide Activities that are not *de minimis* or cannot be located in previously disturbed areas would require Service review and approval prior to relocation or construction.

Utility maintenance and construction may affect Tehachapi slender salamanders by disturbing habitat, or injuring or killing individuals. We expect utilities to have at most, a minor impact on the Tehachapi slender salamander, because utility posts and towers have small footprints, the utilities affect a very small percentage of the action area, and TRC's proposal to survey project areas and relocate observed Tehachapi slender salamanders should minimize the potential for adverse impacts to Tehachapi slender salamanders during utility installation or maintenance.

Potential impacts by utilities associated with the proposed development are included in the discussion of effects of Commercial and Residential Development Activities below.

Backcountry Cabins

Eight backcountry cabins occur in the action area and could be maintained, improved, repaired, replaced, or reconstructed in their existing location. Human use of the cabins should not cause meaningful new habitat disturbance, and the Applicant proposes to ensure that all cabin use be conducted in a manner that would avoid adverse impacts to the Covered Species, including the Tehachapi slender salamander. Currently, the Interim RWMP requires that new or relocated cabins be first subject to a site evaluation to avoid impacts to sensitive natural resources, such as Tehachapi slender salamander. In addition, prior to relocating an existing cabin, the Applicant would allow the Service to review and approve the proposed new location. Consequently, we expect the effects from the backcountry cabins on the Tehachapi slender salamander to be minimal due to the avoidance and minimization measures proposed by the Applicant (see Table 2 of this biological opinion, and Sections 2.2.1 and 7.1.1.1.1 of the TUMSHCP).

Fencing

Fences exist throughout the action area. Fences would be maintained and new fencing could be constructed and maintained as required to support the proposed activities, including exclusion of cattle from sensitive habitats that support Covered Species, which could benefit the Tehachapi slender salamander by protecting its habitat. TRC proposes to design and locate new fencing to avoid known occurrences of the Tehachapi slender salamanders. This should minimize the effects of fences on Tehachapi slender salamanders to a negligible level.

Lebec/Existing Headquarters Area Uses

Existing activity in the Lebec/Existing Headquarters Area (i.e., corporate headquarters buildings, an antique shop, a post office, a church, and several single-family residences for ranch employees) would continue to occur. While additional development could occur here under the TUMSHCP, the Applicant has not included development plans for this area in the project description. We expect that activities associated with use of this area will have a negligible effect on the Tehachapi slender salamander because of the very small amount of modeled suitable habitat and the fact that existing activities would occur in already developed areas.

Mitigation, Monitoring, and Management

Mitigation, monitoring, and management activities to carry out identified biological goals and objectives for the California condor or other Covered Species included in the TUMSHCP or other resource agency permits for the commercial and residential Covered Activities, as well as mitigation, monitoring, and management activities imposed pursuant to any local, State, or Federal approval of development on Tejon Ranch, would be carried out in accordance with the Act and would be subject to Service review. We acknowledge that other agencies may credit the Applicant for mitigation and protective measures included in the TUMSHCP for mitigation imposed by such other agencies. Any restoration, enhancement, or similar mitigation activities would not be allowed if they would result in unpermitted adverse effects to species or critical habitat under the Act. Additionally, any mitigation activities for other agencies would be subject to the protective measures included in Tables 1 and 2, in the Description of the Proposed Action section of this biological opinion. Therefore, we anticipate that any potential threats to the Tehachapi slender salamander as a result mitigation, monitoring, and management activities would be effectively minimized

Estimate of Disturbance Due to Planwide Activities

The Applicant proposes a maximum of 200 acres of ground disturbance associated with the Planwide Activities described above. These ground disturbances would occur outside of the proposed development areas (discussed below) and may be permanent or temporary. The disturbance would primarily be associated with construction of roads, backcountry cabins, and ancillary structures. If the Applicant restores a portion of this disturbance, an area equal in size

may then be disturbed. Thus, no more than 200 acres may exist in a developed condition because of Planwide Activities at one time.

For the purposes of this effects analysis, we assume that all parts of the action area that could be affected by Planwide Activities have an equal chance of being affected and that all habitat types would be affected in equal proportion. This assumption is based upon the Applicant's inability to predict exactly where 200 acres of habitat disturbance due to Planwide Activities would occur. In addition, there is no indication that the distribution or location of Tehachapi slender salamander modeled habitat would cause Planwide Activities to disproportionately occur in Tehachapi slender salamander modeled habitat.

Also, for the purposes of estimating species-specific habitat disturbance by Planwide Activities, we are not using the 8,817-acre development envelope used by the Applicant in the TUMSHCP to estimate impacts from development (TUMSHCP Table 2-1, footnote 4), but rather we are using the 5,533-acre area that actually could be developed within the development envelope. We did this, because after the 5,533-acre development footprint is developed, 3,284 acres of the 8,817-acre development envelope would remain and be subject to Planwide Activities, and modeled habitat for the Tehachapi slender salamander could occur in the 3,284 acres. Therefore, we included 3,284 acres of the development envelope in this analysis to acquire an estimate of habitat lost by Planwide Activities that is as accurate as possible.

When we combine this estimate with anticipated habitat loss from commercial and residential development in a summary effects analysis (discussed below), we will have slightly double-counted and overestimated the amount of Tehachapi slender salamander habitat that would be lost in the action area. This slight overestimation of lost habitat does not compromise our analysis, because the overlap is very small relative to the size of the action area, and this approach ensures that potential species impacts are fully considered by analyzing a larger impact than would actually occur.

Adding together the acres of commercial and residential development, the National Cement and La Liebre Mines, the VA Cemetery, and Not-A-Part lands (blocks of land within the boundary of the action area but not owned by TRC), a total of 12,423 acres within the exterior boundaries of the plan area are not subject to Planwide Activities. We expect that Planwide Activities could occur on the remaining 129,463 acres of the action area (141,886 acres within the action area minus the 12,423 acres of excluded areas above). Therefore, the ratio of disturbance due to Planwide Activities (200 acres) to covered lands subject to Planwide Activities (129,463 acres) equals 0.0015. We applied this ratio to Tehachapi slender salamander habitat outside the excluded areas but in the action area and rounded the remainder up to a whole acre. Thus, 4,071 acres of modeled habitat minus 143 acres lost to development (discussed below) equals 3,928 acres of modeled suitable Tehachapi slender salamander habitat within the action area. Using our ratio of 0.0015, we anticipate that Planwide Activities would disturb or remove approximately 6 acres of modeled suitable habitat for the Tehachapi slender salamander over the permit duration or less than 1 percent of the remaining 3,928 acres of modeled in the action area.

This could be an overestimate because the Applicant is proposing measures to minimize disturbance to Tehachapi slender salamander habitat, as described in Table 2 and Section 7.1.1.1.1 of the TUMSHCP. Thus, while there could be a very small loss of Tehachapi slender salamander modeled suitable habitat due to Planwide Activities, in comparison to the modeled suitable habitat conserved, we conclude that the loss would have a minimal effect on the species. Based on estimated home range size of this species of approximately 0.5 acre (USFS 2006a), and assuming saturation of all modeled suitable habitat and a uniform distribution, this would amount to a potential loss of habitat supporting up to 12 individuals due to Planwide Activities; however, based on the few individuals observed within the Covered Lands despite searches in suitable habitat, and because not all modeled suitable habitat is expected to be occupied by this species, we assume that the number of individuals that could be lost with the permanent loss of 6 acres due to Planwide Activities would be fewer than the estimated 12 individuals. The expected loss of Tehachapi slender salamander would likely be a smaller but indeterminable number. Consequently, we conclude that the effects of Planwide Activities on Tehachapi slender salamander and its habitat would be minimal under the TUMSHCP and would not appreciably reduce the species' reproduction, numbers or distribution in the Covered Lands or rangewide.

Commercial and Residential Development Activities

Direct Effects

Development could result in temporary impacts, including habitat loss, construction noise, dust, night lighting, and equipment movement, to modeled suitable habitat for the Tehachapi slender salamander. We do not have an exact acreage for these temporary effects. The total area of permanent loss of modeled suitable habitat is expected to be 143 acres, so the temporary effects should be less, in part because the Applicant has proposed to minimize the footprint of work areas to avoid Tehachapi slender salamander modeled suitable habitat and to install fencing to mark the limits within which Covered Activities that result in habitat loss may occur. Also, because the Applicant proposes to restore habitat following these temporary disturbances (per other likely permit requirements from the CDFW and U.S. Army Corps of Engineers), we would expect remaining and restored modeled suitable habitat for the Tehachapi slender salamander to be able to support the species in the future.

The principal permanent effect of the Commercial and Residential Development Activities on the Tehachapi slender salamander would be from habitat loss. Commercial and Residential Development Activities proposed under the TUMSHCP would result in the permanent loss of 143 acres of modeled suitable habitat for Tehachapi slender salamander within Covered Lands (less than approximately 4 percent of the total modeled Tehachapi slender salamander habitat in the Covered Lands). This habitat loss includes any modeled habitat for the Tehachapi slender salamander lost as a result of development activities in the Lebec/Existing Headquarters Area. Based on estimated home range size of this species of approximately 0.5 acre (USFS 2006a), and assuming saturation of all modeled suitable habitat and a uniform distribution, this would amount to a potential loss of habitat supporting up to 286 individuals due to development; however, based on the few individuals observed within the TMV Planning Area (i.e., Monroe and Beartrap

Canyon) despite searches in suitable habitat, and because not all modeled habitat is expected to be occupied by this species, we assume that the number of individuals that could be lost with the permanent loss of 143 acres in development areas within the Covered Lands would be much fewer than the estimated 286 individuals projected based upon the suitable habitat model. The expected loss of Tehachapi slender salamander would likely be a smaller but indeterminable number. The Applicant proposes to conserve in perpetuity all of the known occurrences of the Tehachapi slender salamander on the Covered Lands. Currently, the only known locations of the species in the Covered Lands are Monroe and Beartrap Canyons.

We conclude that the permanent loss of approximately 4 percent of modeled suitable habitat within development areas in Covered Lands and a small but indeterminable number of individuals potentially occupying that habitat, and the conservation of all known occupied locations, would not appreciably reduce the species' reproduction, numbers or distribution rangewide. With the additional avoidance and minimization measures required for development activities (as described in Table 2 and Section 7.1.1.1.1 of the TUMSHCP), the loss of individual Tehachapi slender salamanders caused by development would likely be less than projected under the modeled suitable habitat scenario.

Indirect Effects

Commercial and Residential Development Activities proposed under the TUMSHCP may result in the following additional indirect effects to the Tehachapi slender salamander: introduction of non-native species; public recreation, fuel management, lighting effects on habitat occupied by the Tehachapi slender salamander; and pollution.

Once established, some invasive species have the ability to displace or replace native plant and animal species, disrupt nutrient cycles, and cause changes in the pattern of plant succession. Native amphibian and reptile populations may be threatened by exotic invasive species of plants and animals, including other reptiles and amphibians. As habitats are changed and plant community organization is modified by exotic species, the relationships between plants and animals may be altered or eliminated. For example, Argentine ants are more aggressive than native ants, have been found to displace the natives, and are now widespread throughout California. These ants may also play a role in disrupting and depressing the arthropod community within natural areas, and, therefore, might affect a number of amphibian species, including the Tehachapi slender salamander (Haas et al. 2002). We do not know to what extent the introduction of Argentine ants or other non-native species may affect the Tehachapi slender salamander. We are not aware of any threats posed to the species currently by non-native plants or animals. Given the measures proposed by the Applicant to avoid and minimize the introduction of exotic species, we conclude the effects of invasive species on the Tehachapi slender salamander would be minimal.

Night lighting can affect the normal diurnal/nocturnal cycles of some wildlife. If the lighting is bright enough or directed toward areas used by primarily nocturnal species, they may respond by becoming active later and be displaced by the physiological stress caused by the disruption. We

do not expect night lighting in development areas to be a substantial impact on the Tehachapi slender salamander because the species is more likely to be above ground in response to weather (wet and mild conditions) than in response to day/night cycles, and the TUMSHCP requires that lighting, where it is needed, be directed away from natural areas. Therefore, the effects of lighting on the Tehachapi slender salamander would be negligible.

Another potential indirect effect involves changes to water quality as a result of construction activities and occupancy of the development following buildout. Because amphibians have permeable skin (to facilitate respiration) and eggs that may readily absorb toxins, the introduction of chemicals to the environment as a result of construction activities may have an effect on Tehachapi slender salamanders. Pollutants, runoff of pesticides, waterborne pathogens, and sediment can all affect water quality, and these factors can in turn affect amphibians such as the Tehachapi slender salamander. For the most part, the discharge of such chemicals will be avoided through best management practices and compliance with laws (such as the Clean water Act) regulating the release of pollutants into water bodies or the environment in general. We do expect that some pollutants may escape into areas potentially occupied by Tehachapi slender salamanders on rare occasion; however, exposure of Tehachapi slender salamander to pollutants is likely to be rare because the species does not occupy water, per se, but restricts its activities to moist areas under talus or other cover. They do not seek open water like other amphibians and thus are likely less susceptible than other amphibians to pollutants resulting from discharge into streams or ponds. We expect the effects of pollution and runoff on the Tehachapi slender salamander to be minimal, if it occurs at all in the face of the Applicant's proposed measures to avoid and minimize these effects (see Table 2 and Sections 2.2.1 and 7.1.1.1.1 of the TUMSHCP).

The Applicant proposes to clear and thin vegetation within 200 feet of the proposed development, creating up to a 1,773-acre fuel modification zone. As discussed above, the habitats occupied by the Tehachapi slender salamander are not likely to be subject to vegetation clearance, so effects on the Tehachapi slender salamander from fuel management in development areas should be negligible.

In terms of recreation, the increased population of the development areas is likely to increase the pressure for recreational activities, particularly in the TMV Planning Area. Recreational activities allowed within the TMV Planning Area Open Space are limited to passive recreation as described above under Planwide Activities and in the Project Description. Even so, in the SDEIS for the TUMSHCP, we estimated that the TUMSHCP would increase the human population of the TMV Planning Area by 11,441 people and we expect the recreational activities of future residents of the TMV Planning Area to cause a higher level of disturbance and impacts in this area than in other parts of the action area that are more remote. If recreation occurs in occupied habitat, it could potentially alter Tehachapi slender salamander behavior, including feeding, breeding, or sheltering activities, if present.

To minimize impacts of recreation, TRC would provide Home Owners' Association(s) with educational information regarding acceptable activities in open space areas, including

recreational activities and pet restrictions. In addition, the TUMSHCP would require that recreation in the TMV Planning Area Open Space, be conducted in a manner that would avoid adverse impacts to the Covered Species and their habitats or result in less-than-significant impacts. At a minimum, the recreation activities would be planned to avoid sensitive species and known occurrences, and the TUMSHCP would require the use of existing roads and trails where possible. Because the species is rare and encounters between humans and Tehachapi slender salamander are unlikely to occur, we anticipate that recreation would have at most minor effects on the Tehachapi slender salamander.

TUMSHCP Mitigation

The Applicant proposes to preserve in perpetuity virtually all of the action area outside the proposed development envelope, including 3,921 acres of modeled suitable habitat for the Tehachapi slender salamander and the all known occurrences of the Tehachapi slender salamander on the Covered Lands (TUMSHCP Section 7.1.1.1.1). The proposed conservation of over 96 percent of modeled suitable habitat and all known occurrences of the Tehachapi slender salamander is consistent with conservation biology principles calling for large, interconnected blocks of habitat that support a given species' life history requirements.

Summary of Effects Analysis

In determining whether a proposed action is likely to jeopardize the continued existence of a species, we consider the effects of the action with respect to the reproduction, numbers, and distribution of the species. We also consider the effects of the action on the recovery of the species. In that context, the following paragraph(s) summarize(s) the effects of the proposed TUMSHCP on the Tehachapi slender salamander.

The Planwide Activities and Commercial and Residential Development Activities under the TUMSHCP are likely to affect the Tehachapi slender salamander. As stated above, the Applicant estimates that up to 143 acres of modeled suitable habitat could be lost due to development, and we have calculated that in the remainder of the action area that Planwide Activities could affect an additional 6 acres of modeled suitable habitat for the Tehachapi slender salamander, for a total of 149 acres of lost modeled suitable habitat for the species. Based upon on estimated home range size of this species of approximately 0.5 acre (USFS 2006a), we estimate that up to 298 individual Tehachapi slender salamanders may occur in habitat lost due to Planwide Activities and development under the proposed action. In addition to habitat loss, Planwide Activities and the indirect effects of development (described above) could result in impacts to the Tehachapi slender salamander. Under the TUMSHCP, 3,921 acres (approximately 96 percent) of the modeled suitable habitat on the Covered Lands would be permanently conserved. In addition, the TUMSHCP proposes measures to avoid and minimize the effects of Planwide and development related impacts to the Tehachapi slender salamander (see Table 2 of this biological opinion). We conclude that with the combination of avoidance and minimization measures proposed by the Applicant to reduce the effects of both Planwide Activities and Commercial and Residential Development as Covered Activities, the

conservation of almost all of modeled suitable habitat on the Covered Lands to mitigate for unavoidable impacts, and the preservation of all known occurrences of Tehachapi slender salamander on the Covered Lands, the Covered Activities under the proposed ITP would not appreciably reduce the reproduction, numbers, and distribution of the Tehachapi slender salamander rangewide.

Recovery

The Tehachapi slender salamander is not a federally listed species, and there are no recovery criteria with which to compare the current and future status of the species. The proposed action would cause a small (relative to the species' larger geographic range) reduction in the species numbers, reproduction and distribution within the action area but would not appreciably affect the reproduction, numbers or distribution of the Tehachapi slender salamander rangewide. The proposed action would also result in the permanent conservation of over 96 percent of suitable modeled habitat for the species within the action area, which would have long-term, stabilizing benefits to the species by securing a portion of the species' range from future habitat loss, thus addressing a principal threat to the species' survival and recovery.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section, because they require separate consultation pursuant to section 7 of the Act.

Hunting

Private and commercial hunting operations occur on Tejon Ranch, including the action area; however, hunting is not an activity covered by the TUMSHCP. The Applicant proposes to continue hunting operations throughout the ranch during the proposed permit term. The Applicant proposes to manage the hunting program to avoid take of any federally protected species. Hunting in the TMV Planning Area would be limited to guided hunts. Hunting activities involve travel on existing paved and unpaved roads, overnight use of backcountry cabins, hiking, discharging hunting weapons, etc. The effects from hunting will generally be consistent with, and to a considerable extent are captured in, the descriptions of effects for Roads/Trails, Backcountry Cabins, and Recreation described above. Therefore, we expect that hunting in the action area will have negligible cumulative effects on the Tehachapi slender salamander.

Mining

Two commercial mining operations occur in the action area, La Liebre and National Cement; these mining operations are not covered activities under the TUMSHCP. The total area used for the two operations is about 2,636 acres, and the Applicant would maintain the mining leases

through the proposed permit term. The species is not known to occur in proximity to the mines; however, the Applicant estimates that the mining areas may support approximately 37 acres of modeled suitable habitat for the Tehachapi slender salamander. Much of the mining areas is already disturbed and subject to regular mining activity, so we do not anticipate that the Tehachapi slender salamander would be present in these areas. We expect that continued mining in the action area will have no cumulative effects on the Tehachapi slender salamander.

Other Activities

As discussed above under project description, within the external boundaries of the Covered Lands, there are existing inholdings and utilities. The Bakersfield National Cemetery also occurs inside the Covered Lands. These projects and activities are not Covered Activities under the TUMSHCP. We are not aware of any reasonably foreseeable activities within the 3,870 acres of inholdings that may affect the Tehachapi slender salamander. Activities associated with existing utilities, transmission lines and related structures, such as maintenance, would be restricted to currently established easement areas and would have minor, if any, effects on the Tehachapi slender salamander. Therefore, we do not anticipate any cumulative effects from the ongoing maintenance and operation of non-covered existing utilities. The Bakersfield National Cemetery is in place, and we are not aware of any activities associated with the cemetery that may have an adverse effect on Tehachapi slender salamanders.

CONCLUSION

After reviewing the current status of the Tehachapi slender salamander, the environmental baseline for the action area, the effects of the proposed TUMSHCP and the cumulative effects, it is the Service's biological opinion that the implementation of the TUMSHCP, as proposed, is not likely to jeopardize the continued existence of the Tehachapi slender salamander. We have reached this conclusion for the following reasons:

1. Almost all (96 percent) of modeled suitable habitat for the Tehachapi slender salamander within the Covered Lands would be conserved in perpetuity while only 4 percent of suitable habitat would be permanently lost.

2. All known occurrences of Tehachapi slender salamander on the Covered Lands in would be conserved in perpetuity.

3. In addition to preservation of most of the Tehachapi slender salamander modeled suitable habitat on the Covered Lands, TRC has proposed multiple measures to avoid and minimize the effects of the Covered Activities (Table 2 of this biological opinion). These measures should substantially reduce the effects of specific activities on the Tehachapi slender salamander.

4. The proposed action will not interfere with potential future efforts to aid in the Tehachapi slender salamander’s recovery, but should instead contribute to the species’ conservation

by protecting in perpetuity almost all modeled suitable habitat for the species on the Covered Lands.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened wildlife species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The proposed TUMSHCP and its associated documents identify anticipated impacts to the Tehachapi slender salamander likely to result from the proposed taking and the measures that are necessary and appropriate to minimize those impacts. All conservation measures described in the proposed plan together with the terms and conditions described in the associated Implementing Agreement and any section 10(a)(1)(B) permit issued with respect to the proposed TUMSHCP, are hereby incorporated by reference as reasonable and prudent measures and terms and conditions within this Incidental Take Statement pursuant to 50 CFR §402.14(i). Such terms and conditions are non-discretionary and must be undertaken for the exemptions under section 10(a)(1)(B) and section 7(o)(2) of the Act to apply. If the permittee fails to adhere to these terms and conditions, the protective coverage of the section 10(a)(1)(B) permit and section 7(o)(2) may lapse. The amount or extent of incidental take anticipated under the proposed TUMSHCP, associated reporting requirements, and provisions for disposition of dead or injured animals are as described in the TUMSHCP and its accompanying section 10(a)(1)(B) permit.

Amount or Extent of Take

We anticipate that the incidental take of Tehachapi slender salamanders will be difficult to detect because the species is cryptic and rarely seen away from cover, and its small body size means that killed or injured individuals would be difficult to detect. As described above, we estimated the number of Tehachapi slender salamander potentially affected by habitat loss under proposed action by using the total loss of modeled suitable Tehachapi slender salamander habitat expected under the TUMSHCP (143 acres due to development and 6 acres due to Planwide Activities) in combination with estimated home range size of this species of approximately 0.5 acre to derive an estimate of 298 Tehachapi slender salamanders that could occur within habitat removed as a

result of the proposed action. For reasons explained in the Effects Analysis section, we consider the potential loss of up to 298 Tehachapi slender salamanders lost due to habitat conversion to be an overestimate and anticipate that significantly fewer than 298 Tehachapi slender salamanders would be taken. Because using a numerical estimate almost certainly overstates the level of take likely under the proposed action, we consider loss of habitat to be a more reliable measure of take of Tehachapi slender salamanders.

Therefore, we estimate that a portion of the Tehachapi slender salamanders associated with the loss of 149 acres of habitat will be taken in the form of harm under the proposed action and the limit of take exempted under this biological opinion and authorized under the proposed ITP would be reached when loss of modeled suitable habitat for Tehachapi slender salamanders reaches 149 acres.

The Applicant has also proposed to survey for salamanders, prior to ground disturbance, and the capture and relocation of any Tehachapi slender salamanders that may be in harm's way to minimize or avoid potential take in the form of harm to the Tehachapi slender salamander. Any individual Tehachapi slender salamanders captured to avoid or minimize harm are also considered taken. For the reasons given above, we anticipate that the number of Tehachapi slender salamanders that would be captured is very low and likely would be a subset of the individuals that could possibly occupy the affected 149 acres of modeled suitable habitat. Therefore, take in the form of capture and harm of Tehachapi slender salamanders within 149 acres of affected modeled suitable habitat is anticipated by the proposed activities.

In summary, we anticipate that given all possible sources of take, all Tehachapi slender salamanders within a total of 149 acres of modeled suitable habitat may be harmed or captured during the proposed activities.

Effect of the Take

In the accompanying biological opinion, the Service determined that the take of Tehachapi slender salamander associated with the loss of 149 acres of modeled habitat within the Covered Lands is not likely to result in jeopardy to the Tehachapi slender salamander.

REASONABLE AND PRUDENT MEASURES / TERMS AND CONDITIONS

The measures described in the TUMSHCP, associated documents and the Section 10(a)(1)(B) permit will effectively minimize the effects of any potential take of Tehachapi slender salamander under the permit. Consequently, we are not including additional non-discretionary reasonable and prudent measures and implementing terms and conditions in this incidental take statement.

YELLOW-BLOTCHED SALAMANDER

STATUS OF THE SPECIES

Regulatory History

The yellow-blotched salamander (*Ensatina eschscholtzii croceater*) (also referred to as yellow-blotched ensatina) has no Federal designation, but is considered a California Species of Special Concern by the CDFG (Jennings and Hayes 1994).

Natural History/Habitat Requirements

The following description of the natural history of the yellow-blotched salamander is in large part based on information for the full ensatina species *E. eschscholtzii* where specific information for the subspecies yellow-blotched salamander is lacking. Where specific information for the yellow-blotched salamander is available, it is specified.

The yellow-blotched salamander subspecies has more specific habitat requirements than typically described for the full ensatina species. Ensatinas generally occur in coniferous forest, deciduous forest, oak woodland, coastal sage scrub, and chaparral (Stebbins 1951). The yellow-blotched salamander subspecies, however, occurs most often in mountain meadow and mixed-conifer type habitats (USFS 2006b). CaliforniaHerps (2013) similarly describes this subspecies as occurring in evergreen and deciduous forests. Occurrence of the yellow-blotched salamander is positively correlated with canyon live oak, but is negatively correlated with blue oak (Block and Morrison 1998). In general, mean canopy cover in areas occupied by the yellow-blotched salamander exceeded 55 percent (Germano 2006).

As a genus, ensatinas generally are generally abundant at edge habitats and seem to prefer flat or gently sloping shelves above flood level to steep terrain. According to Stebbins (1951), however, the yellow-blotched salamander subspecies is more prevalent in north-facing areas that are shaded, especially near creeks and streams, where they are found under rocks, logs, and other surface debris, especially under fallen bark near decaying logs (CaliforniaHerps 2013). Soils are generally loamy and relatively warmer and moister than the ambient temperature and humidity (Germano 2006). This subspecies stays inside moist logs, animal burrows, under roots, woodrat nests, and under rocks during dry or very cold weather (CaliforniaHerps 2013).

Ensatinas, as a group, eat a wide array of foods. They feed on a variety of small animals, especially arthropods. Their diet includes, but is not limited to, spiders, mites, beetles, sowbugs, crickets, springtails, centipedes, millipedes, termites, earthworms, ants, and snails (Gnaedinger and Reed 1948; Zweifel 1949; Stebbins 1951, 1954; Altig and Brodie 1971; Bury and Martin 1973; Lynch 1985). Most of the species' feeding occurs at night during wet periods (Stebbins 1954). Prey items are most often located under surface objects.

Surface activity of ensatinas is highly correlated with surface moisture (Stebbins 1951, 1954). Yellow-blotched salamanders are most active on rainy or wet nights when temperatures are moderate. During hot and dry periods, they remain inactive underground or in cool, moist areas, such as animal burrows or logs (CaliforniaHerps 2013). Although ensatinas lose body water content rapidly on dry substrates, they can withstand considerable dehydration (Cohen 1952; CaliforniaHerps 2013). Yellow-blotched salamanders are also inactive underground during severe winter weather (CaliforniaHerps 2013).

The home range of ensatinas has been estimated to be up to 1 acre (USFS 2006b). Stebbins (1954) estimated maximum width of home ranges to be 33 to 135 feet (10 to 41 meters) [mean = 64 feet (19.5 meters)] for males, and 20 to 75 feet (6 to 23 meters) [mean = 33 feet (10 meters)] for females. Males have about twice the home range as females. The movement of juveniles was similar to females (Stebbins 1954).

Documented predators of yellow-blotched salamanders include Pacific giant salamanders (*Dicamptodon ensatus*), California red-legged frogs (*Rana aurora*), garter snakes (*Thamnophis* spp.), rubber boas (*Charina bottae*), raccoons (*Procyon lotor*), and Steller's jays (*Cyanocitta stelleri*) (Morey and Basey 2005; Wake et al. 1989). In addition, beetle larvae, Jerusalem crickets (*Stenopelmatus* spp.), arboreal salamanders (*Aneides lugubris*), ringneck snakes, sharp-tailed snakes (*Contia tenuis*), white-footed mice (*Peromyscus leucopus*), shrews, and bears are documented as possible predators (Stebbins 1954).

Distribution and Population Trends

The population trends of the yellow-blotched salamander are unknown, but reported observations allow for a characterization of the species' general range and distribution. The yellow-blotched salamander is endemic to California. The species' known range includes Kern and Ventura Counties in California, extending from the Piute Mountains southwest along the Tehachapi Mountains toward Alamo Mountain (Jennings and Hayes 1994). Yellow-blotched salamanders are found at elevations ranging from 1,400 to 7,496 feet amsl (427 to 2,285 meters) at Piute Peak in Kern County (Jennings and Hayes 1994). This subspecies is known to occur in the Tehachapi Mountains, Mount Pinos, near Fort Tejon, and near Frazier-Alamo Mountain (CaliforniaHerps 2013).

Reasons for Decline

Although ensatinas are usually common where present (AmphibiaWeb 2013), the very narrow distributional range of the yellow-blotched salamander makes it susceptible to changes in habitat. At the same time, the yellow-blotched salamander is much more widespread and abundant than Stebbins (1949) originally thought, largely because until recently most of its range had been poorly examined (Jennings and Hayes 1994). In addition, concerns regarding the yellow-blotched salamander's susceptibility to decline by the pet trade are now less significant since selling California amphibians and reptiles has become illegal (Nicola 1981), but poaching is still a concern.

Development and the cutting of oak woodland in the Tehachapi Mountains pose potential threats to the yellow-blotched salamander (Jennings and Hayes 1994). Logging operations on Alamo Mountain (Ventura County) may also pose a threat to this species (LPFW 2007). The Tehachapi Mountains, Cummings Valley, and Bear Valley areas south of California Highway 58, which represent a substantial portion of the range of the yellow-blotched salamander (Jennings and Hayes 1994), have undergone significant development. Existing and planned development has largely focused on oak woodlands, which is likely the most important habitat used by yellow-blotched salamanders (Jennings and Hayes 1994). In addition, other land uses such as cattle grazing, hunting, camping, agriculture, and mining, may directly or indirectly impact yellow-blotched salamanders by altering habitat or creating soil disturbance (Jennings and Hayes 1994; Germano 2006). Feral pigs may also cause damage to habitat while rooting for food. However, as noted above, available information is not sufficient to determine that the species is declining.

ENVIRONMENTAL BASELINE

Presence/absence surveys were conducted in all suitable habitat within the TMV Planning Area. Yellow-blotched salamanders were observed in drainages in the southwestern portion of the Covered Lands generally east of Grapevine Peak, in the vicinity of Silver, Monroe, Squirrel, Palos Altos, Johnson Canyons, and along Bear Trap Canyon and its tributaries. The CNDDB reports one occurrence of yellow-blotched salamander within the Covered Lands, in a drainage adjacent to and north of Rising Canyon.

Suitable habitat for yellow-blotched salamander was modeled for all Covered Lands. The model included all areas with a canopy of greater than 40 percent coverage on north-facing slopes at all elevations for the Covered Lands. Because presence/absence survey results in the TMV Planning Area were positive and because the Covered Lands are within the range of this species, the yellow-blotched salamander is expected to occur in modeled suitable habitat within Covered Lands with distributions similar to those found within the TMV Planning Area. The modeling concluded that the Covered Lands support 35,213 acres of suitable habitat for the yellow-blotched salamander.

Although 35,213 acres of suitable habitat for yellow-blotched salamander were modeled on Covered Lands, it is unlikely that all modeled habitat would be saturated with the species. Some modeled habitat may not contain the microhabitat features required by this species, so not all modeled habitat is expected to be occupied by yellow-blotched salamanders.

Recovery

The yellow-blotched salamander is not listed under the ESA, so we have not developed a recovery plan for the species to which we can refer to assess its recovery status. In the absence of a recovery plan, we default to the general conservation of the species. For a species like the yellow-blotched salamander with a narrow distribution and that has lost large areas of its habitat, recovery would focus on the conservation of much of the remaining habitat that supports the

species. In addition, restoration of suitable habitat that has been disturbed but otherwise remains undeveloped would be a priority. Lastly, efforts to establish the species in unoccupied but otherwise suitable habitat (either natural or man-made) would contribute to its recovery. Suitable habitat has been identified on the Covered Lands that could support the species (35,213 acres of modeled suitable habitat). In general terms, where suitable habitat exists, it should be conserved and where possible, additional habitat should be created or restored.

EFFECTS OF THE ACTION

Much of the following analysis is nearly identical to that provided for the Tehachapi slender salamander. The two species are somewhat similar in habits, although the yellow-blotched salamander is likely more widespread and occupies a broader range of habitats. Otherwise, the potential effects from the Covered Activities are projected to be the same.

Planwide Activities

Livestock

The Applicant proposes to graze livestock on the balance of the action area outside the development areas, consistent with the types and levels of historical grazing and ranch management practices. We are not aware of any direct or indirect effects of cattle grazing on yellow-blotched salamanders. We do not expect that cattle would trample yellow-blotched salamanders because the species spends most of its life under cover protected from the weather and presumably direct trampling. The highest risk to the yellow-blotched salamander would occur in winter during rains when the species may be above ground, but we conclude that risk is negligible because the odds of cattle being present in the vicinity of occupied habitat coinciding with the time the species is above-ground are very low. The impacts of continued grazing upon the yellow-blotched salamander would be negligible.

Range Management/Ancillary Ranch Structures

Range management activities support livestock operations and consist of construction, operation, and maintenance of watering facilities, feeding areas, fences, and corrals, consistent with the types and level of historical grazing and ranch management practices; repair, reconstruction, and relocation of roads to accommodate historical grazing and ranch management practices; and repair, maintenance, or installation of ranch management communication equipment (e.g., whip antennas) that are less than 20 feet high. The repair, reconstruction and relocation of roads to accommodate historical grazing and ranch management practices are evaluated below under Roads. Range management also incorporates ancillary ranch structures including squeezes, loading chutes, holding and feeding fields, corrals, branding traps, barns, sewage disposal facilities, livestock and wildlife watering facilities, and utilities serving existing ranch uses.

As described above under Planwide Activities in the Description of the Proposed Action section, *de-minimis* activities associated with ancillary ranch structures would be covered under the

TUMSHCP. Non–*de minimis* activities associated with ancillary ranch structures are also allowed (1) if the activity is located in disturbed areas (e.g., undergrounding utilities in road rights-of-way), or (2) following a meet-and-confer process with the Service to ensure that the activity associated with an ancillary ranch structure avoids or adequately minimizes impacts to Covered Species and their habitats.

We do not know of any range management activities that would have an effect on yellow-blotched salamanders. The activities associated with range management are limited to the 200-acre limit, occur at a small scale relative to the size of the action area, and are mostly in place and are unlikely to require much if any additional space to accommodate livestock care, so we do not anticipate any additional loss of yellow-blotched salamander habitat. In addition, the TUMSHCP requires a grazing management plan be developed and approved by the Service to ensure that grazing activities maintain existing modeled suitable habitat for the species. We therefore conclude that the effects of range management and ancillary ranch structures on the yellow-blotched salamander would be negligible.

Fuel Management

Fuel management practices will consist primarily of grazing to keep grasses and weeds at bay and the effects of fuel management should be largely consistent with the effects of livestock. The effects on yellow-blotched salamanders of fuel management by grazing should be largely consistent with the effects of livestock, as described above (i.e., potential trampling during the rainy season, but small potential for effects from grazing to control fuel).

Other fuel management activities include fuel modification zones created (1) by existing roads, and (2) through irrigation and/or vegetation clearing and mowing within 120 feet surrounding existing structures (i.e., backcountry cabins, ancillary ranch structures, and other existing structures. These other fuel modification methods are not likely to have a direct impact on the yellow-blotched salamander because the species is found in habitat where fuel modification is not likely to be necessary. Also, irrigation of fuel modification zones is not likely to affect yellow-blotched salamanders because the species requires moist habitats and seek refuge under structure where moisture is maintained and fuel modification is not necessary. Mowing may have the effect of removing vegetative cover, but yellow-blotched salamanders are more likely to be under cover that cannot be mowed, except during rainy periods when they may be moving above ground within vegetation that may be mowed. At these times, mowing is not likely to be occurring so the likelihood that yellow-blotched salamanders would be directly affected by mowing is low. We conclude that the effects of fuel management on yellow-blotched salamander would be negligible.

Fuel management associated with proposed development is discussed below under Commercial and Residential Development Activities.

Filming

Filming activities generally consist of temporary on-scene filming and photography-related uses, including, but not limited to the filming and staging of movies, television shows, and commercials; photo shoots; and still photography and related uses. Such activities may include the erection and dismantling of props, temporary installation of trailers and equipment for film crews, filming of on-camera action, catering, rehabilitation of disturbed areas, and the movement of film crews to and from locations.

Filming activities may affect yellow-blotched salamanders by disturbing habitat or directly impacting individual animals. Film crews, workers, vehicles, and equipment may injure or kill yellow-blotched salamanders if the filming area is occupied by the species. These effects would be exacerbated during the rainy season if yellow-blotched salamanders are moving above ground. Also, any modification of suitable cover, such as removal of debris or disturbance of cover could kill or injure yellow-blotched salamanders and expose them to predators, unfavorable weather conditions (i.e., dry), and desiccation. The TUMSHCP requires BMPs prior to installation or other ground disturbing activities, including avoiding ground disturbance near yellow-blotched salamander habitat, as well as surveys and capture and relocation of any individuals observed that could be at risk from the activities (see Table 2 and Sections 2.2.1 and 7.1.1.1.3 of the TUMSHCP). These measures should effectively minimize the potential effects of filming on the yellow-blotched salamander.

Recreation

Recreation associated with the Planwide Activities includes private recreation by TRC, its employees and guests and public access is governed by the Interim RWMP and managed by the Conservancy. Such recreational use is also subject to the terms of the TUMSHCP and the terms of Service-approved conservation easements. Private recreation by TRC currently occurs throughout the Covered Lands, while public recreation, which generally consists of docent led tours by the Conservancy per the Interim RWMP, occurs in the Established Open Space portion of the Mitigation Lands. These public and private recreation uses are limited to passive activities listed in the Project Description. Recreation activities associated with Planwide Activities would occur in open space areas generally outside the TMV Planning Area at a relatively small scale, and have infrequent impacts. Recreational uses by TRC, its employees, and the public are limited by the access guidelines and best management practices in the Interim RWMP and will be further regulated in Public Access Plans, which are subject to permanent Service review and approval. We note that future development in the TMV Planning Area will likely lead to increased recreation demand by TMV Project residents and guests, but the type and nature of the use is the same. All such recreational use in the protected open space will also be regulated in the Public Access Plan, which will require monitoring and enforcement and is subject to permanent Service review and approval. The effects of recreation on the yellow-blotched salamander in the TMV Planning Area Open Space are discussed separately under Commercial and Residential Development Activities.

Wherever recreation activities take place, they would occur at a relatively small scale. Further, TRC proposes to ensure that all private recreation be conducted in a manner that would avoid adverse impacts to the Covered Species and their habitats. This proposal would minimize impacts to the yellow-blotched salamander, but we expect recreation to still have some effect on the species in the action area were it to occur in those locations identified in the Baseline section where the species is known to occur on the Covered Lands. The proposed recreation activities should not cause meaningful new habitat disturbance, but yellow-blotched salamanders could occasionally be injured, killed, or disturbed by recreation activities. In addition, despite the environmental education proposed by TRC, residents, TRC employees, and others using the action area may capture, potentially injure, or otherwise alter yellow-blotched salamander behavior and disrupt feeding, breeding, or sheltering activities by moving or altering cover. We conclude that such occurrences would be rare because the species is scattered and uncommon, such that few such encounters between humans and yellow-blotched salamanders are likely to occur. We therefore conclude that the effects of recreation on the yellow-blotched salamander would be negligible.

Recreation associated with proposed development is discussed below under Commercial and Residential Development Activities.

Irrigation/Water Diversion

The action area contains existing water diversions for irrigation of agriculture inside and outside the action area, and a few small agricultural areas totaling about 232 acres exist in the TMV Planning Area (e.g., small vineyards and an orchard near Castac Lake). Agricultural uses that remain in open space after TRC identifies the final development footprint will continue subject to State and local regulations. We do not expect habitat loss for the yellow-blotched salamander due to these water diversions because the Applicant has proposed to avoid construction in areas where the species occurs (see Baseline section for known occurrences) and is found during pre-activity surveys (Table 2 of this biological opinion and Section 7.1.1.3 of the TUMSHCP). In addition, maintenance and relocation work, if any, is subject to the survey and avoidance requirements in the TUMSHCP, and prior to TRC relocating water diversions, the Service would review and approve the proposed new locations. Also, due to repeated disturbance, irrigation of agricultural areas by these facilities is unlikely to have an effect on yellow-blotched salamanders because the species would not be present (i.e., irrigated lands do not support suitable habitat for yellow-blotched salamander).

Agricultural uses that remain in open space after TRC identifies the final development footprint will continue. We do not anticipate any adverse impacts to yellow-blotched salamanders from ongoing agricultural activity because these areas do not provide suitable habitat for the species.

Roads/Trails

A network of generally unpaved roads exists in the action area. As described in the TUMSHCP, roads outside of the development areas would be maintained, relocated, or new roads could be

constructed, to facilitate the proposed Planwide Activities, subject to the 200-acre limit. Motorized vehicles, horses, off-highway vehicles, bicycles, etc. using roads/trails outside of development areas could injure or kill yellow-blotched salamanders that may away from their preferred cover (i.e., during breeding season); however, we expect that use of roads outside of the development areas would be infrequent, and that yellow-blotched salamanders would rarely be on roads, and then usually at night when vehicles or people are not using the roads and trails. Also, yellow-blotched salamanders are not likely to be found far from their preferred cover. We conclude that injury or mortality of yellow-blotched salamanders would be unlikely as a result.

We expect road maintenance to have a minimal effect on the species because they are not likely to be found far from their preferred cover and are not likely to be present on pre-existing disturbed roadways (see Table 2 and Sections 2.2.1 and 7.1.1.1.3 of the TUMSHCP). Overall, the effects of use of roads and trails from Planwide Activities on the yellow-blotched salamander would be negligible.

The direct and indirect effects of roads in the development areas as a result of residential and commercial development are addressed below under Commercial and Residential Development Activities.

Utilities

The action area contains, or would contain, various small utilities to support ranch activities. As described in Section 2.2.1 of the TUMSHCP, these utilities would be *de minimis* or would be located in previously disturbed areas (e.g., undergrounding utilities in road rights-of-way). Any utilities associated with Planwide Activities that are not *de minimis* or cannot be located in previously disturbed areas would require Service review and approval prior to relocation or construction.

Installation or maintenance of utilities to support ranch activities may affect yellow-blotched salamanders by disturbing habitat, or injuring or killing individuals. We expect utilities to have at most, a minor impact on the yellow-blotched salamander, because -utility posts and towers have small footprints, the utilities affect a very small percentage of the action area, and TRC's proposal to survey project areas and relocate observed yellow-blotched salamanders (Section 7.1.1.3 of the TUMSHCP) should minimize the potential for adverse impacts to yellow-blotched salamanders during utility installation/maintenance. Consequently, we expect that the effects of utilities on the yellow-blotched salamander would be negligible.

Potential impacts by utilities associated with the proposed development are included in the discussion of effects of Commercial and Residential Development Activities below.

Backcountry Cabins

Eight backcountry cabins occur in the action area and could be maintained, improved, repaired, replaced, or reconstructed in their existing location. Human use of the cabins should not cause

meaningful new habitat disturbance, and the Applicant proposes to ensure that all cabin use be conducted in a manner that would avoid adverse impacts to the Covered Species, including the yellow-blotched salamander. Currently, the Interim RWMP requires that new or relocated cabins be first subject to a site evaluation to avoid impacts to sensitive natural resources, such as yellow-blotched salamander. In addition, prior to relocating an existing cabin, TRC would allow the Service to review and approve (if appropriate) the proposed new location. Consequently, we expect the effects from the backcountry cabins on the yellow-blotched salamander to be minimal due to the avoidance and minimization measures proposed by the Applicant (Table 2 and Sections 2.2.1 and 7.1.1.3 of the TUMSHCP).

Fencing

Fences exist throughout the action area. Fences would be maintained and new fencing could be constructed and maintained as required to support the proposed activities, including exclusion of cattle from sensitive habitats that support Covered Species, which could have the benefit of protecting yellow-blotched salamander habitat. The Applicant proposes to design and locate new fencing to avoid known occurrences of the yellow-blotched salamanders (Table 2 and Section 2.2.1 of the TUMSHCP). This should effectively minimize the direct impacts of fences on yellow-blotched salamanders

Lebec/Existing Headquarters Area Uses

Existing activity in the Lebec/Existing Headquarters Area (i.e., corporate headquarters buildings, an antique shop, a post office, a church, and several single-family residences for ranch employees) would continue to occur. While additional development could occur here under the TUMSHCP, the Applicant has not included development plans for this area in the project description. The effects of such potential development is discussed in the Commercial and Residential Development Activities below. We expect that activities associated with use of this area will have no effect on the yellow-blotched salamander, because the species does not occur in these locations.

Mitigation, Monitoring, and Management

Mitigation, monitoring, and management activities to carry out identified biological goals and objectives for the Covered Species included in the TUMSHCP or other resource agency permits for the commercial and residential Covered Activities, as well as mitigation, monitoring, and management activities imposed pursuant to any local, State, or Federal approval of development on Tejon Ranch would be carried out in accordance with the Act and would be subject to Service review. We acknowledge that other agencies may credit the Applicant for mitigation and protective measures included in the TUMSHCP for mitigation imposed by such other agencies. Any restoration, enhancement, or similar mitigation activities would not be allowed if they would result in unpermitted adverse effects to species or critical habitat under the Act. Additionally, any mitigation activities for other agencies would be subject to the protective measures included in Tables 1 and 2, in the Description of the Proposed Action section of this

biological opinion. Therefore, we anticipate that any potential threats to the yellow-blotched salamander as a result Mitigation, Monitoring, and Management activities would be effectively minimized.

Estimate of Disturbance Due to Planwide Activities

The Applicant proposes a maximum of 200 acres of ground disturbance associated with the Planwide Activities described above. These ground disturbances would occur outside of the proposed development (discussed below) and may be permanent or temporary. The disturbance would primarily be associated with construction of roads, backcountry cabins, and ancillary structures. If the Applicant restores a portion of this disturbance, an area equal in size may then be disturbed. Thus, no more than 200 acres may exist in a developed condition because of Planwide Activities at one time.

For the purposes of this effects analysis, we assume that all parts of the action area that could be affected by Planwide Activities have an equal chance of being affected and that all habitat types would be affected in equal proportion. This assumption is based upon TRC's inability to predict exactly where 200 acres of habitat disturbance due to Planwide Activities would occur. Also, for the purposes of estimating species-specific habitat disturbance by Planwide Activities, we are not using the 8,817-acre development envelope used by the Applicant to estimate impacts from development (TUMSHCP Table 2-1, footnote 4), but rather we are using the 5,533-acre area that actually could be developed within the development envelope. We did this, because after the 5,533-acre development footprint is developed, 3,284 acres of the 8,817-acre development envelope would remain and be subject to Planwide Activities, and modeled habitat for the yellow-blotched salamander could occur in the 3,284 acres. Therefore, we included 3,284 acres of the development envelope in this analysis to acquire an estimate of habitat lost by Planwide Activities that is as accurate as possible.

When we combine this estimate with anticipated habitat loss from commercial and residential development in a summary effects analysis (discussed below), we will have slightly double-counted and overestimated the amount of yellow-blotched salamander habitat that would be lost in the action area. This slight overestimation of lost habitat does not compromise our analysis, because the overlap is very small relative to the size of the action area, and this approach ensures that potential species impacts are fully considered by analyzing a larger impact than would actually occur. Lastly, we assume that all parts of the action area that could be affected by Planwide Activities have an equal chance of being affected and that all habitat types would be affected in equal proportion.

Excluding commercial and residential development areas, the National Cement and La Liebre Mines, the VA Cemetery, and Not-A-Part lands (blocks of land within the boundary of the action area but not owned by TRC), a total of 12,423 acres within the exterior boundaries of the plan area are not subject to Planwide Activities. We expect that Planwide Activities could occur on the remaining 129,463 acres of the action area (141,886 acres within the action area minus the 12,423 acres of excluded areas above). Therefore, the ratio of disturbance due to Planwide

Activities (200 acres) to covered lands subject to Planwide Activities (129,463 acres) equals 0.0015. We applied this ratio to yellow-blotched salamander habitat outside the excluded areas but in the action area and rounded the remainder up to a whole acre. Thus, 35,213 acres of modeled habitat minus 1,179 acres lost to development (discussed below) equals 34,034 acres of modeled suitable yellow-blotched salamander habitat within the action area. Using our ratio of 0.0015, we anticipate that Planwide Activities would disturb or remove approximately 51 acres of modeled suitable habitat for the yellow-blotched salamander over the permit duration or approximately one-tenth of 1 percent of the remaining 34,034 acres of modeled in the action area. This could be an overestimate because the Applicant is proposing measures to minimize and avoid disturbance to yellow-blotched salamander habitat, as described in Table 2 of this biological opinion and listed in Section 7.1.1.3 of the TUMSHCP.

Thus, while there could be a very small loss of yellow-blotched salamander modeled suitable habitat due to Planwide Activities, in comparison to the modeled suitable habitat conserved, we conclude that the loss would have a minimal effect on the species. Based on estimated home range size of this species of approximately 1 acre (USFS 2006b), and assuming saturation of all modeled suitable habitat and a uniform distribution, this would amount to a potential loss of habitat supporting up to 51 individuals due to Planwide Activities; however, because not all modeled suitable habitat is expected to be occupied by this species, we assume that the number of individuals that could be lost with the permanent loss of 51acres due to Planwide Activities would be fewer than the estimated 51 individuals. The expected loss of yellow blotched salamander would likely be a smaller but indeterminable number. Consequently, we conclude that the effects of Planwide Activities on the yellow blotched and its habitat would be minimal under the TUMSHCP and would not appreciably reduce the species' reproduction, numbers or distribution in the Covered Lands or rangewide.

<u>Commercial and Residential Development Activities</u>

Direct Effects

The Covered Activities could result in temporary impacts to modeled suitable habitat for the yellow-blotched salamander. We do not have an exact acreage for these temporary effects. The total area of permanent (not temporary) loss due to development of modeled suitable habitat is expected to be 1,179 acres, so the temporary effects should be less, in part because TRC has proposed to minimize the footprint of work areas and mark the limits within which Covered Activities that result in habitat loss may occur (Table 2 and Sections 2.2.3 and 7.1.1.3 of the TUMSHCP). Also, because the effects are temporary, with the Applicant's proposed restoration actions following disturbance (per other likely permit requirements from the CDFW and U.S. Army Corps of Engineers), we would expect the modeled suitable habitat for the yellow-blotched salamander to be able to support the species in the future, thus further reducing the area of impact to modeled suitable habitat.

The principal permanent effect of the proposed development on the yellow-blotched salamander would be from habitat loss due to roads, structures, and infrastructure. Development as a

Covered Activity would result in the permanent loss of 3 percent of the total modeled yellow-blotched salamander habitat in the Covered Lands. This habitat loss includes any modeled habitat for the yellow-blotched salamander lost as a result of development activities in the Lebec/Existing Headquarters Area. Based on 1,179 acres of modeled suitable habitat for yellow-blotched salamander within Covered Lands, and on the estimated home range size of this species of approximately 1 acre (USFS 2006b), and assuming saturation of all modeled suitable habitat and a uniform distribution, this would amount to a potential loss of habitat supporting up to 1,179 individuals. Because not all modeled habitat is expected to be occupied by this species, we assume that the number of individuals that could be lost with the permanent loss of 1,179 acres within Covered Lands would be much fewer than the estimated 1,179 individuals based upon the suitable habitat model. The expected loss of individual yellow-blotched salamanders would likely be a smaller but indeterminable number. In any case, the loss of only 3 percent of the modeled suitable habitat to development (1,179 acres) is a small impact compared to the 35,213 acres of suitable habitat modeled on the Covered Lands.

We conclude that the permanent loss of approximately 3 percent of modeled suitable habitat within the Covered Lands due to development and a small but indeterminable number of individuals potentially occupying that habitat would not appreciably reduce the species' reproduction, numbers or distribution within the Covered Lands or over the species range, which is described in the Status of the Species section. With the additional avoidance and minimization measures required for development activities (as described in Table 2 and Section 2.2.3 of the TUMSHCP), the loss of individual yellow-blotched salamanders caused by development would likely be less.

Indirect Effects

Proposed development under the TUMSHCP may also result in the following additional indirect effects to the yellow-blotched salamander: introduction of non-native species; lighting effects on habitat occupied by the yellow-blotched salamander; recreation, fuel management, and pollution.

Once established, some invasive species have the ability to displace or replace native plant and animal species, disrupt nutrient cycles, and cause changes in the pattern of plant succession. Native amphibian and reptile populations may be threatened by exotic invasive species of plants and animals, including other reptiles and amphibians. As habitats are changed and plant community organization is modified by exotic species, the relationships between plants and animals may be altered or eliminated. For example, Argentine ants are more aggressive than native ants and have been found to displace the natives and are now widespread throughout California. These ants may also play a role in disrupting and depressing the arthropod community within natural areas, and, therefore, might affect a number of amphibian species, including the yellow-blotched salamander (Haas et al. 2002). We do not know whether, or to what extent, the introduction of Argentine ants or other non-native species may affect the yellow-blotched salamander. The TUMSHCP incorporates measures to address the introduction of Argentine ants and other invasive species (see Table 2 of this biological opinion). We are not aware of any

threats posed to the species currently by non-native plants or animals elsewhere throughout the species' range, although such introductions are of general conservation concern.

Night lighting can affect the normal diurnal/nocturnal cycles of some wildlife. If the lighting is bright enough or directed toward areas used by primarily nocturnal species, they may respond by becoming active later and be displaced by the physiological stress caused by the disruption. We do not expect this to be a substantial impact on the yellow-blotched salamander because the species is more likely to be above ground in response to weather (wet and mild conditions) than in response to day/night cycles, and under the TUMSHCP, the Applicant has proposed to direct lighting, where it is needed and away from natural areas (Table 2 and Section 2.2.3 of the TUMSHCP).

In terms of recreation, the increased population of the development areas is likely to increase the pressure for recreational activities, particularly in the TMV Planning Area. Recreational activities allowed within the TMV Planning Area Open Space are limited to passive recreation as described above under Planwide Activities and in the Project Description. Even so, in the SDEIS for the TUMSHCP, we estimated that the TUMSHCP would increase the human population of the TMV Planning Area by 11,441 people and we expect the recreational activities of future residents of the TMV Planning Area to cause a higher level of disturbance and impacts in this area than in other parts of the action area that are more remote. If recreation occurs in occupied habitat, it could potentially alter yellow-blotched salamander behavior, including feeding, breeding, or sheltering activities, if present.

To minimize impacts of recreation, TRC would provide Home Owners' Association(s) with educational information regarding acceptable activities in open space areas, including recreational activities and pet restrictions. In addition, the TUMSHCP would require that recreation in the TMV Planning Area Open Space, be conducted in a manner that would avoid adverse impacts to the Covered Species and their habitats or result in less-than-significant impacts. At a minimum, the recreation activities would be planned to avoid sensitive species and known occurrences, and the TUMSHCP would require the use of existing roads and trails where possible. Because the species is rare and encounters between humans and yellow-blotched salamanders are unlikely to occur, we anticipate that recreation would have at most minor effects on the yellow-blotched salamander.

The Applicant proposes to clear and thin vegetation within 200 feet of the proposed development, creating up to a 1,773-acre fuel modification zone. As discussed above, the habitats occupied by the Tehachapi slender salamander are not likely to be subject to vegetation clearance, so effects on the yellow-blotched salamander from fuel management in development areas should be negligible.

Another potential indirect effect of development involves changes to water quality as a result of construction activities and occupancy. Because amphibians have permeable skin (to facilitate respiration) and eggs that may readily absorb toxins, the introduction of chemicals to the environment as a result of construction activities may have an effect on yellow-blotched

salamanders. Pollutants, runoff of pesticides, waterborne pathogens, and sediment can all affect water quality, and these factors can in turn affect amphibians such as the yellow-blotched salamander. For the most part, the discharge of such chemicals will be avoided through best management practices and compliance with laws (such as the Clean water Act) regulating the release of pollutants into water bodies or the environment in general. We do expect that some pollutants may escape into areas occupied by yellow-blotched salamanders on rare occasions; however, exposure of yellow-blotched salamander to pollutants is likely to be rare because the species does not occupy water, per se, but restricts its activities to moist areas under other cover such as rocks, logs and other surface debris. They do not seek open water like other amphibians that may be more susceptible to pollutants resulting from discharge into streams or ponds. We expect the effects of pollution and runoff on the yellow-blotched salamander to be minimal, if it occurs at all, in the face of the Applicant's proposed measures to avoid and minimize these effects (see Table 2 and Section 2.2.3 of the TUMSHCP).

TUMSHCP Mitigation

The Applicant proposes to preserve in perpetuity virtually all of the action area outside the development envelope, including 33,988 acres of modeled suitable habitat for the yellow-blotched salamander. The proposed conservation of approximately 97 percent of modeled suitable habitat for the yellow-blotched salamander is consistent with conservation biology principles calling for large, interconnected blocks of habitat that support a given species' life history requirements.

Summary of Effects Analysis

In determining whether a proposed action is likely to jeopardize the continued existence of a species, we consider the effects of the action with respect to the reproduction, numbers, and distribution of the species. We also consider the effects of the action on the recovery of the species. In that context, the following paragraph(s) summarize(s) the effects of the proposed TUMSHCP on the yellow-blotched salamander.

The Planwide Activities and the proposed development are likely to have some effect on the yellow-blotched salamander. As stated above, the Applicant estimates that up to 1,179 acres of modeled suitable habitat could be lost due to development, and we have calculated that in the remainder of the action area that Planwide Activities could affect an additional 51 acres of modeled suitable habitat for the yellow-blotched salamander, for a total of 1,230 acres of lost modeled suitable habitat for the species. Using average home range size for yellow-blotched salamanders (1 individual per acre), we estimate that up to 1,230 individual yellow-blotched salamanders could theoretically occur on the 1,230 acres of modeled suitable habitat converted due to Planwide Activities and development. However, this is likely an overestimate that exaggerates the impact of the Covered Activities on the yellow-blotched salamander because the modeled suitable habitat is not likely to be saturated with the species and they typically occur in a clumped pattern so that suitable habitat could be affected that is devoid of yellow-blotched salamanders.

In addition, Planwide Activities, including recreation and roads/trails, and the potential indirect effects of development, including non-native species and night lighting, could have effects on the yellow-blotched salamander, although we expect these effects to be minor for reason explained earlier. Under the TUMSHCP, the Applicant would conserve 33,988 acres (approximately 97 percent, including acres lost to Planwide Activities) of the modeled suitable habitat for the yellow-blotched salamander on the Covered Lands. In addition, the TUMSHCP proposes measures to avoid and minimize the effects of Planwide Activities and development-related impacts to the yellow-blotched salamander, as listed and described in Table 2. We conclude that the combination of avoidance and minimization measures proposed by the Applicant to reduce the effects of both Planwide and development Covered Activities, and the conservation of almost all modeled suitable habitat on the Covered Lands, would allow the Covered Activities to proceed under the proposed ITP without appreciably reducing the reproduction, numbers, and distribution of the yellow-blotched salamander within the Covered Lands or rangewide. The preservation of 97 percent of the modeled suitable habitat for the yellow-blotched salamander is consistent with the principles of conservation biology and should contribute to the species' recovery.

Recovery

The yellow-blotched salamander is not a listed species, and there are no recovery criteria with which to compare the current and future status of the species. The proposed action would result in a small (relative to the species' larger geographic range) reduction in the species numbers, reproduction and distribution within the action area but would not appreciably affect the reproduction, numbers or distribution of the yellow-blotched salamander rangewide. The proposed action would also result in the permanent conservation of 97 percent of suitable modeled habitat for the species within the action area, which would have long-term, stabilizing benefits to the species by securing a portion of the species' range from future habitat loss, thus addressing a primary reason for the species' decline.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section, because they require separate consultation pursuant to section 7 of the Act.

<u>Hunting</u>

Private and commercial hunting operations occur on Tejon Ranch, including the action area; however, hunting is not an activity covered by the TUMSHCP. The Applicant proposes to continue hunting operations throughout the ranch during the proposed permit term. The Applicant proposes to manage the hunting program to avoid take of any federally protected species. Hunting in the TMV Planning Area would be limited to guided hunts. Hunting

activities involve travel on existing paved and unpaved roads, overnight use of backcountry cabins, hiking, discharging hunting weapons, etc. The effects from hunting will generally be consistent with, and to a considerable extent are captured in, the descriptions of effects for Roads/Trails, Backcountry Cabins, and Recreation described above. Therefore, we expect that hunting in the action area will have negligible cumulative effects on the yellow-blotched salamander.

Mining

Two commercial mining operations occur in the action area, La Liebre and National Cement; these mining operations are not covered activities under the TUMSHCP. The total area used for the two operations is about 2,636 acres, and the Applicant would maintain the mining leases through the proposed permit term. The species is not known to occur in proximity to the mine; however, the Applicant estimates that up to 181 acres of modeled suitable habitat may be present in the mining areas. Because much of the mining areas are already disturbed and regular mining activity occurs in these areas, we expect that the yellow-blotched salamander is not likely to be present and that continued mining in the action area will have no cumulative effects on the species.

Other Activities

As discussed above under project description, within the external boundaries of the Covered Lands, there are existing inholdings and utilities. The Bakersfield National Cemetery also occurs inside the Covered Lands. These projects and activities are not Covered Activities under the TUMSHCP. We are not aware of any reasonably foreseeable activities within the 3,870 acres of inholdings that may affect the yellow-blotched salamander. Activities associated with existing utilities, transmission lines and associated structures, such as maintenance, would be restricted to existing easement areas, and would have minor, if any, effects on the yellow-blotched salamander. Therefore, we do not anticipate any cumulative effects from the ongoing maintenance and operation of non-covered existing utilities. The Bakersfield National Cemetery is in place, and we are not aware of any activities associated with the cemetery that may have an adverse effect on yellow-blotched salamanders.

CONCLUSION

After reviewing the current status of the yellow-blotched salamander, the environmental baseline for the action area, the effects of the proposed TUMSHCP and the cumulative effects, it is the Service's biological opinion that the implementation of the TUMSHCP, as proposed, is not likely to jeopardize the continued existence of the yellow-blotched salamander. We have reached this conclusion for the following reasons:

1. Almost all (approximately 97 percent) of the modeled suitable habitat for the yellow-blotched salamander within the Covered Lands would be conserved in perpetuity while only 3 percent of suitable habitat would be permanently lost.

2. In addition to preservation of most of the yellow-blotched salamander habitat on the Covered Lands, TRC has proposed multiple measures to avoid and minimize the effects the Covered Activities (Sections 2.2.1, 2.2.3, and 7.1.1.3 of the TUMSHCP). These measures should substantially reduce the effect of specific activities, such as the introduction of non-native species or utility installation, on the yellow-blotched salamander.

3. The proposed action will not interfere with potential future efforts to aid in the yellow-blotched salamander's recovery, but should instead contribute to the species' conservation by protecting in perpetuity almost all suitable habitat for the species on the Covered Lands.

The species is not listed under the Act; therefore, no critical habitat has been designated for this species or would be affected.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened wildlife species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The proposed TUMSHCP and its associated documents identify anticipated impacts to the yellow-blotched salamander likely to result from the proposed taking and the measures that are necessary and appropriate to minimize those impacts. All conservation measures described in the proposed plan together with the terms and conditions described in the associated Implementing Agreement and any section 10(a)(1)(B) permit issued with respect to the proposed TUMSHCP, are hereby incorporated by reference as reasonable and prudent measures and terms and conditions within this Incidental Take Statement pursuant to 50 CFR §402.14(i). Such terms and conditions are non-discretionary and must be undertaken for the exemptions under section 10(a)(1)(B) and section 7(o)(2) of the Act to apply. If the permittee fails to adhere to these terms and conditions, the protective coverage of the section 10(a)(1)(B) permit and section 7(o)(2) may lapse. The amount or extent of incidental take anticipated under the proposed TUMSHCP,

associated reporting requirements, and provisions for disposition of dead or injured animals are as described in the TUMSHCP and its accompanying section 10(a)(1)(B) permit.

Amount or Extent of Take

We anticipate that the incidental take of yellow-blotched salamanders will be difficult to detect for the following reasons: the species is cryptic and rarely seen away from cover, and its small body size means that killed or injured individuals would be difficult to detect. As described above, we estimated the number of yellow-blotched salamanders affected by habitat loss under proposed action by using the total loss of modeled suitable yellow-blotched salamander habitat expected under the TUMSHCP (1,179 acres due to development and 51 acres due to Planwide Activities) in combination with estimated home range size of this species of approximately 1 acre to derive an estimate of 1,230 yellow-blotched salamanders that could occur within habitat removed as a result of the proposed action. For reasons explained in the Effects Analysis section, we consider the potential loss of up to 1,230 yellow-blotched salamanders lost due to habitat conversion to be an overestimate and anticipate that a smaller but indeterminable number of yellow-blotched salamanders would be taken. Because using a numerical estimate overstates the level of take likely under the proposed action, we consider loss of habitat to be a more reliable measure of take of yellow-blotched salamanders. Therefore, we estimate that a portion of the yellow-blotched salamanders associated with the loss of 1,230 acres of modeled suitable habitat will be taken in the form of harm under the proposed action and the limit of take exempted under this biological opinion and authorized under the proposed ITP would be reached when loss of modeled suitable habitat for yellow-blotched salamanders reaches 1,230 acres.

The Applicant has also proposed, prior to ground disturbance, to survey for and capture and relocate any yellow-blotched salamanders that may be in harm's way to minimize or avoid potential take in the form of harm to the yellow-blotched salamander. Any individual yellow-blotched salamanders captured to avoid or minimize harm are also considered taken. For the reasons given above, we anticipate that the number of yellow-blotched salamanders that would be captured is very low, and likely would be a subset of the individuals that could possibly occupy the affected 1,230 acres of modeled suitable habitat. Therefore, take in the form of capture and harm of yellow-blotched salamanders within 1,230 acres of affected modeled suitable habitat is anticipated by the proposed activities.

In summary, we anticipate that given all possible sources of take, all yellow-blotched salamanders within the affected 1,230 acres of modeled suitable habitat may be harmed or captured during the proposed activities.

Effect of the Take

In the accompanying biological opinion, the Service determined that the take of yellow-blotched salamanders associated with loss of 1,230 acres of modeled suitable habitat is not likely to result in jeopardy to the yellow-blotched salamander.

REASONABLE AND PRUDENT MEASURES / TERMS AND CONDITIONS

The measures described in the TUMSHCP, associated documents and the Section 10(a)(1)(B) permit will effectively minimize the effects of any potential take of yellow-blotched salamander under the permit. Consequently, we are not including additional non-discretionary reasonable and prudent measures and implementing terms and conditions in this incidental take statement.

COAST HORNED LIZARD

STATUS OF THE SPECIES

Regulatory History

The coast horned lizard is not federally listed under the Act; however, the species is designated as a Species of Special Concern by CDFG (2012). Because the coast horned lizard is not federally listed, critical habitat has not been designated for this species.

Natural History/Habitat Requirements

The coast horned lizard has a relatively flat and wide, oval-shaped body; scattered, enlarged, pointed scales on the upper body and tail; and a crown of "horns" or spines on the sides and back of the head, four of which are large and sometimes curved (Jennings and Hayes 1994). The dorsal color is highly variable but is typically is reddish, brown, yellow, or gray, with dark blotches on the back and large dark spots on the sides of the neck. The ventral side is cream, beige, or yellow, usually with dusky spots, and the belly scales are smooth (Jennings and Hayes 1994).

Coast horned lizards hibernate over winter and emerge from hibernation in March or April, although museum records document surface activity as early as February (Hager and Brattstrom 1997). They are active on the ground surface in April through July; however, juveniles can be active through October (Hager and Brattstrom 1997). In hotter areas, adults may aestivate during the hottest months and reappear again briefly in late summer, returning to overwintering sites between August and early October depending upon elevation (Klauber 1939; Howard 1974; Hagar 1992).

The daily diurnal activity of coast horned lizards is closely tied to surface temperature. As surface temperature reaches at least 66°F just prior to sunrise, lizards emerge from burial sites in the substrate into a position that allows them to bask in the first rays of the sun (Heath 1965; Hagar 1992). Although horned lizards emerge at relatively low temperatures, the optimum temperature range for activity is 84°F to 102°F. Horned lizards avoid temperatures over 104°F by literally swimming into the substrate to cover themselves with loose soil (Stebbins 1954). In the later afternoon, individuals re-emerge from the substrate and resume full activity (Jennings and Hayes 1994). Coast horned lizards often display high site-fidelity because effective temperature regulation requires familiarity with their surroundings (Heath 1965).

In Southern California, the male coast horned lizard reproductive cycle begins during mid- to late March and ends in June (Goldberg 1983). Coast horned lizards lay one clutch of six to 17 eggs (average of 11 to 12 eggs) each year from May through early July (Stebbins 1954; Howard 1974; Goldberg 1983). Incubation requires approximately 2 months and hatchlings first appear in late July and early August (Shaw 1952; Howard 1974; Hagar 1992). Male and female coast horned lizards require 2 to 3 years to reach sexual maturity (Stebbins 1954; Howard 1974;

Pianka and Parker 1975; Goldberg 1983). Data on longevity in the wild are lacking, but adults are thought to be relatively long-lived (i.e., greater than 8 years) (Baur 1986).

Coast horned lizards are "sit-and-wait" predators, and up to 90 percent of the species' diet consists of native ants (Pianka and Parker 1975). The species does not appear to eat non-native Argentine ants (*Linepithema humile*) (Jennings and Hayes 1994, Suarez et. al. 2000), but coast horned lizards opportunistically eat other slow moving insects, such as beetles, flies, and caterpillars (Presch 1969; Pianka and Parker 1975). Whitford and Bryant (1979) found that the coast horned lizards feed most often on ants that were not associated with nest discs or foraging columns and took only a few ants at any one place. They found that hatchlings feed exclusively on the native ants *P. rugosus* and *P. desertorum*, taking an average of three ants per "meal" and retreating to the shelter of a low shrub or grass where they remained for about 20 to 30 minutes before feeding again.

Few studies have estimated density/home range for *Phrynosoma coronatum* (Hager 1992, Gerson 2011) and the results are inconsistent. More home range research has focused on other horned lizard species (Turner and Medica 1982, Munger 1984, Fair and Henke 1999, Wone and Beauchamp 2003), and *P. coronatum* appears to have a smaller home range than *P. cornutum*. Munger (1984) estimated home ranges for *P. cornutum* and found males averaged 5.9 acres and females averaged 3.4 acres, while the combined average home range size of both sexes of *P. coronatum* in studies by Hager (1992) and Gerson (2011) is only 0.13 acre.

Despite a wide-ranging distribution, the coast horned lizard seems to be restricted to localized populations because of its association with loose soils that have a high sand content (Jennings and Hayes 1994). The species is found in a wide variety of vegetation types with the requisite loose sandy soils, including California sagebrush scrub, annual grassland, chaparral, oak woodland, riparian woodland, and coniferous forest (Klauber 1939; Stebbins 1954). Other identified habitat characteristics include open areas with limited overstory for basking and low, but relatively dense shrubs for refuge (Jennings and Hayes 1994). In inland areas, the species is restricted to areas with pockets of open microhabitat, created by disturbance (e.g., floods, fire, roads, grazed areas, firebreaks) (Jennings and Hayes 1994).

Distribution and Population Trends

The coast horned lizard is broadly distributed in California, occurring in the foothills of the Sierra Nevada from Butte County to Kern County and throughout most of coastal central and Southern California in locations west of the deserts and Cascade–Sierran highlands, in elevations from sea level to around 8,000 feet (Figure 1 of this biological opinion; Zeiner et al. 1988; Stebbins 2003). As noted above, the species has a wide-ranging distribution, but seems to be restricted to localized populations because of a specialized diet and habitat association (Jennings and Hayes 1994).

We do not have a rigorous estimate of current acreage in the species' range. However, using geographic information systems (GIS) software, we calculated that the outer boundary of the

shaded area in Figure 1 (Vindum 1997), a coarse-scale map that excludes some areas of lost habitat (e.g., the Central Valley and parts of Los Angeles and Orange Counties), covers an area of approximately 24 million acres. Using GIS, we further excluded urban areas and intensive agriculture and arrived at an estimate of approximately 19 million acres in the range of the coast horned lizard. This calculation undoubtedly includes substantial areas of naturally unsuitable habitat for the species; therefore, the species' actual range is smaller than our estimate.

No range-wide population estimates are available. As of 1994, the species' range had been reduced by approximately 35 to 45 percent due to urban and agriculture expansion (Jennings and Hayes 1994). Other sources have confirmed that the species is in decline as a result of habitat alteration, loss, and fragmentation in its range (Suarez et. al. 1998, Fisher et. al. 2002, Leaché et. al. 2009, CDFG 2011a). The CDFG designated the coast horned lizard as a Species of Special Concern "because of declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction" (CDFG 2011b).

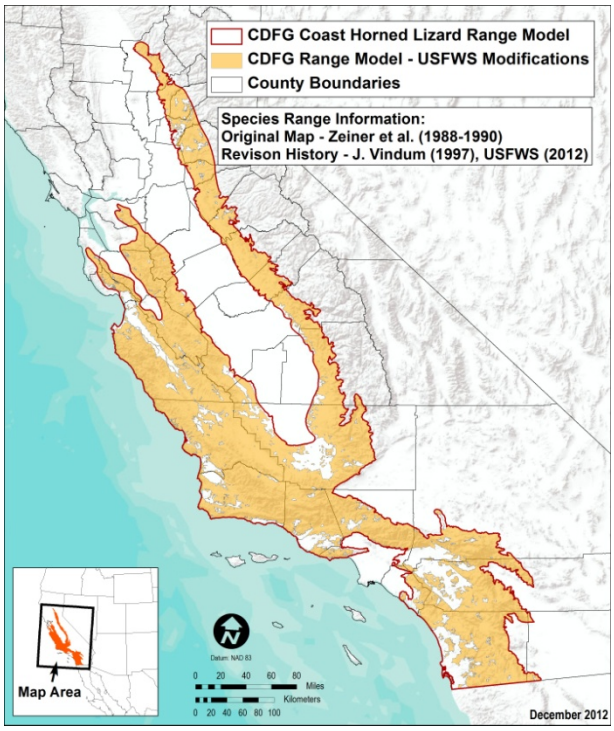


Figure 1. Estimated range of the coast horned lizard

Reasons for Decline

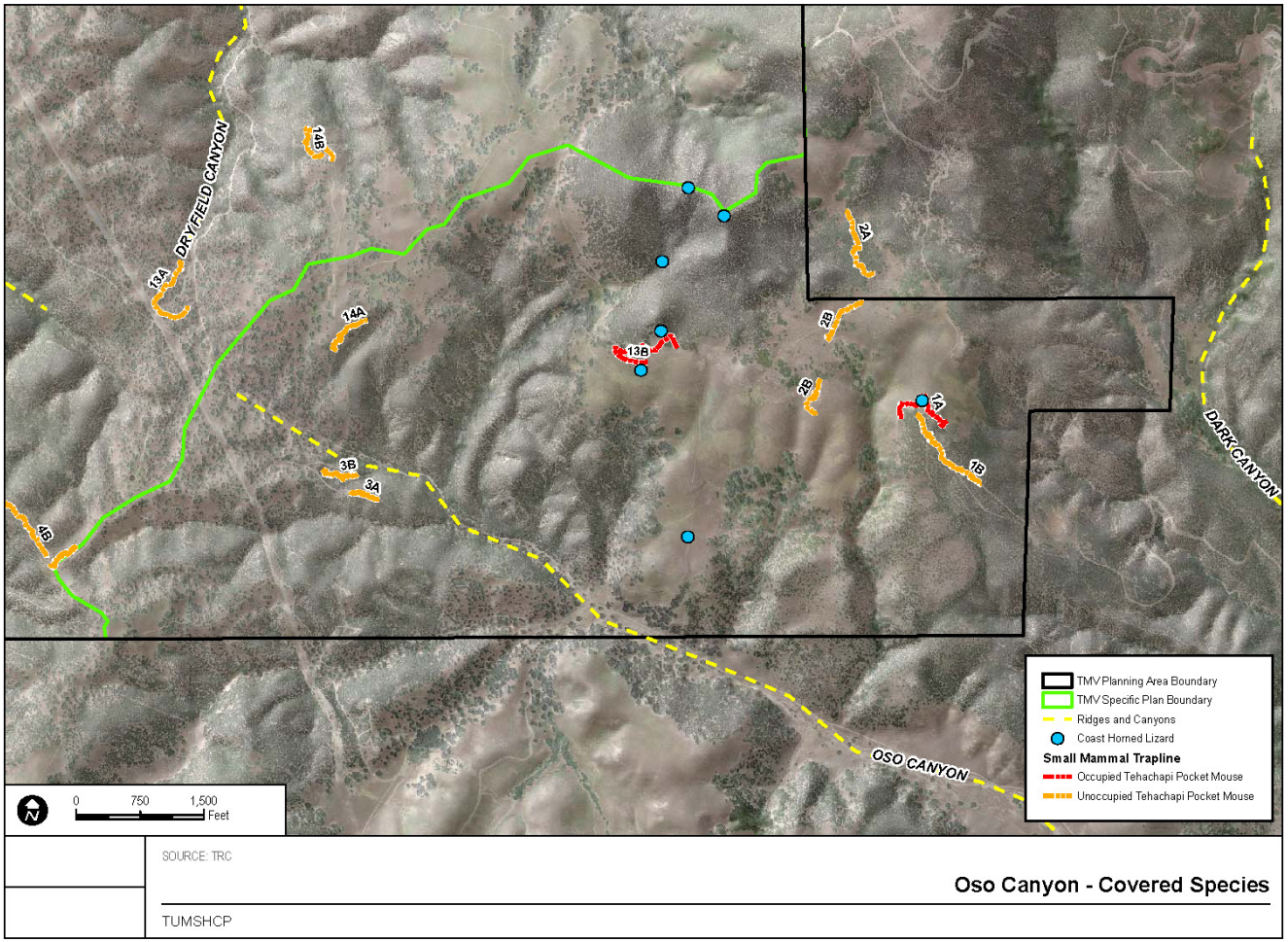
The primary reason for the species decline is the conversion of the species' habitat to urban and agriculture uses. Jennings and Hayes (1994) concluded that 45 percent of the former range of the coast horned lizard had been lost to human activities, and that percentage has undoubtedly risen since 1994. The species is especially vulnerable to habitat disturbance and fragmentation. Individuals may be unable to disperse to or find alternate habitat due to specialized habitat and diet requirements, as well as the species' relatively sedentary nature and limited mobility (Jennings and Hayes 1994).

Other reasons for the species decline include habitat fragmentation, collection for the curio trade that occurred up until 1981, pets (especially cats), off-road vehicles, over-grazing, frequent fires that may cause long-term habitat transitions from scrub to annual grasslands, and vehicle collisions (Jennings and Hayes 1994).

Perhaps the most recent and substantial threat to the coast horned lizard is displacement of native ant species by non-native Argentine ants. Argentine ants colonize disturbed soils associated with building foundations, roads, and landfills, and expand into adjacent areas, eliminating native ant colonies (Ward 1987). In most of its range, the Argentine ant can displace most or all of the

native ant populations. Because 90 percent or more of the diet of the coast horned lizard consists of native harvester ants (Pianka and Parker 1975, Suarez et. al. 2000), and neither Argentine ants nor other potential arthropod prey provide adequate nutrition for coast horned lizards (Suarez and Case 2002), Argentine ants can eliminate the primary food source of the coast horned lizard. Suarez and Case (2002) determined that this impact has reduced the number of coast horned lizards in Southern California.

Figure 2. Coast horned lizard and Tehachapi pocket mouse occurrences in the Oso Canyon area.



ENVIRONMENTAL BASELINE

The Applicant conducted a habitat assessment (Dudek 2009) for the coast horned lizard in the action area based on known habitat associations and elevational limits of the species. Although the Applicant did not conduct focused surveys, incidental observations of coast horned lizards during other wildlife surveys were recorded. Surveyors observed coast horned lizards in 2001, 2002, and 2005 in Rising Canyon, north of Castac Lake on a ridge above Silver Canyon, and eight occurrences were documented and mapped in the Oso Canyon development area (Figure 2; Impact Sciences, Inc. 2004; Jones and Stokes 2006a). In addition, the Tejon Conservancy reported frequent observations of coast horned lizards in the action area (M. White, Tejon Ranch Conservancy, pers. comm., 2012). Therefore, we expect the species to occur in suitable habitat throughout the action area.

The Applicant modeled suitable habitat for the coast horned lizard, including primary and secondary habitat, at all elevations in the action area (Figure 5-22 of the TUMSHCP). Suitable primary habitat is defined as the main habitat used by coast horned lizards and that meets all of its life history requirements. Suitable secondary habitat is defined as habitat that may be used less frequently and may not be adequate to meet all or most life history requirements of the species. Modeled suitable primary habitats for the coast horned lizard on Covered Lands are grassland, scrub, wash, woodland (less than 70 percent canopy cover), and conifer. Modeled suitable secondary habitats on Covered Lands are riparian woodland, riparian scrub, and riparian/wetland.

The action area contains 41,083 acres of modeled suitable primary habitat and 62 acres of modeled secondary habitat for the coast horned lizard. Determining the potential number of coast horned lizards within the action area and development areas is difficult, and several factors confound such an estimate. First, coast horned lizards have narrow habitat requirements and suitable habitat tends to occur in a patchy distribution. Given the relatively coarse scale of the suitable habitat model, we do not expect suitable habitat for the coast horned lizard to occur uniformly within modeled suitable habitat. Second, livestock graze in modeled suitable habitat. Livestock usually tend to degrade wildlife habitat; however, studies suggest that some horned lizard species respond neutrally or favorably to light to moderate grazing (Reynolds 1979, Castellano and Valone 2006, Newbold and MacMahon 2008). Third, the species' cryptic coloration, along with daily and seasonal inactivity patterns, reduces the probability of observation and the certainty of abundance or density estimates, limiting the extent to which one can reliably extrapolate from these estimates. Finally, using home range size to calculate density is difficult for this species, because average home range is variable between sites, home ranges are variable between individuals, males usually have larger home ranges than females, and home ranges often overlap. In addition, few studies have estimated home range/density for the coast horned lizard (Hager 1992, Gerson 2011) and the results are inconsistent. More home range research has focused on other horned lizard species (Turner and Medica 1982, Munger 1984, Fair and Henke 1999, Wone and Beauchamp 2003).

To develop an estimate of coast horned lizard population size in the action area, we used results from Hager (1992) and Gerson (2011), the only two studies of home range/density in the coast horned lizard. Home range size averaged 0.25 acre in Hager's study and density in Gerson's study was 95.5 per acre (equivalent to a home range of 0.01 acre). Using this range of estimates, the modeled primary habitat for the coast horned lizard in the action area could contain between 164,332 and 4,108,300 coast horned lizards. Likewise, the 3,959 acres of primary coast horned lizard modeled habitat that would be permanently lost due to Covered Activities could contain between 15,836 and 395,900 coast horned lizards. Averaging the two home range estimates (equals 0.13-acre home range), we arrive at population estimates for the action area and development areas of 316,023 and 30,454, respectively. See Table 4.

Coast horned lizards may occur locally at high density; however, coast horned lizards in the action area have and continue to experience minor adverse effects from livestock trampling, construction and maintenance of ranch roads, off-road vehicle travel, and other ranch management related construction and activities that could injure individual coast horned lizards or cause permanent or temporary habitat disturbance or fragmentation. Given these conditions, the challenges associated with estimating coast horned lizard numbers in the action area, the biology of the species, the patchy nature of the species' preferred habitat, and the small number of available studies, we conclude that it is unlikely that coast horned lizards occur at high density throughout modeled suitable habitat. For the purposes of analysis, we have averaged the population estimates in the available studies to come up with an assumed population of coast horned lizards. However, we acknowledge that because of the varying home range estimates and paucity of data, this averaged population estimate is inherently uncertain.

Table 4. Summary of various population estimates (using acres of modeled primary habitat) for the coast horned lizard in the action area.

	Hager 1992	Gerson 2011	Hager/Gerson Median	Hager/Gerson Average Home Range
Action area	164,332	4,108,300	2,136,316	316,023
Development areas	15,836	395,900	205,868	30,454

Recovery

The coast horned lizard is not listed under the ESA, so we have not developed a recovery plan for the species to which we can refer to assess its recovery status. In the absence of a recovery plan, we default to the general conservation of the species. For a species like the coast horned lizard that has lost a large percentage of its former known occupied habitat, recovery would necessitate the conservation of much of the remaining habitat that supports the species. In addition, restoration of suitable habitat that has been disturbed but otherwise remains undeveloped would be a priority. Lastly, efforts to establish the species in unoccupied but otherwise suitable habitat would contribute to its recovery.

The coast horned lizard has been observed on the Covered Lands, and suitable habitat has been identified that could support the species (41,145 acres total of modeled suitable habitat). Therefore, the Covered Lands may serve a role in the conservation of the coast horned lizard.

EFFECTS OF THE ACTION

Planwide Activities

Livestock

The Applicant proposes to continue grazing livestock on the balance of the action area outside development areas, consistent with the types and level of historical grazing and ranch management practices. Research has shown mixed effects of livestock on horned lizard species. Contrary to results for other lizard genera, *Phrynosoma* spp. in light to moderately grazed areas have been found in equal or higher densities than in ungrazed areas (Reynolds 1979, Castellano and Valone 2006, Newbold and MacMahon 2008). These results are likely driven by livestock suppressing vegetation and maintaining the open areas preferred by horned lizards. Light to moderate grazing (i.e., the intensity of grazing expected under the TUMSHCP) does not appear to substantially reduce the ant species preyed on by horned lizards (Castellano and Valone 2006, Newbold and MacMahon 2008). The Applicant proposes to manage open space lands to maintain the existing habitat conditions described in the TUMSHCP. In addition, under the TUMSHCP, the Applicant must submit grazing management plans to the Service every 5 years for review and approval. Our review of such plans will allow for the implementation of additional measures or modification of grazing practices to promote the compatibility of grazing with the conservation of the horned coast lizard.

The literature does not mention the direct impacts of livestock on horned lizards (e.g., trampling), and this is likely a very difficult event to witness. However, because horned lizards are slow moving and do not tend to flee danger, but instead remain motionless and rely on camouflage, we expect livestock to occasionally step on and injure or kill coast horned lizards in the action area. However, coast horned lizards are frequently seen in the action area, and it does not appear that grazing is having a measurable negative impact on the species' numbers in the action area. Relative to the large range-wide population of coast horned lizards, the impacts of livestock in the action area would be negligible.

Range Management/Ancillary Ranch Structures

Range management activities support livestock operations and consist of construction, operation, and maintenance of watering facilities, feeding areas, fences, and corrals, consistent with the types and level of historical grazing and ranch management practices; repair, reconstruction, and relocation of roads to accommodate historical grazing and ranch management practices; and repair, maintenance, or installation of ranch management communication equipment (e.g., whip antennas) less than 20 feet high. The repair, reconstruction and relocation of roads to accommodate historical grazing and ranch management practices are evaluated below under

Roads. Range management also incorporates ancillary ranch structures including squeezes, loading chutes, holding and feeding fields, corrals, branding traps, barns, sewage disposal facilities, livestock and wildlife watering facilities, and utilities serving existing ranch uses.

As described above under Planwide Activities in the Description of the Proposed Action section, *de-minimis* activities associated with ancillary ranch structures would be covered under the TUMSHCP. Non-*de minimis* activities associated with ancillary ranch structures are also allowed (1) if the activity is located in disturbed areas (e.g., undergrounding utilities in road rights-of-way), or (2) following a meet-and-confer process with the Service to ensure that the activity associated with an ancillary ranch structure avoids or adequately minimizes impacts to Covered Species and their habitats.

These activities occur at a small scale relative to the size of the action area, and range management facilities already exist in the action area. The Applicant is proposing to survey range management project areas that require grading and relocate observed coast horned lizards (see Table 2 and TUMSHCP Section 7.1.1.5.1). In addition, the Applicant would conserve eight occurrences of the coast horned lizard (all in Oso Canyon area) known at the time of permit issuance. This would reduce the potential for adverse impacts to individual coast horned lizards. With regard to range management activities that do not involve grading, we expect workers and vehicles, on occasion, to flush, injure, or kill coast horned lizards during range management. However, given the infrequent nature and small scale of range management, and the Service's ability to review and approve the Applicant's grazing management plan, we expect rare adverse effects to the coast horned lizard in the action area and negligible effects range-wide.

Fuel Management

Fuel management practices would consist primarily of grazing, and the effects of fuel management by grazing would be largely subsumed within the effects identified for livestock. Other fuel management activities include fuel modification zones created by existing roads, and through irrigation and/or vegetation clearing and mowing within 120 feet surrounding existing structures (i.e., backcountry cabins, ancillary ranch structures, and other existing structures). Mowing machines may, on occasion, injure or kill coast horned lizards; however, areas with vegetation dense enough to need mowing are less likely to be suitable for coast horned lizards. Therefore, we expect the impacts from fuel management by mowing to be infrequent and minor.

Fuel modification associated with proposed development is discussed below under Commercial and Residential Development Activities.

Filming

Filming activities generally consist of temporary on-scene filming and photography-related uses, including, but not limited to the filming and staging of movies, television shows, and commercials; photo shoots; and still photography and related uses. Such activities may include the erection and dismantling of props, temporary installation of trailers and equipment for film

crews, filming of on-camera action, catering, rehabilitation of disturbed areas, and the movement of film crews to and from locations.

We expect filming to cause temporary impacts to the species and its habitat, because filming occurs over a relatively short time frame, the Applicant would require that habitat disturbed by filming activities be restored to pre-filming conditions, no permanent construction would be allowed for filming, and the Applicant would require that temporary construction avoid sensitive resources. Film crews, workers, vehicles, and equipment may accidentally injure or kill coast horned lizards if the filming area is occupied. Food and trash left in or near coast horned lizard habitat could attract predators that prey on coast horned lizards. Post-filming restoration efforts that require regular irrigation could create favorable conditions, at least temporarily, for establishment of Argentine ants and indirect displacement of coast horned lizards. However, filming activities would be required to have a biologist on-site, surveys would be conducted prior to filming related uses, and the Applicant proposes measures (e.g., daily cleanup of trash; see Table 2 of this biological opinion, and TUMSHCP Section 2.2.1) to minimize impacts to the coast horned lizard and to manage open space lands to maintain the existing habitat conditions described in the TUMSHCP. In addition, we expect filming to be a relatively infrequent activity throughout most of the action area, and the Applicant would conserve eight occurrences of the coast horned lizard (all in Oso Canyon area) known at the time of permit issuance. Therefore, we do not expect filming activities to cause substantial impacts to the coast horned lizard within the action area.

Recreation

Recreation associated with the Planwide Activities includes private recreation by TRC, its employees and guests and public access is governed by the Interim RWMP and managed by the Conservancy. Such recreational use is also subject to the terms of the TUMSHCP and the terms of Service-approved conservation easements. While the private recreation by TRC occurs currently throughout the Covered Lands, public recreation, which generally consists of docent led tours by the Conservancy per the Interim RWMP, occurs in the Established Open Space portion of the Mitigation Lands. These public and private recreation uses are limited to passive activities listed in the Project Description. Recreation activities associated with Planwide Activities would occur in open space areas generally outside the TMV Planning Area at a relatively small scale, and have infrequent impacts. Recreational uses by TRC, its employees, and the public are limited by the access guidelines and best management practices in the Interim RWMP and will be further regulated in Public Access Plans, which are subject to permanent Service review and approval. We note that future development in the TMV Planning Area will likely lead to increased recreation demand by TMV Project residents and guests, but the type and nature of the use is the same. All such recreational use in the protected open space will also be regulated in the Public Access Plan, which will require monitoring and enforcement and is subject to permanent Service review and approval. An Interim Public Access Plan is currently in place that provides for docent-led public tours and requires pre-activity surveys prior to any ground-disturbing activities. We anticipate future levels of public access to be consistent with what occurs under the Interim Public Access Plan. The effects of recreation on the coast horned

lizard in the TMV Planning Area Open Space are discussed separately under Commercial and Residential Development Activities.

We expect recreation activities to occur in modeled habitat for the coast horned lizard, because the species' modeled habitat occurs on 41,083 acres (29 percent) of the action area across the entirety of the Covered Lands. If recreation does occur in occupied coast horned lizard habitat, it could potentially alter horned lizard behavior, including feeding, breeding, or sheltering activities. This could lead to increased energy expenditure, avoidance of suitable habitat, and increased predation risk. Recreation could cause direct effects including capture, or injury or death if hikers, bikers, horses, etc. crush individual horned lizards. To minimize the likelihood of this, under the TUMSHCP, all public and private recreation would be conducted in a manner that would avoid adverse impacts to the Covered Species and their habitats or result in less-than-significant impacts (see Table 2 of this biological opinion, and TUMSHCP Section 7.1.1.2.5), and recreation would be monitored and regulated by TRC staff, the Tejon Ranch Staff Biologist, or Conservancy docents, including provision of educational materials and restrictions on the location and types of any organized events. In addition, recreation would be monitored and regulated by TRC staff, the Tejon Ranch Staff Biologist, or Conservancy docents, including provision of educational materials and restrictions on the location and types of any organized events. Although such measures would reduce impacts to the coast horned lizard, we still expect recreation to adversely affect coast horned lizards in the action area. This is because coast horned lizards and the species' modeled habitat are relatively common in the action area, more so than other terrestrial Covered Species, and some activities (e.g., cycling, equestrian uses) will be difficult to structure such that impacts would be avoided entirely. Despite the environmental education and other measures proposed by the Applicant, we expect a subset of people recreating in the action area to pick up, potentially injure, or otherwise alter the behavior of coast horned lizards due to apathy or unfamiliarity with sensitive species and habitats. Therefore, it is unlikely that these measures will be able to avoid completely adverse effects to the coast horned lizard. However, recreational activities will be governed by a Public Access Plan, subject to the Service's review and approval, both during and following the end of the permit term into perpetuity. This process will allow the implementation of additional measures or modification of recreation activities (e.g., additional measures to ensure avoidance, additional supervision of recreation, etc.) to occur as needed to avoid or minimize impacts to the coast horned lizard.

Irrigation/Water Diversion

The action area contains existing water diversions for irrigation of agriculture, and a few small agricultural areas totaling about 232 acres exist in the TMV Planning Area (e.g., small vineyards and an orchard near Castac Lake). Agricultural uses that remain in open space after TRC identifies the final development footprint will continue subject to State and local regulations. We do anticipate any adverse impacts to coast horned lizards from on-going agricultural activity, because the Applicant is not proposing to expand agricultural operations, agricultural land is not suitable habitat for the species, and we do not expect coast horned lizards to occur in these areas.

Maintenance of irrigation/water diversion facilities could disturb small areas of coast horned lizard habitat, and the vehicles and workers conducting the maintenance could injure or kill horned lizards or alter horned lizard behavior and disrupt feeding, breeding, or sheltering activities. However, the Applicant is not proposing to expand agriculture or the current irrigation capacity/diversion capacity, irrigation/diversion facilities affect a very small part of the action area, and the ongoing operation of irrigation facilities would cause little additional impact to the coast horned lizard. In addition, maintenance and relocation work, if any, is subject to the survey and avoidance requirements in the TUMSHCP, and prior to TRC relocating water diversions, the Service would review and approve the proposed new locations. Therefore, we expect irrigation/water diversion to cause infrequent and negligible effects to the coast horned lizard.

Roads/Trails

A network of generally unpaved roads exists in the action area as access for fire protection, security, ranching activities, and hunting. As described in the TUMSHCP, the roads outside the development areas would be maintained, relocated, or new roads could be constructed, in compliance with the 200-acre limit on disturbance by Planwide Activities, to facilitate the Planwide Activities. Newly constructed roads and road maintenance could destroy coast-horned lizard habitat and/or injure and kill individuals that do not vacate the project area. The TUMSHCP requires new roads to be sited to avoid habitat to the extent practicable, and the Applicant is proposing survey, capture, and relocation efforts for this species when grading would occur. These measures would reduce the likelihood of injury or death of coast horned lizards during road construction/maintenance. However, it is not feasible for surveys to occur prior to each use of a road by a vehicle. Roads in open space areas would receive less frequent use, mainly by ranch and Conservancy employees or use in connection with Planwide Activities; however, we expect coast horned lizards to occasionally be adversely affected on these roads during the active season for the species (March through October). Both paved and unpaved roads provide open areas where coast horned lizards may seek to bask or forage. Motorized vehicles, horses, off-highway vehicles, bicycles, etc. could injure or kill coast horned lizards using roads/trails. However, given the low levels of traffic on open space roads, the controlled access provided by the Interim RWMP and future Public Access Plan, and the fact that roads and trails cover a small amount of the action area relative to the extent of modeled habitat, we expect roads/trails to have a minor impact on the coast horned lizard in the action area. The coast horned lizard occurs over a relatively large geographic range in Southern California (over 19 million acres) and the impacts of roads associated with Planwide Activities would have a negligible effect on the species.

The direct and indirect effects of roads as a result of residential and commercial development are addressed below under Commercial and Residential Development Activities.

Utilities

The action area contains, or would contain, various minor utilities to support ranch activities. As described in Section 2.2.1 of the TUMSHCP, these utilities would be *de minimis* or would be

located in previously disturbed areas (e.g., undergrounding utilities in road rights-of-way). Any utilities associated with Planwide Activities that are not *de minimis* or cannot be located in previously disturbed areas would require Service review and approval prior to relocation or construction. Installation or maintenance of utilities may affect coast horned lizards by disturbing habitat, or injuring or killing individuals. Although existing utility posts and suspended power lines may indirectly increase predation on coast horned lizards by providing supplemental perching for avian predators, the TUMSHCP prohibits an increase in the number of power lines aboveground in the covered lands. We expect utilities to have a minor impact on the coast horned lizard, because utility posts and towers have small footprints, the utilities affect a very small percentage of the action area, the Applicant proposed to avoid sensitive habitat to the extent practicable, and the Applicant would conserve eight occurrences of the coast horned lizard (all in Oso Canyon area) known at the time of permit issuance.

We address potential impacts by utilities associated with the proposed development under Commercial and Residential Development Activities.

Backcountry Cabins

Eight backcountry cabins occur in the action area and could be maintained, improved, repaired, replaced, or reconstructed in their existing location. Six of the cabins are in modeled suitable habitat for the coast horned lizard. Human use of the cabins should not cause meaningful new habitat disturbance. While we expect human use of cabins to occasionally impact coast horned lizards, the effects of backcountry cabins would be largely subsumed within the effects identified for recreation. If irrigation occurs around the cabins, Argentine ants may become established and affect coast horned lizards around the cabins.

The Applicant proposes to conserve eight occurrences of the coast horned lizard (all in Oso Canyon area) known at the time of permit issuance, and as described in the Interim RWMP, to ensure that all new or relocated cabins first are subject to a site evaluation to avoid impacts to sensitive natural resources. In addition, prior to TRC relocating an existing cabin, the Service would review and approve the proposed new location. This would ensure that the new cabin location is compatible with the conservation of the coast horned lizard. The total impact area of cabins (six cabins plus fuel management buffer) in modeled habitat is less than seven acres and we anticipate cabins and human use associated with cabins to have a negligible impact on the coast horned lizard in the action area and range-wide.

Fencing

Fences exist throughout the action area. Fences would be maintained and new fencing could be constructed and maintained as required to support the Covered Activities, including exclusion of cattle from sensitive habitats that support covered species. The Applicant proposes to design and locate new fencing to avoid known occurrences of the coast horned lizard (TUMSHCP Section 2.2.1). This should minimize the direct impacts of fences on coast horned lizards. Fences will likely provide perches for raptors and may locally increase predation; however, fences already

occur in the action area, and the proposed action would not increase this threat. In addition, the coast horned lizard appears to have strong population numbers in the action area. Therefore, fencing would not cause a measureable reduction coast horned lizard numbers in the action area and would have a negligible effect range-wide.

Lebec/Existing Headquarters Area Uses

Existing activity in the Lebec/Existing Headquarters Area (i.e., corporate headquarters buildings, an antique shop, a post office, a church, and several single-family residences for ranch employees) would continue to occur. While additional development could occur here under the TUMSHCP, the Applicant has not included development plans for this area in the project description. The ongoing activities associated with this area may affect the coast horned lizard, because small amounts of modeled suitable habitat for the species occurs in this area. Due to the nature of the activities occurring in this area, the impacts to the coast horned lizard would be largely subsumed within the effects identified for recreation and roads. Because the activities occur at such a small scale relative to the amount of modeled habitat in the action area, the effects on the coast horned lizard in the action area would be minor, and the effects would be negligible rangewide.

Potential development related impacts in the Lebec/Existing Headquarters Area are encompassed under Commercial and Residential Development Activities described below.

Mitigation, Monitoring, and Management

Mitigation, monitoring, and management activities to carry out identified biological goals and objectives for the California condor or other Covered Species included in the TUMSHCP or other resource agency permits for the commercial and residential Covered Activities, as well as mitigation, monitoring, and management activities imposed pursuant to any local, State, or Federal approval of development on Tejon Ranch would be carried out in accordance with the Act and would be subject to Service review. We acknowledge that other agencies may credit the Applicant for mitigation and protective measures included in the TUMSHCP for mitigation imposed by such other agencies. Any restoration, enhancement, or similar mitigation activities would not be allowed if they would result in unpermitted adverse effects to species or critical habitat under the Act. Additionally, any mitigation activities for other agencies would be subject to the protective measures included in Tables 1 and 2, in the Description of the Proposed Action section of this biological opinion. Therefore, we anticipate that any potential threats to the coast horned lizard as a result mitigation, monitoring, and management activities would be effectively minimized.

Estimate of Disturbance by Planwide Activities

The Applicant proposes a maximum of 200 acres of ground disturbance associated with the Planwide Activities described above. These ground disturbances would occur outside of the proposed development (discussed below) and may be permanent or temporary. The disturbance

would primarily be associated with construction of roads, backcountry cabins, and ancillary structures. If the Applicant restores a portion of this disturbance, an area equal in size may then be disturbed. Thus, no more than 200 acres may exist in a developed condition because of Planwide Activities at one time.

For the purposes of this effects analysis, we assume that all parts of the action area that could be affected by Planwide Activities have an equal chance of being affected and that all habitat types would be affected in equal proportion. This assumption is based upon the Applicant's inability to predict exactly where 200 acres of habitat disturbance due to Planwide Activities would occur. In addition, there is no indication that the distribution or location of coast horned lizard modeled habitat would cause Planwide Activities to disproportionately occur in coast horned lizard modeled habitat.

For the purposes of estimating species-specific habitat disturbance by Planwide Activities, we are not using the 8,817-acre development envelope used by the Applicant to estimate impacts from development (TUMSHCP Table 2-1, footnote 4), but rather we are using the 5,533-acre area that actually could be developed within the development envelope. We did this, because after development of the 5,533-acre development footprint, 3,284 acres of the 8,817-acre development envelope would remain and be subject to Planwide Activities, and modeled habitat for the coast horned lizard could occur in the 3,284 acres. Therefore, we included 3,284 acres of the development envelope in this analysis to acquire an estimate of habitat lost by Planwide Activities that is as accurate as possible. When we combine this estimate with anticipated habitat loss from commercial and residential development in a summary effects analysis (discussed below), we will have slightly double-counted and overestimated the amount of coast horned lizard habitat that would be lost in the action area. This slight overestimation of lost habitat does not compromise our analysis, because the overlap is very small relative to the size of the action area, and this approach ensures that potential species impacts are fully considered by analyzing a larger impact than would actually occur.

Adding together the acres of commercial and residential development, National Cement and La Liebre Mines, the VA Cemetery, and Not-A-Part lands (blocks of land within the boundary of the action area but not owned by the Applicant), a total of 12,423 acres are not subject to Planwide Activities. We expect that Planwide Activities could occur on the remaining 129,463 acres of the action area (141,886 acres within the action area minus the 12,423 acres of excluded areas above). Therefore, the ratio of disturbance due to Planwide Activities (200 acres) to Covered Lands subject to Planwide Activities (129,463) equals 0.0015. We applied this ratio to the 37,183 acres of coast horned lizard habitat outside the excluded areas but in the action area and rounded the remainder up to a whole acre. Using our ratio of 0.0015, we anticipate that Planwide Activities would disturb or remove approximately 56 acres (55 acres of primary habitat and 1 acre of secondary habitat) of modeled suitable habitat for the coast horned lizard over the permit duration. We acknowledge that this could be an overestimate because TRC is proposing measures to minimize disturbance to coast horned lizard habitat (see measures in the Description of the Proposed Action section above).

Thus, while there could be a small loss of coast horned lizard modeled suitable habitat due to Planwide Activities, in comparison to the modeled suitable habitat conserved, we conclude that the loss would have a minimal effect on the species within the action area. Consequently, the effects of Planwide Activities on the coast horned lizard and its habitat in the action area would be minimal under the TUMSHCP and would not appreciably reduce the species' reproduction, numbers or distribution in the Covered Lands or rangewide.

Commercial and Residential Development Activities

Direct Effects

The proposed residential and commercial development would permanently remove 3,962 acres (3,959 acres primary habitat, 3 acres secondary habitat) of modeled habitat for the coast horned lizard. This habitat loss includes any modeled habitat for the coast horned lizard lost as a result of development activities in the Lebec/Existing Headquarters Area. Based on our estimated home range size of this species (0.13 acre), and assuming saturation of all modeled primary habitat and a uniform distribution, 3,959 acres of modeled primary habitat theoretically could support up to 30,454 individuals. However, due to ongoing minor adverse effects and the patchy nature of the species' preferred habitat, we do not expect all modeled habitat to be occupied by the species, and the number of individuals that could be lost with the permanent loss of 3,959 acres due to development likely would be fewer than 30,454 individuals. In addition, some coast horned lizards may occur in the development envelope after development, either because the acreage expected to be lost to development is an overestimate, or due to individuals recolonizing suitable habitat after temporary displacement. Therefore, the expected loss of coast horned lizards would likely be a much smaller but indeterminable number than 30,454.

To minimize the effects of development on the coast horned lizard, the Applicant proposes to survey development areas prior to construction and relocate observed coast horned lizards. In addition, the Applicant proposes to conserve eight currently known occurrences of coast horned lizard in the southwestern portion of the TMV Planning Area, southeast of Dry Field Canyon and north of Oso Canyon, where the majority of occurrences were found during surveys in the action area. Both of these measures would reduce impacts to coast horned lizard individuals. Combined with our expectation that not all modeled habitat is occupied by the species, we conclude that the number of individuals that could be lost with the permanent loss of 3,959 acres of modeled suitable habitat in development areas would be significantly fewer than 30,454.

Indirect Effects

Development-related indirect impacts to coast horned lizards and modeled suitable habitat could occur where modeled habitat is near developed areas.

A major conservation challenge for the coast horned lizard, and a potential indirect effect of the Commercial and Residential Development Activities, is the expansion of Argentine ants. This invasive species spreads with development, irrigated landscaping, etc. and affects a variety of

taxa. The primary way in which Argentine ants affect the ecosystem upon which coast horned lizards depend is the displacement of the native ant species that make up 90 percent or more of coast horned lizard diet (Suarez et al. 2000, Suarez and Case 2002, Menke and Holway 2006). Coast horned lizards do not preferentially eat Argentine ants, and Suarez and Case (2002) showed that neither Argentine ants nor other potential arthropod prey provide adequate nutrition for coast horned lizards. Therefore, coast horned lizards tend to be absent from areas invaded by Argentine ants. Suarez et al. (1998) found that Argentine ant activity was negatively correlated with distance from urban edges, and argentine and density was highest within 325 feet of the urban edge. To some extent, we expect the same to be true in developed portions of the action area, causing coast horned lizards to be excluded from certain areas around the proposed development. The Applicant proposes to minimize urban runoff into "natural areas" to reduce the introduction of Argentine ants (TUMSHCP Section 7.2.1). The Applicant also proposes an Integrated Pest Management Plan that would include guidelines for the eradication of non-native, invasive plant and animal species, including the Argentine ant. These measures should reduce the extent to which areas around the proposed development contain Argentine ants, but the indirect effects of development could still contribute to an absence of coast horned lizards around developed areas. The estimated areal extent (likely similar to the 1,773-acre fuel modification zone) in which Argentine ants may affect the coast horned lizard is included in the 3,959 acres of modeled habitat estimated to be lost within the 8,817-acre development envelope.

The Applicant proposes to clear and thin vegetation within 200 feet of the proposed development, creating a 1,773-acre fuel modification zone. The expected intensity of disturbance associated with these activities alone should not preclude coast horned lizards from using this area; however, the ongoing maintenance of this area, whether by grazing or mechanized means, will likely cause disturbance, injury, or death of coast horned lizards; to some extent, depress population numbers in this area; and contribute to a reduction in coast horned lizards around developed areas. The estimated areal extent in which fuel modification may affect the coast horned lizard is included in the 3,959 acres of modeled habitat estimated to be lost within the 8,817-acre development envelope.

Recreational activities allowed within proposed Open Space areas are limited to passive recreation as described above under Planwide Activities. Even so, in the EIS for the TUMSHCP, we estimated that the TUMSHCP would increase the human population of the TMV Planning Area by 11,441 people and we expect the recreational activities of future residents of the TMV Planning Area to cause a higher level of disturbance and impacts in this area than in other parts of the action area that are more remote. If recreation occurs in occupied coast horned lizard habitat, it could potentially alter coast horned lizard behavior, including feeding, breeding, or sheltering activities. This could lead to increased energy expenditure, avoidance of suitable habitat, and increased predation risk. Recreation also could cause direct effects including capture, or injury or death if hikers, bikers, horses, etc. crush individual horned lizards.

To minimize impacts of recreation, the Applicant would provide Home Owners' Association(s) with educational information regarding acceptable activities in open space areas, including recreational activities and pet restrictions. In addition, the Applicant would restrict access to the

open space areas and require that recreation in the action area be conducted in a manner that would avoid adverse impacts to the Covered Species and their habitats or result in less-than-significant impacts. At a minimum, the recreation activities would be planned to avoid sensitive species and known occurrences, and the Applicant would require the use of existing roads and trails where possible.

Although these proposals would reduce impacts to the coast horned lizard, we still expect recreation to adversely affect coast horned lizards in the development areas. This is because coast horned lizards and the species' modeled habitat are relatively common in the development areas, more so than other Covered Species, and some activities (e.g., equestrian uses, behavior of pets) will be difficult to structure and enforce such that impacts would be entirely avoided. In addition, due to apathy or unfamiliarity with sensitive species and habitats, we expect a subset of people recreating in the action area to pick up, potentially injure, or otherwise alter the behavior of coast horned lizards in spite of environmental education provided by TRC or other entity. Therefore, it is unlikely that TRC will be able to avoid adverse effects of recreation on the coast horned lizard. To further minimize potential effects, recreational activities will be subject to the Public Access Plan to be reviewed and approved by the Service in perpetuity and approved conservation easements or other appropriately restricted conveyances over those lands. These measures would allow for implementation of additional minimization measures, as needed, to ensure recreational activities are conducted in a manner that is consistent with the conservation of the coast horned lizard.

Roads receiving the most use would be located in the TMV Planning Area and would receive relatively frequent use by automobiles, bicycles, etc. typical of residential/commercial areas. In the EIS for the TUMSHCP, we estimated that the TUMSHCP would increase the human population of the TMV Planning Area by 11,441 people resulting in 79,514 additional vehicle trips per day. We expect most of these vehicle trips to occur near the commercial areas, and the number of vehicle trips would decrease with distance from Interstate 5. Nonetheless, use of roads in the development areas would increase substantially over baseline conditions and would be likely to adversely affect the coast horned lizard.

Both paved and unpaved roads provide open areas where coast horned lizards may seek to bask or forage. Because horned lizards are slow moving and do not tend to flee danger, but instead remain motionless and rely on camouflage, we do not expect horned lizards to be able to avoid moving vehicles. We expect coast horned lizards to be injured or killed on roads in the TMV Planning Area during the active season for the species (March through October). Adverse effects from roads would be less likely between October and March when individual horned lizards are largely inactive.

New utilities to support development would be undergrounded, except that the two communication towers described under "Communication Towers" in the Description of the Proposed Action section above (also on page 4-52 and elsewhere in Section 4 of the TUMSHCP) would be installed above ground. Installing these utilities could cause temporary effects on coast horned lizards and the towers may slightly increase predation on the species in the immediate

vicinity of the towers. The Applicant proposed capture and relocation efforts that should minimize direct impacts of utility installation to coast horned lizards, and once installed, the undergrounded utilities would not cause ongoing impacts.

Given the extent of modeled habitat in and around the three development areas, the relative commonness of the coast horned lizard in the action area, and the number of people and pets expected to occupy and visit the TMV Planning Area and use that area for recreation, we expect that at full build-out of the proposed development, effects to individual coast horned lizards could occur on a regular basis during the active season for the species (March through October). Adverse effects would be rare between October and March when individual horned lizards will be largely inactive. Although the indirect impacts of development may affect many individual coast horned lizards within development areas, the larger geographic range of the species covers more than 19 million acres, and the effects to the coast horned lizard in the TMV Planning area would be minor relative to the species' rangewide population.

The indirect effects of the proposed development would cause some habitat fragmentation in the action area as well as and the loss of a small number of individuals; however, the modeled habitat in the action area represents a fraction of 1 percent of the species' rangewide habitat, which we estimate approaches 19 million acres, and the proposed development would not have an appreciable effect on the rangewide population.

TUMSHCP Mitigation

The Applicant proposes to preserve in perpetuity virtually all of the action area outside the development areas, including 37,125 acres (37,074 acres primary habitat, 51 acres secondary habitat) of modeled suitable habitat for the coast horned lizard. We estimate that 285,569 (316,023 total in action area, minus 30,454 in the development area) coast horned lizards could theoretically occur in the action area outside the development, and the Applicant would maintain the preserved land in its current condition. Based on published research, the intensity of grazing currently occurring in the action area is likely to be neutral or beneficial to the coast horned lizard. The proposed conservation of over 90 percent of modeled suitable habitat for the coast horned lizard is consistent with conservation biology principles calling for large, interconnected blocks of habitat that support a given species' life history requirements. This species has experienced habitat loss across its range, and the conservation of the Mitigation Lands would benefit the coast horned lizard by permanently securing them from future habitat loss in the action area and maintaining a large area of coast horned lizard habitat.

Summary of Effects

In determining whether a proposed action is likely to jeopardize the continued existence of a species, we consider the effects of the action with respect to the reproduction, numbers, and distribution of the species. We also consider the effects of the action on the recovery of the species. In that context, the following paragraphs summarize the effects of the proposed TUMSHCP on the coast horned lizard.

The Planwide Activities and the Commercial and Residential Development Activities would affect the coast horned lizard. As stated above, the Applicant estimates that up to 3,962 acres of modeled suitable habitat could be lost due to development, and Planwide Activities could affect an additional 56 acres of modeled suitable habitat for the coast horned lizard, for a total loss of 4,018 acres or approximately 10 percent of modeled suitable habitat within the action area. The lost habitat potentially supports 30,884 coast horned lizards, although this is likely an overestimate. This habitat loss would contribute to the incremental loss of habitat and coast horned lizards occurring within the species' range.

Coast horned lizards exhibit several behaviors that also make them vulnerable to adverse effects from Planwide Activities and indirect effects of development including crushing by vehicles and cattle, depredation or injury by pets, and collection by humans. Coast horned lizards are "sit-and-wait" predators and they exhibit stationary or "freezing" defensive behavior rather than fleeing from threats, and basking sites may include the edges of paved and unpaved roads and trails. These characteristics make them particularly vulnerable to capture, vehicle and bicycle collisions, and/or crushing by horses and cattle. While these impacts would be most likely during the warmer months when adults and young are most active on the surface, coast horned lizards could be injured or killed during colder months if they are crushed while in burrows. Therefore, we expect that Planwide Activities and indirect effects of development could result in additional, ongoing impacts to coast horned lizards in the action area including disturbance, capture, injury, and death. These ongoing impacts would occur from collisions with vehicles, off-highway vehicles, and bicycles; collecting by the public; predation or injury by pets; and trampling by horses or livestock. Taking into consideration our estimate of 316,023 coast horned lizards in the action area, our expectation that the development areas will not be entirely absent of coast horned lizards throughout the permit term, and the expected increase in human use of the action area, a few hundred individuals could potentially be impacted annually.

The coast horned lizard occupies a relatively large geographic range, which we estimate approaches 19 million acres. The action area constitutes less than 1 percent of the species' range, and the majority of modeled suitable habitat for the species within the action area would be permanently protected under the TUMSHCP. The number of coast horned lizards that would be potentially affected by the proposed TUMSHCP is small relative to the expected population in the species' geographic range. Under the TUMSHCP, 37,125 of the 41,145 acres (90 percent) of modeled suitable habitat for the coast horned lizard in the action area would be permanently conserved, securing occupied habitat and preventing future habitat loss in the action area. The TUMSHCP also includes measures to avoid and minimize the effects of Planwide Activities and development related effects on the coast horned lizard (see Table 2 of this biological opinion, and TUMSHCP Section 7.1.1.5.1). Therefore, considering the potential direct and indirect effects of the TUMSHCP, the proposed measures to avoid and minimize those effects, and the conservation of modeled suitable habitat in the action area to mitigate for unavoidable impacts, the TUMSHCP would not appreciably affect the reproduction, numbers, or distribution of the coast horned lizard rangewide.

Recovery

The coast horned lizard is not a listed species, and the Service does not prepare recovery plans for non-listed species; therefore there are no recovery criteria with which to compare the current and future status of the species. In the absence of a recovery plan, we default to the general conservation of the species, and recovery would focus on determining the species' distribution and the conservation of much of the remaining habitat that supports the species. In general terms, where suitable habitat exists, it should be conserved and where possible, additional habitat should be created or restored. The proposed action would have a negative effect on the species in the action area but would not appreciably affect the reproduction, numbers, or distribution of the coast horned lizard rangewide. The proposed action would result in the permanent conservation of 90 percent of modeled habitat for the species within the action area, which would have long-term, stabilizing benefits to the species by securing a portion of the species' range from future habitat loss, thus addressing a primary reason for the species' decline.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section, because they require separate consultation pursuant to section 7 of the Act.

Hunting

Private and commercial hunting operations occur on Tejon Ranch and in Covered Lands; however, hunting is not an activity covered by the TUMSHCP. The Applicant proposes to continue hunting operations throughout the ranch during the proposed permit term. The Applicant proposes to manage the hunting program to avoid take of any federally protected species. Hunting in the TMV Planning Area would be limited to guided hunts. Hunting activities involve travel on existing paved and unpaved roads, overnight use of backcountry cabins, hiking, discharging hunting weapons, etc. The hunting operations have been ongoing for decades, and the coast horned lizard appears to have strong population numbers in the action area. In addition, we expect the effects from hunting will generally be consistent with the description of effects for Roads/Trails, Backcountry Cabins, and Recreation described above. Therefore, we expect that hunting in the action area will have negligible cumulative effects on the coast horned lizard.

Mining

Two commercial mining operations occur in the action area, La Liebre and National Cement; these mining operations are not covered activities under the TUMSHCP. The total area used for the two operations is about 2,636 acres, and the Applicant would maintain the mining leases through the proposed permit term. The coast horned lizard is known to occur in proximity to the perimeter of the National Cement mining area (near Oso Canyon), and a combined 326.8 acres

of modeled habitat occurs in the mining areas. We expect that much of the modeled habitat in the mining areas is already disturbed; although it is likely that some occupied habitat exists on the periphery of one or both of the mining areas. Therefore, on occasion, earthmoving, moving vehicles, and other mining activities likely disturb, injure, or kill coast horned lizards. However, because much of the mining areas are already disturbed, the effects of mining occur in a small area relative to the amount of modeled suitable habitat in the action area, and any use of chemicals in mining must be in conformance with Federal, State and local laws, we expect that continued mining in the action area will have minor cumulative effects on the coast horned lizard.

Other Activities

As discussed above under the Project Description, within the external boundaries of the action area, there are existing inholdings and, utilities. The Bakersfield National Cemetery also occurs inside the action area. These projects and activities are not Covered Activities under the TUMSHCP. We are not aware of any reasonably foreseeable activities within the 3,870 acres of inholdings that may affect the coast horned lizard. Activities associated with existing utilities, transmission lines, and related structures, such as maintenance activities, would be restricted to currently established easement areas and would have minor, if any, effects on the coast horned lizard. Therefore we do not anticipate any cumulative effects from the ongoing maintenance and operation of non-covered existing utilities. The Bakersfield National Cemetery is in place, and we are not aware of any activities associated with the cemetery that may have an adverse effect on coast horned lizards.

CONCLUSION

After reviewing (1) the current status of the coast horned lizard; (2) the environmental baseline for this species in the action area; (3) the effects of the proposed action; and (4) the cumulative effects, it is our biological opinion that the Service's issuance of the proposed ITP is not likely to jeopardize the continued existence of the coast horned lizard. We reached this conclusion because:

1. Although 4,018 acres of modeled suitable habitat could be permanently lost to development activities, the coast horned lizard occupies a large geographic range, of which the action area is less than one percent. The proposed Covered Activities would affect a small portion of the species and its range, and would not appreciably reduce the range-wide reproduction, numbers, or distribution of the species.

2. Under the TUMSHCP, eight currently known occurrences of coast horned lizard in the southwestern portion of the TMV Planning would be conserved.

3. The vast majority of the action area, including the majority of suitable coast horned lizard habitat, would be preserved in perpetuity, reducing the amount of coast horned lizard

habitat that can be lost in the future. We expect this to have long-term, stabilizing benefits to the coast horned lizard and its remaining habitat.

4. The current condition, and expected future condition, of the action area is maintained primarily by grazing livestock. Studies suggest that light to moderate grazing has a neutral to positive effect on horned lizard species.

5. The Applicant will implement protective measures as part of the proposed activities (e.g., surveying development areas prior to construction and relocating observed coast horned lizards, monitoring and enforcement of restrictions on recreation, etc.) that would reduce or avoid impacts to the coast horned lizard.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The proposed TUMSHCP and its associated documents identify anticipated impacts to the coast horned lizard likely to result from the proposed taking and the measures that are necessary and appropriate to minimize those impacts. All conservation measures described in the proposed TUMSHCP, together with the terms and conditions described in the associated Implementing Agreement and any section 10(a)(1)(B) permit issued with respect to the proposed TUMSHCP, are hereby incorporated by reference as reasonable and prudent measures and terms and conditions within this Incidental Take Statement pursuant to 50 CFR §402.14(i). Such terms and conditions are non-discretionary and must be undertaken for the exemptions under section 10(a)(1)(B) and section 7(o)(2) of the Act to apply. If the permittee fails to adhere to these terms and conditions, the protective coverage of the section 10(a)(1)(B) permit and section 7(o)(2) may lapse. The amount or extent of incidental take anticipated under the proposed TUMSHCP, associated reporting requirements, and provisions for disposition of dead or injured animals are as described in the TUMSHCP and its accompanying section 10(a)(1)(B) permit.

Amount or Extent of Take

The Service anticipates that the incidental take, including injury or death, of coast horned lizards will be difficult to detect, because the species is small in size, has cryptic coloration, and exhibits daily and seasonal inactivity patterns including long periods buried in the substrate. As described above, we estimated that 30,884 coast horned lizards could theoretically be affected by habitat loss under the TUMSHCP. We anticipate that all coast horned lizards observed in harm's way in development and grading sites would be subject to take by capture and relocation to reduce the likelihood of take by harm, wounding, or killing. While capture and relocation of coast horned lizards should reduce the likelihood of injury or death as a result of project activities, a coast horned lizard in unfamiliar habitat may be subject to higher predation levels, intraspecific competition, and may find it difficult to locate food, shelter, or mates. Individuals that attempt to return to the point of capture may be subject to multiple captures, and increased likelihood of injury or predation while attempting to return. For the reasons described above, and because they occur in a patchy distribution, we expect coast horned lizards to be difficult to observe. Therefore, we anticipate that only a subset of the individuals that could possibly occupy the affected 4,018 acres of modeled suitable habitat (3,962 acres in the development envelope and 56 acres via Planwide Activities) would be subject to capture and relocation.

Due to daily and seasonal inactivity patterns, cryptic coloration, and projected large number of coast horned lizards in the development envelope, it is inevitable that some individuals will be overlooked during efforts to capture and relocate coast horned lizards. Any coast horned lizards that evade detection, capture, and relocation, and remain in a development area would likely be crushed by construction equipment, vehicles, or foot traffic, or may be otherwise wounded or killed. For reasons explained in the Effects Analysis section, we consider the potential loss of up to 30,884 coast horned lizards (30,454 by residential and commercial development and 430 by Planwide Activities) due to habitat conversion to be an overestimate and anticipate that a smaller but indeterminable number of coast horned lizards would be taken. Because using a numerical estimate is inherently uncertain and overstates the level of take likely under the proposed action, we consider loss of habitat to be a more reliable measure of take of coast horned lizards. Therefore, we estimate that all coast horned lizards associated with the loss of 4,018 acres of habitat will be taken in the form of capture, harm, wounding, or killing under the proposed action, and the limit of take due to habitat loss exempted under this biological opinion and authorized under the proposed ITP would be reached when loss of modeled suitable habitat for coast horned lizards reaches 3,962 acres in the development envelope and 56 acres via Planwide Activities.

In addition, we anticipate ongoing indirect effects associated with development and direct and indirect adverse effects of Planwide Activities not associated with loss of habitat, during the permit term. Examples include harassment, wounding, or killing by livestock; harassment, pursuit, wounding, killing, capture, and collection by pets and people during recreation; and wounding or killing when vehicles, bicycles, horses, etc. strike coast horned lizards on roads/trails. We expect an average of one coast horned lizard per day (365 annually is 0.1 percent of the estimated population in the action area) would be harassed, harmed, pursued,

wounded, killed, captured, or collected as a result of indirect effects associated with development and direct or indirect effects of Planwide Activities. Most of these incidents will be extremely difficult to witness due to the remote nature of most of the Covered Lands, the irregular patterns of most Planwide Activities, the species' cryptic coloration, and the species' seasonal and diurnal activity patterns. Therefore, 25 coast horned lizards observed taken annually because of Planwide Activities would serve as a surrogate indicator that the Service's anticipated level of take, not associated with development construction, has been reached.

Effect of the Take

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy of the coast horned lizard.

REASONABLE AND PRUDENT MEASURES / TERMS AND CONDITIONS

The measures described in the TUMSHCP, associated documents and the Section 10(a)(1)(B) permit will effectively minimize the effects of any potential take of coast horned lizard under the permit. Consequently, we are not including additional non-discretionary reasonable and prudent measures and implementing terms and conditions in this incidental take statement.

TWO-STRIPED GARTER SNAKE

STATUS OF THE SPECIES

Regulatory History

The two-striped garter snake is not federally listed, but it is designated as a Species of Special Concern by CDFW. Because the two-striped garter snake is not federally listed, it does not have designated critical habitat.

Natural History/Habitat Requirements

The two-striped garter snake is medium in size (24 to 40 inches) and has a single lateral yellow–orange stripe on each side of the body (Jennings and Hayes 1994). The lateral stripes may be absent in some individuals, especially in the northern third of this species' range (Jennings and Hayes 1994). Dorsal coloration can be olive, brown, or brownish grey, and the iris is a light tan color (Jennings and Hayes 1994).

The two-striped garter snake is an aquatic obligate restricted to streams, vernal pools, lakes, and stock and artificial ponds with good adjoining riparian vegetation within oak woodlands, shrublands, and sparse coniferous forests from sea level to 7,874 feet amsl (Zeiner et al. 1990a, Jennings and Hayes 1994; Stebbins 2003; Schwenkmeyer 2007). Two-striped garter snakes are commonly found within perennial or intermittent wetlands and streams having rocky or sandy beds with adjacent willows or dense vegetation (Zeiner et al. 1990a). They forage in and along streams and pools of water (Zeiner et al. 1990a) for small fish, fry, and eggs; frogs and toads; newts; and invertebrates (Jennings and Hayes 1994). Home range size varies from 0.012 acre to 2.2 acres depending on season and resource availability (Jennings and Hayes 1994). Two-striped garter snake home ranges show substantial overlap suggesting that individuals are loosely territorial, if at all.

Two-striped garter snakes are preyed upon by raptors (Accipitridae), shrikes (*Lanius* sp.), herons (*Ardea* spp.), raccoons (*Procyon lotor*), coyotes (*Canis latrans*), other snakes (Viperidae and Colubridae), bass (*Morone* spp. and *Micropterus* spp.), feral pigs (*Sus scrofa*), and bullfrogs (*Rana catesbeiana*) (Jennings and Hayes 1994; Stebbins 2003). Individuals tend to stay near water, retreating to it when alarmed (Stebbins 2003). They also use dense vegetation, flat rocks, rocky outcrops, and rotting logs as cover (Zeiner et al. 1990a). Individuals evade predators with excellent swimming skills and emission of a musky defense and cloacal contents when cornered or captured (Zeiner et al. 1990a; Stebbins 2003).

During warmer months, two-striped garter snakes are generally active aquatic hunters during the day, but retreat into crevices, mammal burrows, or other upland shelters at night (Zeiner et al. 1990a). The two-striped garter snake generally retreats to communal hibernation burrows as the days shorten, generally in October and depending on latitude and elevation (Jennings and Hayes 1994). Occasionally on warmer days, the species will emerge from torpor to bask. Two-striped

garter snakes found inland, at higher elevations, and in colder areas hardly emerge from their hibernation dens (Zeiner et al. 1990a). Hibernation lasts until March when the males emerge first and prepare for mating.

Both male and female two-striped garter snakes may breed with several partners, but not all females will mate in a given season. Sexually mature females are able to store sperm for up to 53 months and may still give birth without mating that season (Jennings and Hayes 1994). After mating has occurred in upland sites, two-striped garter snakes disperse to summer feeding areas. Gravid females will gestate for 9 weeks and will bear one to 25 live young during the late summer or fall in or under loose bark, rotting logs, and dense vegetation (Zeiner et al. 1990a; Jennings and Hayes 1994; Stebbins 2003; Schwenkmeyer 2007).

Distribution and Population Trends

The two-striped garter snake is endemic to Southern California and the Central Coastal Range from Monterey County south through the Baja Peninsula, Mexico (Figure 3). Records for the two-striped garter snake in California include sightings along coastal river valleys and coastal and transverse mountain ranges through the South Coast and Peninsular Ranges, west of the San Joaquin Valley (Jennings and Hayes 1994).

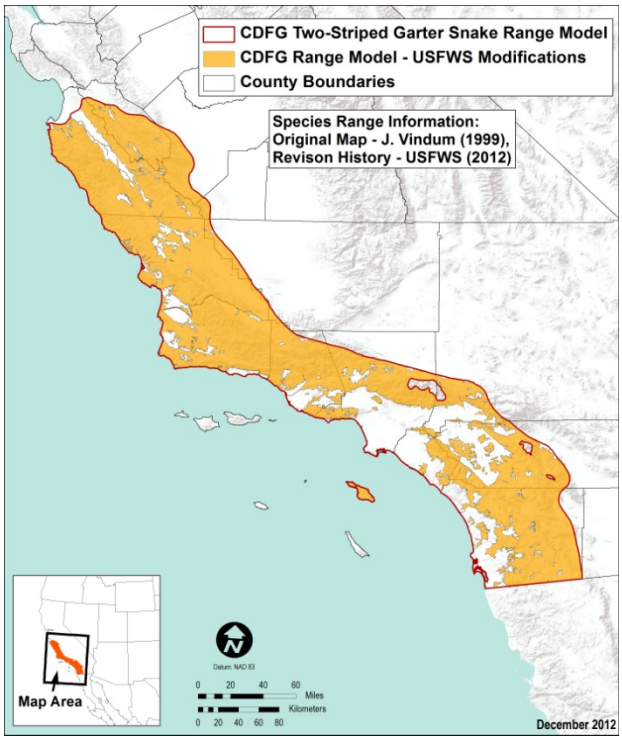


Figure 3. Estimated range of the two-striped garter snake

There are no specific data regarding population trends for the two-striped garter snake, but it is clear that populations have declined since 1945, including documented extirpations of many local populations along the immediate coast. Although the species was historically common throughout coastal–central and Southern California, as a result of habitat loss and other disturbances, it is now common only in eastern San Diego County (Jennings and Hayes 1994). Jennings and Hayes (1994) estimate that the two-striped garter snake has been extirpated from approximately 40 percent of its historical range.

We do not have a rigorous estimate of current acreage in the species' range. However, using GIS software, we calculated that the outer boundary of the shaded area in Figure 3 (Vindum 1999), covers an area of approximately 14 million acres. Using GIS, we further excluded urban areas and intensive agriculture and arrived at an estimate of approximately 11 million acres in the range of the two-striped garter snake. This calculation undoubtedly includes substantial areas

of naturally unsuitable habitat for the species; therefore, the species' actual range is smaller than our estimate.

Reasons for Decline

The two-striped garter snake has been affected by the loss of wetland habitat due to human activities including expansion of agriculture and urban areas; channelization of waterways for flood control, and construction of reservoirs. Non-native species including bullfrogs, fish species, and feral pigs prey on and compete with two-striped garter snakes for resources (Zeiner et al. 1990a). The prey base of two-striped garter snakes has been reduced by the widely introduced mosquitofish (*Gambusia affinis*) which eats the eggs and young of newts, toads, etc. (Goodsell and Kats 1999).

ENVIRONMENTAL BASELINE

We are not aware of any comprehensive surveys of the action area for the two-striped garter snake. The Applicant conducted habitat assessments for special-status reptile species, including the two-striped garter snake, in the TMV Planning Area in 2007 (Dudek 2009). The Applicant did not conduct focused surveys for the two-striped garter snake, but the species was observed in the TMV Planning Area during the 2007 surveys within Grapevine Creek, adjacent to Pastoria Creek in Beartrap Canyon, and within a drainage running through Dry Field Canyon (Dudek 2009). The species was also observed in 2001, 2002, and 2003 at Castac Lake adjacent to the TMV Project and at a stock pond south of the lake.

The Applicant modeled 364 acres of suitable habitat for two-striped garter snake in the action area (Figure 5-22 of the TUMSHCP). Modeled suitable habitats include riparian woodland, riparian scrub, riparian/wetland, wetland, wash, and areas within 100 feet of perennial streams, seeps, and springs. Based on regular observations, we expect the two-striped garter snake to occur regularly in modeled suitable habitat in the action area. Modeled habitat occurs almost exclusively in the TMV Planning Area around Castac Lake and along Interstate 5 northwest of Castac Lake, with small areas of modeled habitat south and southeast of the lake. However, we also expect the two-striped garter snake to occur occasionally in small areas of non-modeled habitat where seasonal and artificial water sources (e.g., stock ponds) create suitable conditions for the species. We do not know where and when these non-modeled habitats would provide suitable habitat for the species, and they cover a small area relative to the modeled habitat in the action area. Therefore, we did not include these habitats in our population estimate for the action area.

Jennings and Hayes (1994) reported an average summer home range of 0.37 acre for the two-striped garter snake and an average winter home range of 0.84 acre. Applying these home range sizes to the 364 acres of modeled suitable habitat, the action area could support between 984 and 434 two-striped garter snakes. In reality, we expect the two-striped garter snake population in the action area to be closer to the lower population estimate, because the species is generally uncommon in this portion of its range, individual territories may overlap, and the species is

affected by existing conditions in the action area including livestock grazing and road use in and adjacent to suitable habitat. For the purposes of this biological opinion, we assume that approximately 434 two-striped garter snakes may occur in modeled suitable habitat in the action area.

Recovery

The two-striped garter snake is not listed under the ESA, so we have not developed a recovery plan for the species to which we can refer to assess its recovery status. In the absence of a recovery plan, we default to the general conservation of the species. For a species like the two-striped garter snake that has lost a large percentage of its former known occupied habitat, recovery would necessitate the conservation of much of the remaining habitat that supports the species. In addition, restoration of suitable habitat that has been disturbed but otherwise remains undeveloped would be a priority. Lastly, efforts to establish the species in unoccupied but otherwise suitable habitat would contribute to its recovery.

The two-striped garter snake has been observed on the Covered Lands, and suitable habitat has been identified that could support the species (364 acres of modeled suitable habitat). Therefore, the Covered Lands may serve a function in the conservation of the two-striped garter snake.

EFFECTS OF THE ACTION

Planwide Activities

Livestock

The Applicant proposes to continue grazing livestock on the balance of the action area outside development areas, consistent with the types and level of historical grazing. Livestock generally have negative effects on riparian/wetland habitat and the native species that rely on that habitat. There is some evidence that grazing reduces the extent to which an area can support garter snake species (Szaro et al. 1985, Homyack and Giuliano 2002), and we expect livestock to similarly affect the two-striped garter snake. Livestock could directly affect two-striped garter snakes by trampling them and causing injury or death; although two-striped garter snakes are mobile enough to avoid most direct interactions with livestock. Livestock could indirectly affect two-striped garter snakes by damaging the ecosystem in which garter snakes breed, feed, and shelter. Loss of emergent and riparian vegetation and reduction in water quality could compromise the prey base on which two-striped garter snakes rely. To minimize the effects of grazing the Applicant proposes selective use of fencing and locating water and mineral supplements away from riparian areas, which could limit direct livestock interactions with natural water sources. This should have ancillary benefits for wetland/riparian habitats used by the two-striped garter snake. Also, the Applicant proposes to manage open space lands, which support the presence of two-striped garter snake, to maintain the existing habitat conditions described in the TUMSHCP, including grazing consistent with historical practices. In addition, under the TUMSHCP, the Applicant must submit a grazing management plan to the Service every 5 years for review and

approval. Our review of such plans will allow for the implementation of additional measures or modification of grazing practices to promote the compatibility of grazing with the conservation of the two-striped garter snake. Considering the Applicant's proposed measures to minimize effects of grazing, and the small amount of suitable habitat in the action area relative to that available to the species rangewide (Southern California from Monterey County south through the Baja Peninsula, Mexico) the effects of livestock would have a negligible effect on the rangewide population of the two-striped garter snake.

Range Management/Ancillary Ranch Structures

Range management activities support livestock operations and consist of construction, operation, and maintenance of watering facilities, feeding areas, fences, and corrals, consistent with the types and level of historical grazing and ranch management practices; repair, reconstruction, and relocation of roads to accommodate historical grazing and ranch management practices; and repair, maintenance, or installation of ranch management communication equipment (e.g., whip antennas) less than 20 feet high. The repair, reconstruction and relocation of roads to accommodate historical grazing and ranch management practices are evaluated below under Roads. Range management also incorporates ancillary ranch structures including squeezes, loading chutes, holding and feeding fields, corrals, branding traps, barns, sewage disposal facilities, livestock and wildlife watering facilities, and utilities serving existing ranch uses.

As described above under Planwide Activities in the Description of the Proposed Action section, *de-minimis* activities associated with ancillary ranch structures would be covered under the TUMSHCP. Non–*de minimis* activities associated with ancillary ranch structures are also allowed (1) if the activity is located in disturbed areas (e.g., undergrounding utilities in road rights-of-way), or (2) following a meet-and-confer process with the Service to ensure that the activity associated with an ancillary ranch structure avoids or adequately minimizes impacts to Covered Species and their habitats.

These activities are subject to the 200-acre disturbance limit, occur at a small scale relative to the size of the action area, and range management facilities already exist in the action area. Also, given that most two-striped garter snake modeled habitat is around Castac Lake, which would be nearly surrounded by development, we expect range management activities to occur infrequently in suitable habitat for the two-striped garter snake. However, the workers or equipment, as well as placement of ancillary ranch structures, may create enough disturbance to cause two-striped garter snakes to temporarily avoid suitable habitat. The two-striped garter snake has been observed using stock ponds in the action area, and range management activities that create artificial water sources may benefit the species. In addition, the Applicant would continue to maintain the habitats that are defined by the parameters in the suitable habitat model for two-striped garter snake, and the Service has the opportunity to review and approve/deny the Applicant's grazing management plan, which would include protections for riparian areas (TUMSHCP Section 7.2). These measures should minimize threats from range management. We expect range management to have a negligible effect on the two-striped garter snake in the action area.

Fuel Management

Fuel management practices would consist primarily of grazing, and the effects of fuel management by grazing should be largely consistent with the effects of livestock. Other fuel management activities include fuel modification zones created by existing roads and through irrigation and/or vegetation clearing and mowing within 120 feet surrounding existing structures (i.e., backcountry cabins, ancillary ranch structures, and other existing structures). Mowing may create enough vibration to flush garter snakes from suitable habitat and expose them to increased predation risk and energy expenditure. On occasion, mowing machines may run over two-striped garter snakes causing injury or death. However, because two-striped garter snakes usually are near water, we expect that fuel management in areas occupied by the species would be infrequent. The Applicant also proposes to avoid habitat disturbances in modeled suitable habitat for the two-striped garter snake to the extent practicable and limit fuel management activities near development (in compliance with additional restrictions to protect bald eagles around Castac Lake), but the effects of mowing could cause impacts to the two-striped garter snake population in the action area. However, considering that these fuel management activities would occur primarily outside the TMV Planning Area, and modeled habitat for the two-striped garter snake exists primarily inside the TMV Planning Area, we expect effects on the species from fuel management to be rare and inconsequential both to the population in the action area and rangewide.

Fuel modification associated with proposed development is discussed below under Commercial and Residential Development Activities.

Filming

Filming activities generally consist of temporary on-scene filming and photography-related uses, including, but not limited to the filming and staging of movies, television shows, and commercials; photo shoots; and still photography and related uses. Such activities may include the erection and dismantling of props, temporary installation of trailers and equipment for film crews, filming of on-camera action, catering, rehabilitation of disturbed areas, and the movement of film crews to and from locations.

We expect filming to cause only minimal impacts to two-striped garter snake habitat, because filming occurs over a relatively short time frame, the Applicant would require that habitat disturbed by filming activities be restored to pre-filming conditions, no permanent construction would be allowed for filming, and the Applicant would require that temporary construction avoid sensitive resources. We do not expect direct impacts to individual two-striped garter snakes from filming, because the Applicant proposes surveys, capture, and relocation efforts prior to filming related uses; and monitoring of filming activities by a qualified biologist. Food and trash left in or near two-striped garter snake habitat could attract predators and indirectly increase predation; however, the Applicant will require daily removal of trash to minimize this effect. In addition, the Applicant proposes measures, summarized in the Description of the Proposed

Action section of this biological opinion and described in Sections 2 and 7 of the TUMSHCP, to minimize impacts to Covered Species and to manage open space lands to maintain the existing habitat conditions described in the TUMSHCP. Therefore, we do not expect filming activities to cause substantial impacts to the two-striped garter snake within the action area.

Recreation

Recreation associated with the Planwide Activities includes private recreation by TRC, its employees and guests and public access is governed by the Interim RWMP and managed by the Conservancy. Such recreational use is also subject to the terms of the TUMSHCP and the terms of Service-approved conservation easements. While the private recreation by TRC occurs currently throughout the Covered Lands, public recreation, which generally consists of docent led tours by the Conservancy per the Interim RWMP, occurs in the Established Open Space portion of the Mitigation Lands. These public and private recreation uses are limited to passive activities listed in the Project Description. Recreation activities associated with Planwide Activities would occur in open space areas generally outside the TMV Planning Area at a relatively small scale, and have infrequent impacts. Recreational uses by TRC, its employees, and the public are limited by the access guidelines and best management practices in the Interim RWMP and will be further regulated in Public Access Plans, which are subject to permanent Service review and approval. We note that future development in the TMV Planning Area will likely lead to increased recreation demand by TMV Project residents and guests, but the type and nature of the use is the same. All such recreational use in the protected open space will also be regulated in the Public Access Plan, subject to permanent Service review and approval, and will require monitoring and regulation by TRC staff, the Tejon Ranch Staff Biologist, or Conservancy docents, including provision of educational materials and restrictions on the location and types of any organized events. An Interim Public Access Plan is currently in place that provides for docent-led public tours and requires pre-activity surveys prior to any ground-disturbing activities. We anticipate future levels of public access to be consistent with what occurs under the Interim Public Access Plan. In addition, all of the modeled two-striped garter snake habitat is in the TMV Planning Area and most occurs around Castac Lake. Therefore, we do not expect adverse effects from recreation associated with Planwide Activities.

The effects of recreation on the two-striped garter snake in the TMV Planning Area Open Space are discussed separately under Commercial and Residential Development Activities.

Irrigation/Water Diversion

The action area contains existing water diversions for irrigation of agriculture inside and outside the action area, and a few small agricultural areas totaling about 232 acres exist in the TMV Planning Area (e.g., small vineyards and an orchard near Castac Lake). Agricultural uses that remain in open space after TRC identifies the final development footprint will continue subject to State and local regulations. The agricultural land in the TMV Planning area is near Castac Lake, as is nearly all modeled habitat for the two-striped garter snake. Agricultural activities could cause adverse effects to the two striped garter snake if workers, mechanical equipment, or

vehicles disturb, injure, or kill garter snakes foraging or moving through agricultural areas. However, established vineyards and orchards require less intense disturbance than annual row crops. In addition, agricultural land is not optimal habitat for the species, and we do not expect the species to occur in these areas regularly. Therefore, we expect that impacts from agriculture to two-striped garter snakes will be uncommon.

The operation of irrigation facilities does not cause additional impacts; however, vehicles and workers conducting maintenance of these facilities could disturb two-striped garter snakes and disrupt feeding, breeding, or sheltering. Vehicles or heavy equipment could injure or kill two-striped garter snakes during maintenance. However, we expect irrigation/diversions to cause only rare and minor effects to two-striped garter snakes, because the Applicant proposes to survey project areas before grading or construction and capture and relocate individual garter snakes out of harm's way. In addition, the Applicant is not proposing to expand the current irrigation capacity/diversion capacity, and the facilities cover a very small percentage of the covered lands. Relocation of water diversions, if any, is subject to the survey and avoidance requirements in the TUMSHCP, and prior to TRC relocating water diversions, the Service would review and approve the proposed new locations. Therefore, we expect adverse impacts of irrigation/water diversion to be rare and negligible.

Roads/Trails

A network of generally unpaved roads exists in the action area as access for fire protection, security, ranching activities, and hunting. As described in the TUMSHCP, the roads outside the development areas would be maintained, relocated, or new roads could be constructed, in compliance with the 200-acre limit on disturbance by Planwide Activities, to facilitate the proposed Planwide Activities. Trails and paved and unpaved roads provide open areas where two-striped garter snakes may bask. Two-striped garter snakes have been killed on roads (CROS 2012), and motorized vehicles, horses, off-highway vehicles, bicycles, etc. could injure or kill garter snakes using roads/trails. Newly constructed roads and road maintenance could destroy two-striped garter snake habitat, and injure or kill individuals that do not vacate the project area.

In general, the likelihood of impacts from roads/trails associated with Planwide Activities is low, because modeled habitat for the two-striped garter snake does not occur outside the TMV Planning Area, most of two-striped garter snake activity is near water, the applicant would require avoidance of suitable habitat to the extent feasible, and road/trail use associated with Planwide Activities would be irregular and of low intensity. In addition, to avoid and minimize adverse effects from roads/trails on the two-striped garter snake, the Applicant is proposing to capture and relocate two-striped garter snakes out of harm's way prior to grading or construction, which would reduce the likelihood of injury or death. Therefore, the effects on the two-striped garter snake from roads or trails outside the TMV Planning Area are negligible.

The direct and indirect effects of roads as a result of residential and commercial development are addressed below under Commercial and Residential Development Activities.

Utilities

The action area contains, or would contain, various minor utilities to support ranch activities. As described in Section 2.2.1 of the TUMSHCP, these utilities would be *de minimis* or would be located in previously disturbed areas (e.g., undergrounding utilities in road rights-of-way). Any utilities associated with Planwide Activities that are not *de minimis* or cannot be located in previously disturbed areas would require Service review and approval prior to relocation or construction. Installation or maintenance of these utilities may affect two-striped garter snakes by disturbing habitat or individuals or providing supplemental perches for bird species that prey on two-striped garter snakes. However, we do not expect utilities to have adverse effects on the two-striped garter snake, because utility posts and towers have small footprints, the utilities affect a very small percentage of the action area, and the Applicant would conduct survey and relocation efforts prior to grading or construction.

We address potential impacts by utilities associated with the proposed development under Commercial and Residential Development Activities.

Backcountry Cabins

There are no backcountry cabins in modeled suitable habitat for the two-striped garter snake, and we do not anticipate impacts to the species from use of backcountry cabins. In addition, prior to TRC relocating an existing cabin, the Service would review and approve the proposed new location. This would ensure that the new cabin location is compatible with the conservation of the two-striped garter snake.

Fencing

Fences exist throughout the action area. Fences would be maintained and new fencing could be constructed and maintained as required to support the Covered Activities, including exclusion of cattle from sensitive habitats that support the two-striped garter snake. The Applicant proposes to design and locate new fencing to avoid known occurrences of the two-striped garter snake. This should avoid the direct impacts of fences on two-striped garter snakes. To further minimize the effects of grazing the Applicant proposes selective use of fencing, which could limit direct livestock interactions with natural water sources. This may have ancillary benefits for wetland/riparian habitats used by the two-striped garter snake. Therefore, we do not expect fences to cause adverse effects on the two-striped garter snake.

Lebec/Existing Headquarters Area Uses

Existing activity in the Lebec/Existing Headquarters Area (i.e., corporate headquarters buildings, an antique shop, a post office, a church, and several single-family residences for ranch employees) would continue to occur. While additional development could occur here under the TUMSHCP, TRC has not included development plans for this area in the project description. The ongoing activities associated with this area may affect the two-striped garter snake, because

modeled suitable habitat for the species occurs in this area. The Lebec/Existing Headquarters Area contains a substantial minority of the species' modeled suitable habitat. Due to the nature of the activities occurring in this area, the impacts to the two-striped garter snake would be largely subsumed within the effects identified for recreation and roads; however, because the activities in this area would occur at a higher intensity than in other more remote parts of the Covered Lands, two-striped garter snakes occasionally could be injured or killed on roads and captured, injured, or killed by recreation activities. Due to the small amount of modeled habitat in this area relative to the larger geographic range of the species, which we estimate approaches 11 million acres, the effects on the rangewide population of two-striped garter snakes would be negligible.

Potential development related impacts in the Lebec/Existing Headquarters Area are addressed below under Commercial and Residential Development Activities.

Mitigation, Monitoring, and Management

Mitigation, monitoring, and management activities to carry out identified biological goals and objectives for the California condor or other Covered Species included in the TUMSHCP or other resource agency permits for the commercial and residential Covered Activities, as well as mitigation, monitoring, and management activities imposed pursuant to any local, State, or Federal approval of development on Tejon Ranch would be carried out in accordance with the Act and would be subject to Service review. We acknowledge that other agencies may credit TRC for mitigation and protective measures included in the TUMSHCP for mitigation imposed by such other agencies. Any restoration, enhancement, or similar mitigation activities would not be allowed if they would result in unpermitted adverse effects to species or critical habitat under the Act. Additionally, any mitigation activities for other agencies would be subject to the protective measures included in Tables 1 and 2, in the Description of the Proposed Action section of this biological opinion. Therefore, we anticipate that any potential threats to the two-striped garter snake as a result mitigation, monitoring, and management activities would be effectively minimized.

Estimate of Disturbance by Planwide Activities

The proposed TUMSHCP would cover 200 acres of ground disturbance associated with the Planwide Activities described above. These ground disturbances would occur outside of the proposed development (discussed below) and may be permanent or temporary. The disturbance would primarily be associated with construction of roads, backcountry cabins, and ancillary structures. If the Applicant restores a portion of this disturbance, an area equal in size may then be disturbed. Thus, no more than 200 acres may exist in a developed condition because of Planwide Activities at one time.

For the purposes of this effects analysis, we assume that all parts of the action area that could be affected by Planwide Activities have an equal chance of being affected and that all habitat types would be affected in equal proportion. This assumption is based upon the Applicant's inability

to predict exactly where 200 acres of habitat disturbance due to Planwide Activities would occur. In addition, there is no indication that the distribution or location of two-striped garter snake modeled habitat would cause Planwide Activities to disproportionately occur in two-striped garter snake modeled habitat.

For the purposes of estimating species-specific habitat disturbance by Planwide Activities, we are not using the 8,817-acre development envelope used by the Applicant to estimate impacts from development (TUMSHCP Table 2-1, footnote 4), but rather we are using the 5,533-acre area that actually could be developed within the development envelope. We did this, because after development of the 5,533-acre development footprint, 3,284 acres of the 8,817-acre development envelope would remain and be subject to Planwide Activities, and modeled habitat for the two-striped garter snake could occur in the 3,284 acres. Therefore, we included 3,284 acres of the development envelope in this analysis to acquire an estimate of habitat lost by Planwide Activities that is as accurate as possible. When we combine this estimate with anticipated habitat loss from commercial and residential development in a summary effects analysis (discussed below), we will have slightly double-counted and overestimated the amount of two-striped garter snake habitat that would be lost in the action area. This slight overestimation of lost habitat does not compromise our analysis, because the overlap is very small relative to the size of the action area, and this approach ensures that potential species impacts are fully considered by analyzing a larger impact than would actually occur.

Adding together the acres of commercial and residential development, National Cement and La Liebre Mines, the VA Cemetery, and Not-A-Part lands (blocks of land within the boundary of the action area but not owned by the Applicant), a total of 12,423 acres are not subject to Planwide Activities. We expect that Planwide Activities could occur on the remaining 129,463 acres of the action area (141,886 acres within the action area minus the 12,423 acres of excluded areas above). Therefore, the ratio of disturbance due to Planwide Activities (200 acres) to covered lands subject to Planwide Activities (129,463) equals 0.0015. We applied this ratio to two-striped garter snake habitat outside the excluded areas but in the action area and rounded the remainder up to a whole acre. Thus, 364 acres of modeled habitat in the action area minus 34 acres lost to development (discussed below) equals 330 acres of two-striped garter snake habitat subject to Planwide Activities. Using our ratio of 0.0015, we anticipate that Planwide Activities would disturb or remove up to approximately 1 acre of modeled suitable habitat for the two-striped garter snake over the permit duration. We acknowledge that this could be an overestimate because the Applicant is proposing measures to avoid and minimize disturbance to two-striped garter snake habitat.

Thus, while there could be a small loss of two-striped garter snake modeled suitable habitat due to Planwide Activities, in comparison to the modeled suitable habitat conserved, the loss would have a minimal effect on the species within the action area. Consequently, we conclude that the effects of Planwide Activities on the two-striped garter snake and its habitat would be minimal under the TUMSHCP and would not appreciably reduce the species' reproduction, numbers or distribution in the Covered Lands or rangewide.

Commercial and Residential Development Activities

Direct Effects

Development proposed to be covered under the TUMSHCP would permanently remove 34 acres of modeled habitat for the two-striped garter snake. This habitat loss includes any modeled habitat for the two-striped garter snake lost as a result of development activities in the Lebec/Existing Headquarters Area. As described in the Baseline section above, we estimate that home range size for two-striped garter snakes in the action area is 0.84 acre. Therefore, 41 two-striped garter snakes could occur in the 34 acres that would be lost to development. To minimize the effects of development on the two-striped garter snake, the Applicant proposes to avoid the species' habitat to the extent feasible and use fencing to mark project limits. The Applicant also proposes to survey development areas prior to grading or construction and relocate observed two-striped garter snakes out of harm's way. In addition, the Applicant proposes to conserve all of the currently known two-striped garter snake occurrences in the action area (all in the TMV Planning Area—in Grapevine Creek, Pastoria Creek, Dry Field Canyon, Castac Lake, and a stock pond south of the lake). These measures would reduce impacts to two-striped garter snake individuals; however, it is reasonable to assume that the Applicant will not be able to observe, capture, and relocate all two-striped garter snakes in harm's way. Therefore, we expect a small number of two-striped garter snakes to be missed and injured or killed by development activities.

Indirect Effects

Development-related indirect impacts to two-striped garter snakes and modeled suitable habitat could occur where modeled habitat is near developed areas.

Almost all modeled habitat for the two-striped garter snake occurs in the TMV Planning Area around Castac Lake and along Interstate 5 northwest of Castac Lake, with small areas of modeled habitat south and southeast of the lake. To some extent, modeled habitat for the two-striped garter snake would be surrounded and fragmented by the proposed development. Fragmentation causes smaller, less resilient populations, which are more susceptible to extirpation. That said, development under the TUMSHCP would not create absolute barriers between blocs of modeled habitat for the two-striped garter snake, and we expect the species to persist in the TMV Planning Area despite the Commercial and Residential Development Activities.

Recreational activities allowed within proposed Open Space areas are limited to passive recreation as described above under Planwide Activities. Even so, in the EIS for the TUMSHCP, we estimated that the TUMSHCP would increase the human population of the TMV Planning Area by 11,441 people, and we expect the recreational activities of future residents of the proposed development to cause a higher level of disturbance and impacts in this area than in other parts of the action area that are more remote. To minimize impacts of recreation in the action area, TRC would provide Home Owners' Association(s) with educational information regarding acceptable activities in Open Space areas, including recreational activities and pet

restrictions. In addition, the Applicant proposes to ensure that all recreation be conducted in a manner that would avoid adverse impacts to the Covered Species and their habitats or result in less-than-significant impacts. At minimum, the activities would be planned to avoid sensitive species and known occurrences, and TRC would require the use of existing roads and trails where possible.

Despite the environmental education and other measures proposed by the Applicant (see Table 2 of this biological opinion, and TUMSHCP Sections 2.2.1 and 7.1.1.2.8), we expect residents, TRC employees, and others using the action area to recreate in or near two-striped garter snake modeled habitat either because of apathy or unfamiliarity with sensitive species and habitats. Recreational activities could potentially result in capture or injury or otherwise alter garter snake behavior, and disrupt feeding, breeding, or sheltering activities. It is difficult to predict the frequency with which recreation would affect two-striped garter snakes, but, at a minimum, we expect that two-striped garter snakes will occasionally be flushed by people and pets recreating in modeled suitable habitat. This could lead to increased energy expenditure, avoidance of suitable habitat, and increased predation risk. We expect this to occur with enough regularity to cause adverse effects. To further minimize potential effects, recreational activities will be subject to the Public Access Plan to be reviewed and approved by the Service in perpetuity and approved conservation easements or other appropriately restricted conveyances over those lands. This will ensure that implementation of additional measures would occur as needed to avoid or minimize impacts to the two-striped garter snake.

The Applicant proposes to clear and thin vegetation within 200 feet of the proposed development, creating a 1,773-acre fuel modification zone. Fuel modification is less likely to occur in two-striped garter snake habitat (i.e., near water), and the expected intensity of disturbance associated with these activities alone should not preclude two-striped garter snakes from using this area; however, the ongoing maintenance of this area, whether by grazing or mechanized means, will likely cause occasional disturbance, injury, or death of two-striped garter snakes; to some extent, depress population numbers in this area; and contribute to the exclusion of two-striped garter snakes around developed areas. The estimated areal extent in which fuel modification may affect the two-striped garter snake is included in the 34 acres of modeled habitat estimated to be lost within the 8,817-acre development envelope.

Roads receiving the most use would be located in the TMV Planning Area and would receive frequent use by automobiles, bicycles, etc. typical of residential/commercial areas. In the EIS for the TUMSHCP, we estimated that the TUMSHCP would increase the human population of the TMV Planning Area by 11,441 people resulting in 79,514 additional vehicle trips per day. We expect most of these vehicle trips to occur near the commercial areas, and the number of vehicle trips would decrease with distance from Interstate 5. Vehicular traffic to the open space would be restricted and managed; nonetheless, use of roads in the development areas would increase substantially over baseline conditions and would be likely to adversely affect the two-striped garter snake. Two-striped garter snakes have been killed on roads (CROS 2012), and we expect motorized vehicles, horses, bicycles, etc. to occasionally injure or kill two-striped garter snakes basking on, or attempting to cross, paved and unpaved roads in the action area. If roads are used

frequently enough, they could become barriers to movement by two-striped garter snakes in the TMV Planning Area. We expect roads and trails to have direct, adverse effects on the two-striped garter snake in the action area, especially during warmer months.

New utilities to support development would be undergrounded, except that the two communication towers described under "Communication Towers" in the Description of the Proposed Action section above (also on page 4-52 and elsewhere in Section 4 of the TUMSHCP) would be installed above ground. The Applicant proposed measures, including capture and relocation prior to grading and construction and general avoidance of wetland and riparian habitats, which would avoid or minimize impacts of utility installation or maintenance to the two-striped garter snake. Once installed, the undergrounded utilities would not cause ongoing impacts. The two above-ground communication towers would not be in modeled habitat for the two-striped garter snake and would not cause adverse effects to the species.

Commercial and Residential Development activities could also cause changes to water quality as a result of construction activities, as well as runoff from construction sites and completed development and roads. Two-striped garter snakes spend substantial time feeding and sheltering in water bodies, and the introduction of pollutants to otherwise suitable habitat may affect the species. Pollutants, runoff of pesticides and automotive fluids, waterborne pathogens, and sediment can all affect water quality, and these factors can in turn affect wildlife, such as the two-striped garter snake and its prey. Amphibian prey of the species may be especially sensitive to changes in water quality. While the species may experience ongoing minor effects from pollutant runoff from roads, we expect runoff from construction to be temporary. In addition, to minimize aquatic pollution, the Applicant would implement BMPs (e.g., sediment fencing) and comply with laws (e.g., Clean Water Act) regulating the release of pollutants into the environment. Therefore, we do not expect the anticipated changes in water quality alone to exclude the two-striped garter snake from modeled habitat in the action area.

The indirect effects of the Commercial and Residential Development Activities would cause some habitat fragmentation in the action area as well as and the loss of a small number of individuals; however, the modeled habitat in the action area represents a fraction of 1 percent of the species' rangewide habitat, which we estimate approaches 11 million acres, and the proposed development would not have an appreciable effect on the rangewide population.

<u>TUMSHCP Mitigation</u>

The Applicant proposes to conserve in perpetuity the balance of the action area outside the development areas, including 254 acres (70 percent) of modeled habitat for the two-striped garter snake. We estimate that approximately 393 two-striped garter snakes (434 total in action area, minus 41 in the development area) occur in the action area outside the development, and the Applicant would maintain the preserved land in its current condition, which is known to support the species. The two-striped garter snake would persist in the action area, because all known occurrences would be conserved and suitable habitat would remain after development; however, because the remaining modeled suitable habitat would be largely surrounded by roads and

development, it is unclear to what extent the two-striped garter snake population in the action area would interact with and contribute to the larger geographic population. In addition, the proposed preservation secures known occupied habitat for the species, reducing the amount of two-striped garter snake habitat that could be lost in the future, thus addressing a primary reason for the species' decline.

Summary of Effects

In determining whether a proposed action is likely to jeopardize the continued existence of a species, we consider the effects of the action with respect to the reproduction, numbers, and distribution of the species. We also consider the effects of the action on the recovery of the species. In that context, the following paragraphs summarize the effects of the proposed TUMSHCP on the two-striped garter snake.

The Planwide Activities and the Commercial and Residential Development Activities would adversely affect the two-striped garter snake. As stated above, the applicant estimates that up to 34 acres of modeled suitable habitat could be lost due to development, and we have calculated that in the remainder of the action area Planwide Activities could affect an additional 1 acre of modeled suitable habitat for the two-striped garter snake, for a total of 35 acres of lost modeled suitable habitat for the species. We estimate that 43 two-striped garter snakes occur in these 35 acres and would be adversely affected by development activities/habitat loss.

Further, the Planwide Activities and indirect effects of development (particularly livestock, fuel management, recreation, and roads), could result in additional, ongoing, impacts to two-striped garter snakes in the action area including habitat fragmentation, disturbance, capture, injury, and death. We expect that direct effects on individuals would be uncommon, because the species usually stays close to water and evades threats by swimming. Nevertheless, we expect some injury or mortality may occur on roads and trails where individual garter snakes may bask and where vehicles, bicycles, etc. present the highest risk of injury or death. Other Planwide Activities and other indirect effects of development could occasionally cause adverse effects including repeated flushing from cover by people or pets, leading to increased energy expenditure, avoidance of suitable habitat, increased predation risk, and increased likelihood of death. People or pets may also capture, injure, or kill two-striped garter snakes. Based on our population estimate for two-striped garter snakes in the action area, the fact that most, if not all, modeled suitable habitat is in the development envelope, and the expected increase in human use of the action area, we anticipate that adverse effects could occur on a monthly basis during the warmer months and rarely, if ever, during colder months.

The two-striped garter snake occupies a relatively large geographic range, which we estimate approaches 11 million acres, and the action area constitutes a fraction of 1 percent of the species' range. Therefore, the number of two-striped garter snakes that would be potentially affected by the proposed TUMSHCP is very small relative to the expected population in the species' geographic range. Under the TUMSHCP, 254 of the 364 acres (70 percent) of modeled suitable habitat for the two-striped garter snake in the action area would be permanently conserved,

securing occupied habitat protected from future habitat loss in the action area. In addition, the TUMSHCP includes measures to avoid and minimize the effects of Planwide Activities and development related effects on the two-striped garter snake (see Table 2 of this biological opinion, and TUMSHCP Section 7.1.1.5.2). We conclude that the combination of avoidance and minimization proposed by TRC to reduce the effects of both Planwide Activities and Commercial and Residential Development Activities, and the conservation of modeled suitable habitat in the action area to mitigate for unavoidable impacts, would allow the Covered Activities to proceed under the proposed ITP without appreciably affecting the reproduction, numbers, or distribution of the two-striped garter snake rangewide.

Recovery

The two-striped garter snake is not a listed species, and the Service does not prepare recovery plans for non-listed species; therefore, there are no recovery criteria with which to compare the current and future status of the species. In the absence of a recovery plan, we default to the general conservation of the species, and recovery would focus on determining the species' distribution and the conservation of much of the remaining habitat that supports the species. In general terms, where suitable habitat exists, it should be conserved and where possible, additional habitat should be created or restored. The proposed action would have a negative effect on the species within the action area but would not cause an appreciable reduction in the reproduction, numbers, or distribution of the two-striped garter snake rangewide. The proposed action would result in the permanent conservation of 70 percent of modeled habitat for the species in the action area, which would have long-term, stabilizing benefits to the species by securing a portion of the species' occupied range from future habitat loss, thus addressing a primary reason for the species' decline.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section, because they require separate consultation pursuant to section 7 of the Act.

Hunting

Private and commercial hunting operations occur on Tejon Ranch and in Covered Lands; however, hunting is not an activity covered by the TUMSHCP. The Applicant proposes to continue hunting operations throughout the ranch during the proposed permit term. The Applicant proposes to manage the hunting program to avoid take of any federally protected species. Hunting in the TMV Planning Area would be limited to guided hunts. Given that modeled habitat for the two-striped garter snake is in proximity to development, we do not expect hunting to occur in the species' modeled habitat. Also, as feral pigs are known to cause extensive damage to riparian/wetland areas and directly or indirectly could affect two-striped garter snakes, the hunting program could benefit the species by removing some disturbance

pressure from feral pigs. Therefore, we expect that hunting in the action area will have negligible cumulative effects on the two-striped garter snake.

Mining

Two commercial mining operations occur in the action area, La Liebre and National Cement; these mining operations are not covered activities under the TUMSHCP. The total area used for the two operations is about 2,636 acres, and the Applicant would maintain the mining leases through the proposed permit term. The two mining operations are on the southern/southeastern edge of the action area, and there is no modeled habitat for the two-striped garter snake in or around the mining areas. In addition, any use of chemicals in mining must be in conformance with Federal, State and local laws. Therefore, we expect that continued mining in the action area will not have cumulative effects on the two-striped garter snake.

Other Activities

As discussed above under the Project Description, within the external boundaries of the action area, there are existing inholdings and, utilities. The Bakersfield National Cemetery also occurs inside the action area. These projects and activities are not Covered Activities under the TUMSHCP. We are not aware of any reasonably foreseeable activities within the 3,870 acres of inholdings that may affect the two-striped garter snake. Activities associated with existing utilities, transmission lines, and related structures, such as maintenance activities, would be restricted to currently established easement areas and would have only minor, if any, effects on the two-striped garter snake. Therefore we do not anticipate any cumulative effects from the ongoing maintenance and operation of non-covered existing utilities. The Bakersfield National Cemetery is in place, and we are not aware of any activities associated with the cemetery that may have an adverse effect on two-striped garter snakes.

CONCLUSION

After reviewing (1) the current status of the two-striped garter snake; (2) the environmental baseline for this species in the action area; (3) the effects of the proposed action; and (4) the cumulative effects, it is our biological opinion that the Service's issuance of the proposed ITP is not likely to jeopardize the continued existence of the two-striped garter snake. We reached this conclusion because:

1. Although 35 acres of modeled suitable habitat would be permanently impacted by development, the two-striped garter snake occupies a large geographic range outside of the action area. The proposed activities would affect a very small portion of that overall distribution and would affect a very small number of two-striped garter snakes relative to the population range-wide. Therefore, the effects on the two-striped garter snake will not appreciably reduce the reproduction, numbers, or distribution of the species rangewide.

2. The majority of the action area, including 254 acres (i.e., 70 percent) of modeled habitat for the two-striped garter snake, would be preserved in perpetuity, reducing the amount of two-striped garter snake habitat that could be lost in the future.

3. The Applicant will conserve all known occurrences of the two-striped garter snake and implement protective avoidance and minimization measures as part of the proposed activities including surveying project areas prior to grading and construction activities, relocating garter snakes in harm's way, avoiding the two-striped garter snake and its habitat to the maximum extent practicable, and monitoring and enforcing restrictions on recreation. This should reduce or avoid impacts to the species.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The proposed TUMSHCP and its associated documents identify anticipated impacts to the two-striped garter snake likely to result from the proposed taking and the measures that are necessary and appropriate to minimize those impacts. All conservation measures described in the proposed TUMSHCP, together with the terms and conditions described in the associated Implementing Agreement and section 10(a)(1)(B) permit issued with respect to the proposed TUMSHCP, are hereby incorporated by reference as reasonable and prudent measures and terms and conditions within this Incidental Take Statement pursuant to 50 CFR §402.14(i). Such terms and conditions are non-discretionary and must be undertaken for the exemptions under section 10(a)(1)(B) and section 7(o)(2) of the Act to apply. If the permittee fails to adhere to these terms and conditions, the protective coverage of the section 10(a)(1)(B) permit and section 7(o)(2) may lapse. The amount or extent of incidental take anticipated under the proposed TUMSHCP, associated reporting requirements, and provisions for disposition of dead or injured animals are as described in the TUMSHCP and its accompanying section 10(a)(1)(B) permit.

Amount or Extent of Take

As described in the Baseline section, we estimate that 434 two-striped garter snakes occur in modeled suitable habitat in the action area. We further estimate that 41 two-striped garter snakes occur in the 34 acres that would be removed by development, and that 2 two-striped garter snakes occur in the 1 acre that would be disturbed by Planwide Activities. We anticipate that all two-striped garter snakes observed in harm's way in a development/disturbance area would be subject to take by capture and relocation to minimize or avoid potential take in the form of harm, wounding, or death. While capture and relocation of two-striped garter snakes should reduce the likelihood of injury or death as a result of project activities, some individuals may experience harassment as a result of capture and being moved to potentially unfamiliar habitat. A two-striped garter snake in unfamiliar habitat may be subject to higher predation levels, intraspecific competition, and may find it difficult to locate food, shelter, or mates. Individuals that attempt to return to the point of capture may be subject to multiple captures, and increased likelihood of injury or predation while attempting to return.

Two-striped garter snakes may be difficult to catch, because they typically shelter in burrows, under rocks, etc., or may otherwise be overlooked during efforts to capture and relocate individuals. Therefore, we anticipate that only a subset of the individuals that could possibly occupy the affected modeled suitable habitat would be subject to capture and relocation. Any two-striped garter snakes that evade detection, capture, and relocation, and remain in a development area, at a minimum, would be adversely affected to the point of harassment or harm, and would likely be crushed by construction equipment, vehicles, or foot traffic, or may be otherwise wounded or killed.

Because of the difficulty in identifying the exact number of two-striped garter snakes likely to be taken, and the difficulty in finding dead or injured individuals, the limit of take from habitat loss exempted under this biological opinion and authorized under the proposed ITP would be reached when the loss of modeled suitable habitat for two-striped garter snakes reaches 35 acres (34 acres in the development footprint and 1 acre via Planwide Activities).

In addition, we anticipate ongoing indirect effects associated with development and direct and indirect adverse effects of Planwide Activities not associated with loss of habitat, during the permit term. Examples include harassment, wounding, or killing by livestock; harassment, pursuit, wounding, killing, capture, and collection by pets and people during recreation; and harassment, wounding or killing when vehicles, bicycles, horses, etc. strike two-striped garter snakes on roads/trails. We expect an average of two two-striped garter snakes per month during the warmer months (generally March through September), and an average of one every other month during colder months, would be harassed, pursued, captured, collected, wounded, or killed as a result of indirect effects associated with development and direct or indirect effects of Planwide Activities. Most of these incidents will be difficult to witness due to the size of the Covered Lands, the irregular nature of most Planwide Activities, and the species cryptic coloration; therefore, 7 two-striped garter snakes observed taken annually because of Planwide

Activities and indirect effects of development would serve as a surrogate indicator that the Service's anticipated level of take not associated with habitat loss has been reached.

Effect of the Take

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the two-striped garter snake.

REASONABLE AND PRUDENT MEASURES / TERMS AND CONDITIONS

The measures described in the TUMSHCP, associated documents and the Section 10(a)(1)(B) permit will effectively minimize the effects of any potential take of two-striped garter snake under the permit. Consequently, we are not including additional non-discretionary reasonable and prudent measures and implementing terms and conditions in this incidental take statement.

WHITE-TAILED KITE

STATUS OF THE SPECIES

Regulatory History

The white-tailed kite has no Federal designation but became a Fully Protected species in California in 1957 (Waian and Stendell 1970). The species is also protected under the Federal Migratory Bird Treaty Act (MBTA, 16 U.S.C. 703–712).

Natural History/Habitat Requirements

White-tailed kites (*Elanus leucurus*) belong within the Accipitridae family of raptors, along with ospreys, hawks, and eagles. The white-tailed kite was merged briefly with the black-shouldered kite (*E. caeruleus*) but was determined to differ from the old world kites in greater size and weight, in proportions (relatively longer tail and smaller bill and feet), and in plumage pattern (particularly of the juveniles). These distinctions warranted recognition of the white-tailed kite at the species level (Clark and Banks 1992).

White-tailed kites are approximately 14.5 inches in length and have a wingspan of up to 40 inches. Males and females are similar in size and attributes. Adults of both sexes are white and have pointed wings, long squared-off tails, a short, dark, hooked beak, red eyes, and a black upper wing that looks like a black shoulder when the bird is not in flight. Juvenile white-tailed kites have a brown head, nape, and back with a white face and brown streaks down their white breast. Similar to adults, juveniles have a dark upper wing but they also have a dark band at the tip of their white tail (Gough et al. 1998).

The white-tailed kite preys mostly on voles and other small, diurnal mammals, and occasionally on birds, insects, reptiles, and amphibians. It preys on small mammals approximately 95 percent of the time and can be considered a small mammal specialist (Dunk 1995). It forages in undisturbed, open grasslands, meadows, farmlands, emergent wetlands, ungrazed grasslands, fence rows and irrigation ditches adjacent to grazed lands, shrub, scrub, and open woodlands (Dunk 1995). Hunting activity patterns are generally similar throughout its range, with hunting success in approximately 40 percent to 50 percent of attempts at prey (Mendelsohn and Jaksic 1989). It soars, glides, and hovers less than 100 feet above the ground in search of prey. It hunts almost exclusively by hovering from 16 to 82 feet (5 to 25 meters) in height. The hovering bouts last from 1 to 60 seconds, during which time the kite scans the ground beneath for prey. The white-tailed kite exhibits year-long diurnal and crepuscular activity, meaning they are primarily active during the day and at twilight (Zeiner et al. 1990b).

White-tailed kite pairs are found together year-round but more individuals are paired from December through August (Dunk 1995). The kite makes a nest of loosely piled sticks and twigs that are lined with grass, straw, or rootlets. The nest is placed near the top of a dense oak, willow, or other tree stand, usually 20 to 100 feet above the ground in trees that vary from 10 to

164 feet (3 to 50 meters) in height (Dixon et al. 1957). The nest is typically located near an open foraging area. Nest trees may be isolated or part of a contiguous forested area. Nest tree species are variable, with more than 20 species on record as having been used by the white-tailed kite. The tree structure apparently is the most important determinant for use for the nest site (Dunk 1995).

The white-tailed kite is monogamous; it breeds from February to October, with a peak from May to August. The average clutch is four to five eggs, with a range of three to six eggs. The female only incubates for about 28 days. The young fledge in 35 to 40 days. During the incubation and nestling period, the male feeds the female and supplies her with food to feed the young. This species is usually single-brooded but may occasionally have two broods. Nests are generally not reused in subsequent breeding seasons, although some reuse has been reported. In a study conducted in the San Francisco Bay area of California, 1.6 white-tailed kite young were fledged per active nest and 2.9 were fledged per successful nest (Dunk 1995). The maximum life span recorded for the white-tailed kite is 5 years and 11 months (Clapp et al. 1982).

Although it is generally a resident bird throughout most of its breeding range, some dispersal occurs during the non-breeding season, resulting in some range expansion during the fall and winter. Two white-tailed kites banded as nestlings were recovered as adults 11 to 99 miles (19 and 160 kilometers) from their natal nests (Dixon et al. 1957). Because white-tailed kite populations often change in direct response to changing vole and rodent populations, kites are believed to become nomadic during low-abundance population cycles of California voles and small mammals (Dunk and Cooper 1994).

The white-tailed kite forages from a central perch over areas as large as 1.9 square miles (Warner and Rudd 1975). It seldom hunts more than 0.5 mile from the nest when breeding (Hawbecker 1942). Generally, it is not territorial, but the nest site may be defended against crows, other hawks, and eagles (Pickwell 1930; Dixon et al. 1957). The nest may be robbed by jays, crows, yellow-billed magpies, raccoons, and opossums. Great horned owls may prey on adults and young (Zeiner et al. 1990b). The kite has defended foraging territories of about 0.04 square mile in winter from red-tailed hawks and northern harriers (*Circus cyaneus*) (Bammann 1975). It has been hypothesized that kite territory size is proximately regulated by competitor abundance and ultimately regulated by prey abundance (Dunk and Cooper 1994). Communal roosts are used in the non-breeding seasons (Waian and Stendell 1970). Nest sites are also closely associated with suitable foraging habitat with high rodent populations in the immediate vicinity of the nest. Erichsen et al. (1996) described how successful nests are more often than not surrounded by preferred foraging habitat (particularly agriculture) within a 0.5-mile radius of the nest; Hawbecker (1942) noted that during the breeding season, kites seldom forage farther than a 0.5-mile radius from the nest site; and Faanes and Howard (1987) also noted that within the 0.5-mile radius, there must be at least 50 acres of suitable foraging habitat to support a breeding pair of kites. Documented white-tailed kite breeding densities average approximately one pair per 615 acres (Stendell 1972). The availability of prey, particularly voles, at the onset of breeding appears to influence kite breeding density.

The white-tailed kite inhabits low-elevation, open grasslands, savannahs, agricultural areas, wetlands, and oak woodlands. Riparian areas adjacent to open areas are typically used for nesting (Dunk 1995). The white-tailed kite uses trees with dense canopies for cover; specific plant associations seem to be unimportant, with vegetation structure and prey abundance apparently more important (Dunk 1995). In California's Sacramento Valley, the kite occurs predominantly in irrigated agricultural areas where the California vole occurs (Warner and Rudd 1975). In Southern California, white-tailed kite also roosts in saltgrass (*Distichlis spicata*) and Bermuda grass (*Cynodon dactylon*). The species uses herbaceous lowlands with variable tree growth, shrubs, sparse chaparral, and almost any upland with sparse cover of shrubs to grassland with a dense population of voles (Waian and Stendell 1970). Substantial groves of dense, broad-leaved deciduous trees are used by white-tailed kite for nesting and roosting (Brown and Amadon 1968).

The winter habitat for the white-tailed kite is generally similar to the breeding habitat, but the proximity to nest trees is not as important during winter months. Ungrazed areas tend to be used more than grazed lands in the winter. Communal roosts in the fall and winter are generally in small stands of trees but have been observed in open fields on the ground and in orchards. The specific plant associations are not important for the roost sites (Dunk 1995).

Distribution and Population Trends

Although threatened with extinction in North America during the early 20th century, the white-tailed kite has recovered since then, expanding its range in the United States from small portions of California, Texas, and Florida to Oregon and Washington as well as into the middle portions of North America (Eisenmann 1971). Prior to the 1960s, this species occurred in low numbers across much of its range. Population decreases appeared to be common during this time, especially in Mexico and Central America; however, since 1960, the population status and range of this raptor in North America have improved markedly. The white-tailed kite has also rapidly colonized habitats throughout much of Central America in previously uninhabitable regions (Eisenmann 1971). Present distribution is largest in the species' known history and may still be expanding.

The breeding range stronghold for the white-tailed kite in North America is California, with nearly all areas up to the western Sierra Nevada foothills and southeastern deserts occupied (Small 1994; Dunk 1995). The kite is common in the Central Valley of California and along the entire length of the coast. Breeding has been documented regularly in the far west counties of Oregon, and has also been documented recently in southwest Washington. This species is a common breeder in southern Texas. A small breeding population of white-tailed kite has been established in southern Florida since at least 1986, with scattered reports elsewhere in the peninsula and in the eastern panhandle (Dunk 1995). This species' breeding range continues south along the coast in Mexico into Central America and in South America from Colombia south to the north coast of Argentina (Dunk 1995).

In California, the white-tailed kite is a common to uncommon, year-long resident in coastal and valley lowlands, rarely found away from agricultural areas (Grinnell and Miller 1944). It inhabits herbaceous and open stages of moist habitats, mostly in cismontane California. It has extended its range and increased its numbers in California in recent decades (Eisenmann 1971). Although apparently a resident bird throughout most of its breeding range, dispersal occurs during the non-breeding season, resulting in some range expansion during the winter. It is believed to become nomadic during low abundance of California voles and its population changes in a regular and predictable fashion directly tied to changing vole numbers. However, in northern California, this constitutes a migration movement or nomadic response to changes in the prey population (Dunk and Cooper 1994). Others have concluded it is apparently not migratory, but Binford (1979) found some movements in coastal California and the species may be observed sporadically throughout most of the state (Small 1994). It is a very uncommon to fairly common winter visitor to western Oregon, particularly along the coast and interior valleys, and a rare winter visitor to the western edge of the Great Basin (Dunk 1995).

It appears that the primary factor known to regulate kite populations is prey availability. The availability of nesting and roosting sites becomes important in areas where prey is not limited (Dunk and Cooper 1994). Within a 0.5 mile (0.8 kilometer) radius circle centered on the nest site, successful nests were surrounded by more natural vegetation and non-urban human development than failed nests (Erichsen et al. 1996).

Reasons for Decline

Though the population of the white-tailed kite is currently the largest it has been in the species' history, the California population of the white-tailed kite has historically been reduced by habitat loss, shooting, and possibly egg collecting and by the 1930s, extinction was predicted for this species (Pickwell 1930). Most of the changes in population numbers appear to be related to changes in the size of the prey base. More recent population declines in California may have been related to reductions in the prey base due to the conversion of natural or agricultural lands to urban or commercial land uses. Other threats to kite populations include: clean farming techniques that leave few residual vegetation areas for prey; increased competition for nest sites with other raptors and corvids; the loss of nest trees; and increased disturbances at the nest (Dunk 1995). A relatively long-term drought throughout California during much of the time period from 1982 to 1991 may have contributed to population declines during that time and for years afterward (Dunk 1995).

ENVIRONMENTAL BASELINE

A total of 9,009 acres of foraging habitat for white-tailed kite was modeled on Covered Lands. The model includes foraging habitat only for Covered Lands that are within the range within which the white-tailed kite occurs. This includes coastal and valley lowlands up to but not including the western Sierra foothills and was determined more precisely based on a distribution map prepared for the California Wildlife Habitat Relationships System and updated in 2004 (CDFG 2007b). The model also includes variables that were included in the preparation of the

habitat suitability index (HSI) analysis which is used for impact assessment and habitat management (Faanes and Howard 1987).

The white-tailed kite was observed foraging in the TMV Planning Area during wintering bird surveys in November 2006 and in March, April, and June 2007 during the species' breeding season (Dudek 2009). The species was observed west of Castac Lake and near Grapevine Creek on a number of occasions, but nesting activity was not observed during the 2007 breeding raptor surveys (Dudek 2009). The white-tailed kite was observed during the spring in 2005, but the specific location of the observation was not reported (Jones and Stokes 2006a). The species was not detected during surveys between 1999 and 2004 (Impact Sciences, Inc. 2004).

The white-tailed kite is not expected to nest within the Covered Lands because the Covered Lands are generally above 2,000 feet amsl on the north (San Joaquin Valley) side of the Tehachapi Mountains and generally above 3,500 feet on the south (Antelope Valley) side, which is near the elevation limit of known breeding sites for the white-tailed kite. CNDDB records for breeding kites range in elevation from sea level to 2,100 feet. Breeding is closely associated with areas that are suitable for foraging which generally include an association with wetland areas and includes grassland and marsh areas where their preferred food would be located. Within the Covered Lands, these suitable foraging areas are limited to the western portion, which are at a higher elevation than kites have been recorded for breeding. Additionally, the species generally avoids areas that experience extensive winter freezes (Dunk 1995). The Covered Lands experience freezing temperatures during winter including heavy snowfall and high winds.

If breeding did occur on the Covered Lands, nesting white-tailed kites would likely have been observed during surveys because nests are conspicuous and young are easily detectable due to their coloration. The Covered Lands are not within the breeding range of the species, but because white-tailed kites have been observed foraging on site, because breeding habitat elements exist on site albeit outside of the elevation at which they occur, and because this species does have nomadic movements, the potential for breeding on site cannot be dismissed. However, the potential for breeding on site is considered to be low.

A focused survey was conducted in all suitable/potential foraging habitat within the TMV Planning Area in 2007 to search for nests although breeding was not expected due to the elevation; one white-tailed kite was observed foraging in the TMV Planning Area on several occasions. No nests were observed during this focused survey. During other species surveys conducted in portions of the Covered Lands (see *Section 6*), white-tailed kite has been observed foraging in grasslands, agricultural areas, and wetland habitats adjacent to Castac Lake and along Grapevine Creek (Dudek 2007b). No nesting sites of this raptor have been observed; no immature kites were observed.

Because the white-tailed kite has been observed foraging in the TMV Planning Area, there is some potential for this species to forage elsewhere on the Covered Lands. A total of 9,009 acres of foraging habitat for white-tailed kite was modeled on Covered Lands.

Recovery

The white-tailed kite is not listed under the ESA, so we have not developed a recovery plan for the species to which we can refer to assess its recovery status. In the absence of a recovery plan, we default to the general conservation of the species. For a species like the white-tailed kite that has lost a large percentage of its former known occupied habitat, recovery would necessitate the conservation of much of the remaining habitat that supports the species. In addition, restoration of suitable habitat that has been disturbed but otherwise remains undeveloped would be a priority. Lastly, efforts to establish the species in unoccupied but otherwise suitable habitat would contribute to its recovery. Because the white-tailed kite has been observed on the Covered Lands and extensive modeled suitable habitat is present, the Covered Lands may serve a role in the conservation of the species.

EFFECTS OF THE ACTION

Planwide Activities

Livestock

The applicant proposes to continue grazing livestock on the balance of the action area outside development areas, consistent with the types and level of historic grazing ranch management practices. The current condition, and expected future condition, of the action area is maintained primarily by grazing livestock. Studies suggest that light to moderate grazing has a neutral to positive effect on white-tailed kite. White-tailed kites feed on voles in grasslands, therefore, if overgrazing occurs, livestock may impact white-tailed kite foraging habitat by reducing prey availability. However, the white-tailed kite forages in a variety of habitat types and occupies a relatively large range in North America. Given the relatively small amount of habitat in the action area relative to this range, any effects on the species from grazing in the action area would be negligible. In addition, under the TUMSHCP, the Applicant must submit a grazing management plan as a component of the RWMP to the Service every 5 years for our review and approval. Additionally, through the adaptive management provisions of the Plan, we may work with the Applicant to develop up-front mutually agreed-upon changes in the operating conservation plan that may be necessary for Covered Species in light of new information. Therefore, if warranted, additional measures or modification of grazing practices may be added to ensure the compatibility of grazing. Our review of such plans will allow for the implementation of additional measures or modification of grazing practices to maintain suitable habitat for the white-tailed kite if necessary. Therefore, overall, livestock grazing is likely to have neutral to beneficial effects on the white-tailed kite and its habitat in the action area.

Range Management/Ancillary Ranch Structures

Range management activities support livestock operations and consist of construction, operation, and maintenance of watering facilities, feeding areas, fences, and corrals, consistent with the types and level of historical grazing and ranch management practices; repair, reconstruction, and

relocation of roads to accommodate historical grazing and ranch management practices; and repair, maintenance, or installation of ranch management communication equipment (e.g., whip antennas) less than 20 feet high. The repair, reconstruction and relocation of roads to accommodate historical grazing and ranch management practices are evaluated below under Roads. Range management also incorporates ancillary ranch structures including squeezes, loading chutes, holding and feeding fields, corrals, branding traps, barns, sewage disposal facilities, livestock and wildlife watering facilities, and utilities serving existing ranch uses.

As described above under Planwide Activities in the Description of the Proposed Action section, *de-minimis* activities associated with ancillary ranch structures would be covered under the TUMSHCP. Non–*de minimis* activities associated with ancillary ranch structures are also allowed (1) if the activity is located in disturbed areas (e.g., undergrounding utilities in road rights-of-way), or (2) following a meet-and-confer process with the Service to ensure that the activity associated with an ancillary ranch structure avoids or adequately minimizes impacts to Covered Species and their habitats.

These activities are subject to the 200-acre disturbance limit, occur at a small scale relative to the size of the action area, and range management facilities already exist in the action area. We anticipate that this activity will have negligible effects on the white-tailed kite because such activities are irregular, and the Service will review and approve the Applicant's grazing management plan, and work with the Applicant to implement adaptive management measures as necessary. Range management/ancillary ranch structures have not been documented to adversely affect white-tailed kites. Therefore, we do not anticipate any adverse effects from these activities when covered under the TUMSHCP.

Fuel Management

Fuel management practices consist primarily of grazing, and the effects of fuel management by grazing should be largely consistent with the effects of livestock in general with respect to impacts on white-tailed kites and modeled habitat. Therefore, we expect any effects on white-tailed kites due to fuel management by grazing to be negligible. Non-grazing fuel management activities include fuel modification zones created by existing roads and through irrigation and/or vegetation clearing, and mowing within 120 feet of surrounding existing structures (i.e., backcountry cabins, ancillary ranch structures, and other existing structures). Vegetation thinning and mowing are the current practices around cabins and roads. Mowing may create enough noise to cause white-tailed kites to avoid suitable habitat temporarily. However, mowing for fuel management would occur infrequently/irregularly. Therefore, we expect adverse effects from mowing to be negligible.

Fuel management associated with proposed development is discussed below under Commercial and Residential Development Activities.

Filming

Filming activities generally consist of temporary on-scene filming and photography-related uses, including, but not limited to the filming and staging of movies, television shows, and commercials; photo shoots; and still photography and related uses. Such activities may include the erection and dismantling of props, temporary installation of trailers and equipment for film crews, filming of on-camera action, catering, rehabilitation of disturbed areas, and the movement of film crews to and from locations.

Film shoots that include explosives or other loud noises could adversely affect white-tailed kites that may be roosting, feeding or nesting in the action area. Explosions (louder than gunshots) or other abnormally loud noises are prohibited throughout the TUMSHCP Mitigation Lands unless the Service-approved Tejon Staff Biologist, in consultation with the Service, determines that no California condors are present, and explosions (louder than gunshots) are strictly prohibited in the Condor Study Area portion of the Covered Lands (see Table 2 of this biological opinion). These restrictions on explosions to protect California condors would also benefit any white-tailed kites in the action area.

We expect filming to cause only minimal impacts to white-tailed kites because filming occurs over a relatively short time frame, the Applicant would require that habitat disturbed by filming activities be restored to pre-filming conditions, for any disturbed habitat due to filming. Applicant would require that temporary construction avoid sensitive resources, including reducing noise-related disturbance. We do not expect direct impacts to individual kites from filming, because white-tailed kites are considered an seasonal migrant on the Covered Lands and given the size of the action area and that filming is generally small scale and intermittent, it is unlikely that white-tailed kites would be present in the same location and time. The Applicant's proposal to manage open space lands to ensure that the existing natural resource and conservation values of the Ranch are protected, including reducing noise-related disturbance, would minimize adverse effects from filming. Therefore, we do not expect filming activities to cause substantial adverse effects to white-tailed kites.

Recreation

Recreation associated with the Planwide Activities includes private recreation by TRC, its employees and guests and public access is governed by the Interim RWMP and managed by the Conservancy. Such recreational use is also subject to the terms of the TUMSHCP and the terms of Service-approved conservation easements. While the private recreation by TRC occurs currently throughout the Covered Lands, public recreation, which generally consists of docent led tours by the Conservancy per the Interim RWMP, occurs in the Established Open Space portion of the Mitigation Lands. These public and private recreation uses are limited to passive activities listed in the Project Description. Recreation activities associated with Planwide Activities would occur in open space areas generally outside the TMV Planning Area at a relatively small scale, and have infrequent impacts. Recreational uses by TRC, its employees, and the public are limited by the access guidelines and best management practices in the Interim

RWMP and will be further regulated in Public Access Plans, which are subject to permanent Service review and approval. We note that future development in the TMV Planning Area will likely lead to increased recreation demand by TMV Project residents and guests, but the type and nature of the use is the same. All such recreational use in the protected open space will also be regulated in the Public Access Plan, which will require monitoring and enforcement and is subject to permanent Service review and approval. The effects of recreation on the white-tailed kite in the TMV Planning Area Open Space are discussed separately under Commercial and Residential Development Activities.

Recreational activities could have an adverse effect on white-tailed kite if such activities were in close proximity roosting, foraging, or potentially nesting locations. The level of disturbance would depend on the level and duration of the recreational activity. This could range from temporary flying away from the roost or nest to abandoning the location. A recent study of white-tailed kite nesting and roosting behavior in Santa Barbara County (Rincon 2010) indicates that individuals of this species are tolerant of urban development and other human activities within 500 feet of nests and roost sites. However, it is likely that white-tailed kites, like peregrine falcons and many other raptor species, exhibit individual tolerances or habituation to urban settings and human activities. Rincon (2010) examined historic nest site locations in Goleta Valley in relation to different types of disturbances, including development (roads, fencing, walls, and fuel management zone), active non-motorized recreational uses such as equestrian and bicycling, and passive recreation such as walking and bird watching. The data used for the analysis were based on 2008 and 2009 surveys on More Mesa and historic nests and roosts dating back to 1963, background literature, and consultation with local experts. Of 42 nest sites, 17 occurred within 500 feet of some type of urban disturbance, indicating some level of tolerance by individuals of this species to human activities. White-tailed kites generally were more tolerant of nonstructural human activities (e.g., recreation), with 13 of the 17 nest sites located within 125 feet of a road, yard, agricultural field, trail, or other nonstructural type of human disturbance. Nine of the 17 sites were located within 140 feet of a structure (Rincon 2010). Based on this analysis, Rincon (2010) developed nest and roosting buffer guidelines, including the following:

- 1–125 feet: minimum area of no human activity
- 125–200 feet: passive recreation (walking and bird watching)
- 200–265 feet: active recreation (equestrian, bicycling – no motorized vehicles)
- 265–340 feet: roads, fencing, walls, lawns, 100-foot fuel management zone
- 340–525 feet: structures

Active monitoring and regulation of recreational activities by TRC staff, the Tejon Ranch Staff Biologist, or Conservancy docents, as well as provision of educational materials and restrictions on the location and types of any organized events, should further reduce the potential for disturbance. Pursuant to the TUMSHCP (7.1.1.2.11), if active white-tailed kite nests are detected during pre-activity surveys, the provision of 500-foot setbacks around any active nests from recreational activities during the white-tailed kite breeding season (see Table 2 of this biological opinion). Further, private recreation activities are limited by the requirement to

preserve conservation values of the Covered Lands and to follow best management practices required to be developed through the RWA as part of the RWMP. Public recreation activities will be governed by a Public Access Plan in areas managed by the Conservancy, subject to Service review and approval for consistency with the TUMSHCP and ESA and the terms of applicable TUMSHCP conservation easements. An Interim RWMP is currently in place that provides for docent-led public tours and requires pre-activity surveys prior to any ground-disturbing activities. We anticipate the number of tours or events may increase, but the future type and management of public access would be consistent with what occurs under the Interim RWMP.

Given the abundance of the conserved foraging habitat, low likelihood of nesting on the Covered Lands, generally limited occurrences of white-tailed kites on the Covered Lands, and restrictions on access from the TUMSHCP, we anticipate a low likelihood of disturbance to white-tailed kites from recreational activities.

Irrigation/Water Diversion

The action area contains minor water diversions for irrigation of agriculture, a few small agricultural areas totaling 232 acres within the Covered Lands (e.g., small vineyards and an orchard near Castac Lake. Agricultural uses that remain in open space after TRC identifies the final development footprint would continue subject to State and local regulations. These agricultural uses are not anticipated to result in any adverse impacts to white-tailed kites within Covered Lands because many agricultural areas provide a benefit to white-tailed kites by serving as a source of prey items.

We are not aware of adverse effects to the white-tailed kite as a result of existing farming and irrigation systems. The Applicant is not proposing to expand the current irrigation capacity/diversion capacity and existing uses would not cause impacts. Maintenance and relocation work, if any, is subject to the pre-survey and avoidance requirements in the TUMSHCP. Also, prior to the Applicant relocating existing water diversions, the Service would review, and approve the proposed new locations. Given the rarity of the species in the action area, and the Applicant's proposed minimization measures, we expect impacts of irrigation/water diversion to be infrequent and negligible.

Roads/Trails

A network of generally unpaved roads exists in the action area as access for fire protection, security, ranching activities, and hunting. As described in the TUMSHCP, the roads outside the developed areas would be maintained, relocated, or new roads could be constructed, in compliance with the 200-acre limit on disturbance by Planwide Activities, to facilitate the Planwide Activities. The unimproved dirt roads exist for access for fire protection, security, ranching activities, and hunting. Road/trail use is expected to be irregular and of low intensity. Any new or relocated roads will be sited to avoid impacts to sensitive resources, including nesting birds and habitat as any new or relocated roads would require efforts to minimize the

footprint and use BMPs for the design and installation, including surveys prior to grading, contractor education, staking and temporary construction fencing. Use of roads for Planwide Activities includes the private recreation analyzed above and road maintenance/construction to accommodate ranch activities.

In general, the likelihood of impacts is low, because the species occupies the action area at low density, and the majority of modeled suitable habitat is in areas with infrequent road/trail use. Road/trail use outside of the TMV Planning Area would be irregular and less intense, and we do not expect the presence and use of roads/trails to preclude white-tailed kites from using nearby suitable habitat or to cause white-tailed kites to vacate occupied habitat. However, road construction and maintenance could destroy white-tailed kite habitat or disturb individuals. Also, roads are common vectors for non-native plant species that could negatively alter white-tailed kite habitat. However, new or relocated roads must first be evaluated, including a site assessment, to avoid impacts to sensitive resources including nesting white-tailed kites. The Applicant will implement measures from Section 7 of the TUMSHCP to avoid impacts, as follows: Objective 8.1: Management and planning of activities in open space must incorporate the final baseline surveys required per Section 7.3.2 and results of annual monitoring. Objective 8.2: The installation of infrastructure (and trails) or other permanent ground-disturbing activity within open space areas will include efforts to minimize the footprint and use BMPs for the design and installation of any such infrastructure, including surveys prior to grading, contractor education, staking, and temporary construction fencing. Objective 8.3: Selection of any new public access trails must be made in consultation with the project biologist, and the selection of appropriate locations for access, trails, and facilities will minimize impacts to the open space areas. Therefore, we expect that impacts of maintenance, relocation, or construction of roads or trails to nesting white-tailed kite, if such nesting were to occur, would be avoided, and that any impacts of these activities to non-breeding white-tailed kites would be rare and minor.

The direct and indirect effects of roads as a result of residential and commercial development are addressed below under Commercial and Residential Development Activities.

Utilities

The action area contains, or would contain, various small utilities to support ranch activities. As described in Section 2.2.1 of the TUMSHCP, these utilities would be *de minimis* or would be located in previously disturbed areas (e.g., undergrounding utilities in road rights-of-way). Any utilities associated with Planwide Activities that are not *de minimis* or cannot be located in previously disturbed areas would require Service review and approval prior to relocation or construction. Installation or maintenance of utilities may affect white-tailed kites by disturbing habitat or individuals. However, we do not expect utilities to have a measureable impact on the white-tailed kites, because the utilities affect a very small percentage of the action area, the limited use of the Covered Lands by white-tailed kites, and the Applicant’s proposal to survey prior to grading and construction and apply avoidance buffers if white-tailed kites are present should avoid adverse impacts to white-tailed kites by utilities.

We address potential impacts by utilities associated with the proposed development below under Commercial and Residential Development Activities

Backcountry Cabins

Eight backcountry cabins occur in the action area and could be maintained, improved, repaired, replaced, or reconstructed in their existing location. We do not expect that activities associated with backcountry cabins will adversely affect the white-tailed kite because the rarity of the species in the action area, the Applicant's proposed minimization measures such as pre-disturbance surveys and protection zones around any active nests found. Additionally, we are unaware of adverse effects to the species from cabins on the Covered Lands or in other areas. Also, prior to TRC relocating an existing cabin, the Service would review, and potentially approve the proposed new location. This would ensure that the new cabin location is compatible with the conservation of the white-tailed kite.

Fencing

Fences exist throughout the action area. Fences would be maintained and new fencing could be constructed and maintained as required to support the Covered Activities, including exclusion of cattle from sensitive habitats that support covered species. New fences are also subject to best management practices provided in the RWMP for fencing including measures to avoid fencing-related impacts to sensitive resources, and the selective use of fencing to limit direct livestock interactions with natural water sources. In addition, we are not aware of fencing activities being a source of adverse effects to white-tailed kites historically. As a component of the RWMP, the grazing management plan will be submitted to the Service as a component of the RWMP every 5 years for our review and approval. We do not expect that activities associated with fencing will adversely affect the white-tailed kite because of the rarity of the species in the action area, and the Applicant's proposed minimization measures including the fencing BMPs and measures within the grazing plan and RWMP to ensure protection of white-tailed kite habitat values. For these reasons, we expect the effects from fencing to be negligible on the white-tailed kite.

Lebec/Existing Headquarters Area Uses

Existing activity in the Lebec/Existing Headquarters Area (i.e., corporate headquarters buildings, an antique shop, a post office, a church, and several single-family residences for ranch employees) would continue to occur. While additional development could occur here under the TUMSHCP, TRC has not included development plans for this area in the project description. The ongoing activities associated with this area may affect the white-tailed kite, because small amounts of modeled suitable habitat for the species occur in this area. However, because the activities occur at such a small scale relative to the amount of modeled habitat in the action area, and the relatively low number of kites expected to occur within the action area, and because white-tailed kite would likely avoid this area due to the level of human activity, the effects on the white-tailed kite would be negligible.

Potential development related impacts in the Lebec/Existing Headquarters Area are addressed below under Commercial and Residential Development Activities.

Mitigation, Monitoring, and Management

Mitigation, monitoring, and management activities to carry out identified biological goals and objectives for the California condor or other Covered Species included in the TUMSHCP or other resource agency permits for the commercial and residential Covered Activities, as well as mitigation, monitoring, and management activities imposed pursuant to any local, State, or Federal approval of development on Tejon Ranch would be carried out in accordance with the Act and would be subject to Service review. We acknowledge that other agencies may credit the Applicant for mitigation and protective measures included in the TUMSHCP for mitigation imposed by such other agencies. Any restoration, enhancement, or similar mitigation activities would not be allowed if they would result in unpermitted adverse effects to species or critical habitat under the Act. Additionally, any mitigation activities for other agencies would be subject to the protective measures included in Tables 1 and 2, in the Description of the Proposed Action section of this biological opinion. Therefore, we anticipate that any potential threats to the white-tailed kite as a result of mitigation, monitoring, and management activities would be effectively minimized.

Estimate of Disturbance by Planwide Activities

The Applicant proposes a maximum of 200 acres of ground disturbance associated with the Planwide Activities described above. These ground disturbances would occur outside of the proposed development (discussed below) and may be permanent or temporary. The disturbance would primarily be associated with construction of roads, backcountry cabins, and ancillary structures. If the Applicant restores a portion of this disturbance, an area equal in size may then be disturbed. Thus, no more than 200 acres may exist in a developed condition because of Planwide Activities at one time.

For the purposes of this effects analysis, we assume that all parts of the action area that could be affected by Planwide Activities have an equal chance of being affected and that all habitat types would be affected in equal proportion. This assumption is based upon the Applicant's inability to predict exactly where 200 acres of habitat disturbance due to Planwide Activities would occur. In addition, there is no indication that the distribution or location of white-tailed kite modeled habitat would cause Planwide Activities to disproportionately occur in white-tailed kite modeled habitat.

For the purposes of estimating species-specific habitat disturbance by Planwide Activities, we are not using the 8,817-acre development envelope used by the Applicant to estimate impacts from development (TUMSHCP Table 2-1, footnote 4), but rather we are using the 5,533-acre area that actually could be developed within the development footprint. We did this, because after the 5,533-acre development footprint is developed, 3,284 acres of the 8,817-acre development envelope would remain and be subject to Planwide Activities, and modeled habitat

for the white-tailed kite could occur in the 3,284 acres. Therefore, we included 3,284 acres of the development envelope in this analysis to acquire an estimate of habitat lost by Planwide Activities that is as accurate as possible. When we combine this estimate with anticipated habitat loss from commercial and residential development in a summary effects analysis (discussed below), we will have slightly double-counted and overestimated the amount of white-tailed kite habitat that would be lost in the action area. This slight overestimation of lost habitat does not compromise our analysis, because the overlap is very small relative to the size of the action area, and this approach errs on the side of the species by analyzing a larger impact than would actually occur.

Adding together commercial and residential development, National Cement and La Liebre Mines, the VA Cemetery, and Not-A-Part lands (blocks of land within the boundary of the action area but not owned by the Applicant), a total of 12,423 acres are not subject to Planwide Activities. We expect that Planwide Activities could occur on the remaining 129,463 acres of the action area (141,886 acres within the action area minus the 12,423 acres of excluded areas above). Therefore, the ratio of disturbance due to Planwide Activities (200 acres) to Covered Lands subject to Planwide Activities (129,463) equals 0.0015. We applied this ratio to white-tailed kite habitat outside the excluded areas but in the action area and rounded the remainder up to a whole acre. Thus, 9,009 acres of modeled habitat minus 1,874 acres lost to development equals 7,135 acres subject to Planwide Activities. Using our ratio of 0.0015, we anticipate that Planwide Activities would disturb or remove approximately 11 acres of modeled suitable foraging habitat for the white-tailed kite over the permit duration. This could be an overestimate because the TUMSHCP is proposing measures to minimize disturbance to white-tailed kite habitat, including pre-construction surveys and setback from active nests.

Thus, while there could be a very small loss of white-tailed kite modeled suitable habitat due to Planwide Activities, in comparison to the modeled suitable habitat conserved, the loss would have a minimal effect on the species. Consequently, we conclude that the effects of Planwide Activities on the white-tailed kite and its habitat would be minimal under the TUMSHCP and would not appreciably reduce the subspecies' reproduction, numbers or distribution in the Covered Lands or rangewide.

<u>Proposed Commercial and Residential Development Activities</u>

Direct Effects

The proposed residential and commercial development would permanently remove 1,874 acres (21 percent) of modeled primary foraging habitat for the white-tailed kite. This habitat loss includes any modeled habitat for the white-tailed kite lost as a result of development activities in the Lebec/Existing Headquarters Area.

As stated above, the Covered Lands are at the edge of the species elevation foraging range and white-tailed kite has not been documented as nesting within Covered Lands. We expected the white-tailed kites to continue to use foraging habitat, while it is uncertain whether they will use

the Covered Lands for nesting. Based on documented home range sizes of this species, and assuming saturation of all modeled foraging habitat, this would amount to a potential loss of habitat supporting one foraging range. Therefore, the fact that the potential grassland foraging areas are outside of the elevation at which the species occurs and few of the foraging areas within the modeled suitable foraging habitat are adjacent to permanent water sources, and because not all modeled habitat is expected to be occupied by this species, it is estimated that modeled foraging habitat loss would potentially affect no more than a portion of one foraging range. The loss of 1,874 acres (21 percent) of modeled foraging habitat for white-tailed kites within Covered Lands would not affect this species use in the action area because 7,021 acres (78 percent) of modeled foraging habitat would be conserved.

Implementation of avoidance and minimization measures, including pre-construction and pre-activity surveys for the project biologist will monitor construction activities in suitable foraging habitat to assure avoidance of any adverse effects to individuals, and will have the authority to stop construction activities if white-tailed kites are found in harm's way. Any active white-tailed kite nest sites detected in the action area will be conserved with application of the proposed avoidance and minimization measures, including pre-construction surveys and avoidance of construction during the breeding season if nesting white tailed kites are observed. Preconstruction surveys will be conducted for active white-tailed kite nests during the breeding season (March through September) prior to development in or immediately adjacent to the modeled foraging habitat. If active white-tailed kite nest sites are detected during surveys prior to grading, a protection zone of 500 feet around each nest will be established and no grading or land-altering activities will be allowed within this zone to protect the viability of the nest territory as long as the nest is active. The project biologist in coordination with the Service may reduce the 500-foot setback at his or her discretion depending on the suitability of site conditions; however, the setback may not be less than 300 feet. The permanent loss of a portion of one foraging range within Covered Lands resulting from Covered Activities would not substantially affect the potential for the white-tailed kite to nest on site although breeding on site is unlikely. With this level of conservation, adequate modeled foraging habitat would be conserved in large, unfragmented open space system on site to support white-tailed kites that currently forage on Covered Lands. In addition, this species has a broad range in California, including the entire coastal area, the Central Valley, the western Mojave Desert (winter range only), and the agricultural regions of the southern desert region from the Coachella Valley to Imperial County.

Indirect Effects

Development-related indirect impacts to white-tailed kite and modeled suitable habitat could occur from edge effects and increased human presence where modeled habitat is near developed areas. Specifically, these effects include noise/lighting, recreation, utilities, and roads/trails, as discussed below.

Developed areas would have increased lighting and noise that may disturb individual white-tailed kite or increase predation risk. Under the TUMSHCP, lighting would be directed away

from sensitive habitats to reduce this effect. Noise that could affect potential breeding or roosting areas will be minimized/avoided by establishment of a 500-foot protection zone around any active nests as well as protection measures included in a Service-approved Public Access Plan.

In addition, the increased population of the development areas is likely to increase the pressure for recreational activities, particularly in the TMV Planning Area Open Space. Recreational activities allowed within the TMV Planning Area are limited to passive recreation as described above under Planwide Activities. Even so, in the SDEIS for the TUMSHCP, we estimated that the TUMSHCP would increase the human population of the TMV Planning Area by 11,441 people, and we expect the recreational activities of future residents of the TMV Planning Area to potentially cause a higher level of disturbance and impacts in this area than in other parts of the action area that are more remote. If recreation occurs in occupied white-tailed kite habitat, it could cause a higher level of disturbance and impacts in the TMV Planning Area than in other parts of the action area that are more remote. If recreation occurs in occupied habitat, it could potentially alter white-tailed kite behavior, including feeding, and nesting activities. To minimize impacts of recreation, the Applicant would provide Home Owners' Association(s) with educational information regarding acceptable activities in open space areas, including recreational activities and pet restrictions. In addition, the Applicant would require that recreation in the TMV Planning Area, and throughout the open space, would use existing roads and trails and be conducted in a manner that would avoid adverse impacts to the Covered Species and their habitats or result in less-than-significant impacts. In addition, the access restrictions, monitoring and enforcement measures will be implemented pursuant to the Public Access Plan that will be reviewed and approved by the Service. These measures would ensure that allowed recreational activities are conducted in a manner that avoids or minimizes impacts to the white-tailed kite.

Two existing powerlines in the TMV Planning Area Open Space may be relocated within 1,000 feet of their existing location, and one existing power line will be temporarily relocated and then permanently relocated underground. White-tailed kites could be injured or killed if they collide with existing or relocated powerlines or experience electrocution from direct contact with existing or relocated powerlines, and could be disturbed from foraging or nesting if present during the relocation of powerlines and support structures. Based on the limited use of the Covered Lands by white-tailed kites, we anticipate a low potential for collision or electrocution associated with existing or relocated powerlines. If active nests are detected during surveys a 500-foot protection zone around any active nests will be established to minimized/avoided adverse impacts.

New utilities to support development would be undergrounded within the development area, except that the two communication towers described under "Communication Towers" in the Description of the Proposed Action section above (also on page 4-52 and elsewhere in Section 4 of the TUMSHCP) would be installed above ground. Once underground, operating these new utilities would not cause ongoing impacts to species. The two communication towers pose a limited collision risk for white-tailed kites; however, the towers are not in modeled suitable

habitat for the species, and the towers occupy a very small fraction of the action area. In addition, the two communication towers will include design restrictions identified by the Service to minimize the potential for collisions. These restrictions must be reviewed and approved by the Service and require that (1) the towers be self-supporting (i.e., no guide wires must be included as part of the design); and (2) the tower facades will be primarily solid (e.g., through use of panels or other sidings, wider or denser lattice work, or alternative tower solutions as approved by the Service) to increase their visibility. Therefore, the risk of collision for the white-tailed kite is very low and the affect is negligible.

The Applicant proposes to clear and thin vegetation within 200 feet of the proposed development, creating a fuel modification zone of up to 1,773-acres. The expected intensity of disturbance associated with these activities alone would not preclude white-tailed kites from using modeled habitat near the area; however, the ongoing maintenance of this, whether by grazing or mechanical means, could cause white-tailed kites to temporarily avoid suitable habitat. The estimated areal extent in which fuel modification may affect the white-tailed kite is included in the 1,874 acres of modeled habitat estimated be lost within the 8,817-acre development envelope.

Roads and trails receiving the most use would be located in the TMV Planning Area. Under the TUMSHCP, we expect road use in the development areas to be typical of residential/ commercial areas. In the SDEIS for the TUMSHCP, we estimated that the TUMSHCP would increase the human population of the action area by 11,441 people resulting in 79,514 additional vehicle trips per day. We expect most of these vehicle trips to occur near the commercial areas, and the number of vehicle trips would decrease with distance from Interstate 5. Vehicular traffic to the open space would be restricted and managed, but nonetheless, use of roads in the TMV Planning Area would increase substantially over baseline conditions and could adversely affect the white-tailed kite.

Noise and human/vehicle presence associated with frequent road use could preclude individuals from using nearby suitable habitat or flush white-tailed kites from nests subjecting them to higher risk of nest abandonment and increased energy expenditure. Motorized vehicles, off-highway vehicles, etc. could potentially, injure or kill white-tailed kites if collisions occur. To minimize adverse effects from use of roads, the Applicant proposes to include educational materials as required by the CC&Rs to all homeowners and recreational users. Access to the open space will continue to be controlled by the Public Access Plan and vehicle use is not anticipated to increase significantly in the open space areas. (Other recreational use is discussed above). Given the size of the action area and the majority of modeled habitat is outside the TMV Planning Area development envelope, and the protective measures; we expect the collision risk to be low. Therefore, we determined that the effects of vehicle collision for white-tailed kite are negligible.

TUMSHCP Mitigation

The Applicant proposes to preserve in perpetuity virtually all of the action area outside the development envelopes, including 7,021 acres of modeled suitable habitat for the white-tailed kite. We estimate that all individual white-tailed kites that occur in the action area outside the development would continue to utilize the preserved land in its current condition. The proposed conservation of 78 percent of modeled suitable habitat for the white-tailed kite is consistent with conservation biology principles calling for large, interconnected blocks of habitat that support a given species' life history requirements. The conservation of the Mitigation Lands would benefit the white-tailed kite by permanently securing them from future habitat loss in the action area and maintaining a large area of white-tailed kite habitat.

Summary of Effects

After examining the direct and indirect effects in the action area, the next step in determining whether a proposed action is likely to jeopardize the continued existence of a species, is to consider the effects of the action as against the environmental baseline with respect to the reproduction, numbers, and distribution of the species. In determining whether a proposed action is likely to jeopardize the continued existence of a species, we consider the effects of the action with respect to the reproduction, numbers, and distribution of the species. We also consider the effects of the action on the recovery of the species. In that context, the following paragraph(s) summarize(s) the effects of the proposed TUMSHCP on the white-tailed kite. The Service does not prepare recovery plans for non-listed species and expects that non-listed species are closer to recovery than listed species.

The Planwide Activities and the proposed development could have some effect on the white-tailed kite. As stated above, TRC estimates that up to 1,874 acres of modeled suitable habitat could be lost due to Commercial and Residential Development Activities, and we have calculated that in the remainder of the action area Planwide Activities could affect an additional 11 acres of modeled suitable habitat for the white-tailed kite, for a total of 1,885 acres of lost modeled suitable habitat for the species. In addition, the Planwide Activities, including recreation, and the indirect effects of development, including recreation and roads, could result in impacts to the white-tailed kite. These potential impacts include flushing of individuals, disturbance of nest burrows, or otherwise altering feeding, or breeding behavior. As described in the effects analyses above, we expect these impacts to occur rarely and have minor effects on the species in the action area.

The Applicant proposes to preserve in perpetuity virtually all of the action area outside the development envelopes, including 7,021 acres (approximately 78 percent) of modeled foraging habitat for the white-tailed kite. As described in the effects analyses above, the TUMSHCP includes measures to avoid take and minimize the effects of Planwide Activities and Commercial and Residential Development Activities impacts to the white-tailed kite, including construction, lighting, recreation, roads, utilities, and fuel management impacts (see Table 2 of this biological opinion; TUMSHCP Section 7.1.1.2.11). With the combination of avoidance and minimization

measures proposed by TRC to reduce the effects of both Planwide and Commercial and Residential Development Activities, and the conservation of almost all of the modeled suitable habitat on the Covered Lands to mitigate for unavoidable impacts, we find that the Covered Activities would not substantially affect range-wide reproduction, numbers, or distribution of the white-tailed kite.

Recovery

The white-tailed kite is not a listed species, and there are no recovery criteria with which to compare the current and future status of the species. In the absence of a recovery plan, we default to the general conservation of the species, and recovery would focus on determining the species' distribution and the conservation of much of the remaining habitat that supports the species. In general terms, where suitable habitat exists, it should be conserved and where possible, additional habitat should be created or restored. The proposed action would have a small negative effect on the species within the action area but would not appreciably affect the reproduction, numbers or distribution of the white-tailed kite rangewide. The proposed action would also result in the permanent conservation of over 78 percent of suitable modeled habitat for the species within the action area, which would have long-term, stabilizing benefits to the species by securing a portion of the species' range from future habitat loss, thus addressing a primary reason for the species' decline.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section, because they require separate consultation pursuant to section 7 of the Act.

Hunting

Private and commercial hunting operations occur on Tejon Ranch, including the action area; however, hunting is not an activity covered by the TUMSHCP. The Applicant proposes to continue hunting operations throughout the ranch during the proposed permit term and manage the hunting program to avoid take of any federally protected species. Hunting in the TMV Planning Area would be limited to guided hunts. Hunting activities involve travel on existing paved and unpaved roads, overnight use of backcountry cabins, hiking, discharging hunting weapons, etc. The effects from hunting will generally be consistent with, and to a considerable extent are captured in, the descriptions of effects for Roads/Trails, Backcountry Cabins, and Recreation described above. Therefore, we expect that hunting in the action area will have negligible cumulative effects on the white-tailed kite.

Mining

Two commercial mining operations occur in the action area, La Liebre and National Cement; these mining operations are not Covered Activities under the TUMSHCP. The total area used for the two operations is about 2,636 acres, and the Applicant would maintain the mining leases through the proposed permit term. Any use of chemicals in mining must be in conformance with Federal, State and local laws. The species is not known to occur in proximity to the mines. Therefore, it is unlikely that some suitable habitat exists in one or both of the mining areas and much of the mining areas are already disturbed. In addition, the effects of mining occur in a small area relative to the amount of modeled suitable habitat in the action area. We expect that continued mining in the action area will have no cumulative effects on the white-tailed kite.

Other Activities

As discussed above under project description, within the external boundaries of the Covered Lands, there are existing inholdings and, utilities. The Bakersfield National Cemetery also occurs inside the Covered Lands. These projects and activities are not Covered Activities under the TUMSHCP. We are not aware of any reasonably foreseeable activities within the 3,870 acres of inholdings that may affect the white-tailed kite. Activities associated with existing utilities, transmission lines and related structures, such as maintenance activities, would be restricted to currently established easement areas and would have minor, if any, effects on the white-tailed kite. Given that only a few white-tailed kites use the area for foraging, the potential for disturbance from maintenance activities or injury from collision would be infrequent and minor. Therefore, we do not anticipate any cumulative effects from the ongoing maintenance and operation of non-covered existing utilities. The Bakersfield National Cemetery is in place, and we are not aware of any activities associated with the cemetery that may have an adverse effect on the white-tailed kite.

CONCLUSION

After reviewing (1) the current status of the white-tailed kite; (2) the environmental baseline for this species in the action area; (3) the effects of the proposed action; and (4) the cumulative effects, it is our biological opinion that the Service's issuance of the proposed ITP is not likely to jeopardize the continued existence of the white-tailed kite. We reached this conclusion because:

1. The white-tailed kite occupies a large geographic range, of which the action area is a small fraction. The permanent loss of a portion of one foraging range (1,885 acres) within Covered Lands resulting from Covered Activities would not substantially affect the potential for the white-tailed kite to nest on site. The white-tailed kite has a broad range in California, including the entire coastal area, the Central Valley, the western Mojave Desert (winter range only), and the agricultural regions of the southern desert region from the Coachella Valley to Imperial County. The proposed Covered Activities would affect a tiny portion of the species and its range and would not reduce the range-wide reproduction, numbers, or distribution of the species.

2. White-tailed kites have not historically and are not currently known to breed within the Covered Lands. The white-tailed kite currently uses the Covered Lands for foraging.

3. The majority of the action area, including the majority of suitable white-tailed kite habitat (78 percent), would be preserved in perpetuity, reducing the amount of white-tailed habitat that could be lost in the future. We expect this to have long-term, stabilizing benefits to the white-tailed kite and its remaining habitat.

4. The current condition, and expected future condition, of the action area is maintained primarily by grazing livestock. Studies suggest that light to moderate grazing has a neutral to positive effect on white-tailed kite.

5. The Applicant will implement protective measures as part of the proposed activities (e.g., surveying development areas prior to construction and setbacks for white-tailed kite) that will reduce or avoid impacts to the white-tailed kite.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

Amount or Extent of Take

We expect the Planwide Activities, including road/trails, recreation, and the indirect effects of proposed development activities, including recreation and roads, could result in some adverse effects on the white-tailed kite. These potential impacts include disturbing of individuals foraging and disturbance of nests, or otherwise altering feeding, or breeding behavior. However, as also described in the effects analyses above, we expect these impacts to occur rarely and have generally rare and minor effects on the species in the action area because the action area is generally outside the elevation breeding range recorded for kites and because very few kites have been observed during extensive surveys conducted in the action area. Based on the limited

potential for white-tailed kites to occur on the Covered Lands, limited threats associated with the proposed commercial and residential development and Planwide Activities and the conservation measures proposed as part of the TUMSHCP, we do not anticipate any incidental take of the white-tailed kite as a result of the Service's issuance of the proposed section 10(a)(1)(B) permit.

Effect of the Take

In the accompanying biological opinion, the Service determined that the proposed action is not likely to result in jeopardy of the white-tailed kite and that none would be taken.

REASONABLE AND PRUDENT MEASURES / TERMS AND CONDITIONS

As described above, the proposed TUMSHCP and associated documents identify anticipated impacts to the white-tailed kite as well as measures that are necessary and appropriate to minimize those impacts. These measures will effectively avoid take of the white-tailed kite from the Covered Activities. Therefore, no reasonable and prudent measures or terms and conditions to minimize take are required or included in this incidental take statement.

BALD EAGLE

STATUS OF THE SPECIES

Regulatory History

The bald eagle was initially listed on February 14, 1978, as an endangered species throughout the lower 48 states, except in Minnesota, Michigan, Wisconsin, Washington, and Oregon, where it was listed as a threatened species. On July 12, 1995, the Service announced that the bald eagle would be reclassified from endangered to threatened in the lower 48 states, effective August 11, 1995 (Service 1995b). This species was entirely removed from the list of Federal threatened and endangered species on July 9, 2007 (Service 2007a). The banning of the pesticide DDT and the habitat protection afforded by the Endangered Species Act for nesting sites and important feeding and roost sites precipitated the delisting (Service 2007a). The bald eagle is still protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act (Service 2007a). Despite Federal delisting, the bald eagle is still designated as an endangered species in California and is fully protected in the state.

The Bald and Golden Eagle Protection Act (BGEPA), 16 United States Code (U.S.C.) 668 – 668d, prohibits take of eagles. Take as defined under the BGEPA, includes the actions to "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb" (16 U.S.C 668c). To disturb a bald or golden eagle means “to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best available scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding or sheltering behavior” (50 CFR 22.3). The BGEPA "is not a habitat management law" (Service 2007b), and does not protect habitat per se, other than eagle nests. Therefore, permit coverage for eagles is not required for activities that modify habitat, unless the activities result in take of an eagle under one of the terms in the definition. The Service determined through recent rulemaking that ITPs issued pursuant to the ESA and its implementing regulations (16 U.S.C. 1531 et seq.; 50 CFR 17.1 et seq.) may be lawfully issued to cover take under the BGEPA.

In 2008, the Service issued a Final Rule regarding authorization under the BGEPA for take of bald and golden eagles (Service 2008). This rule, which became effective on June 19, 2008, extended BGEPA take authorization to holders of existing ESA Section 10 permits and allowed take authorization to be extended to future Section 10 ITPs associated with HCPs for multiple species that include bald or golden eagles as Covered Species (50 CFR 22.11). The new regulations state that "a permit that covers take of bald eagles or golden eagles under [Section 10 of ESA and its implementing regulations at 50 CFR Part 17] for purposes of providing prospective or current ESA authorization constitutes a valid permit issued under this part for any take authorized under the permit under part 17 as long as the permittee is in full compliance with the terms and conditions of the permit issued under part 17” (50 CFR 22.11(a)). In general, the statutory and regulatory criteria for issuing ESA incidental take authorization include

minimization, mitigation, or other conservation measures that also satisfy the statutory mandate under the BGEPA that authorized take be compatible with the preservation of the bald or golden eagle (Service 2008). The new regulation provides for revocation of the ITP as applied to bald and golden eagles if the Service determines that activities covered by the ITP are "incompatible with preservation of the bald eagle or golden eagle."

Natural History/ Habitat Requirements

The bald eagle is a large raptor with a distinctive white head and tail and dark brown body and wings at maturity. Although the sexes are similar in appearance, females are slightly larger than males on average. Juveniles are distinguished from adults in their dark brown head, body, wings, and tail. Plumage also varies with timing and sequence of molt (McCollough 1989).

Fish are the principal component of the diet of bald eagles; however, many other types of prey are also taken, including waterfowl, small mammals, and carrion, especially in the wintering areas (Service 1995b). The bald eagle swoops from hunting perches or soaring flight to pluck fish from water. It is also known to wade into mustow water to pursue fish. It may pounce on, or chase, injured or ice-bound water birds. In flooded fields, the species occasionally pounces on displaced voles, or other small mammals. Open, easily approached hunting perches and feeding areas are used most frequently (Zeiner et al. 1990b). Bald eagles may hunt cooperatively (Brown 2006a). Studies of prey items in northern California showed bald eagles do not differentiate between native and non-native freshwater fish species (Jackman et al. 1999). One study of bald eagles in Texas found them to eat a relatively equal proportion of birds, reptiles, and fish (Mabie et al. 1995). One wintering population in the lower Great Lakes basin fed on carcasses of white-tailed deer during 47 percent of observed feedings (Ewins and Andress 1995). The same group observed immature individuals feeding on garbage and offal during 39 percent of observed feedings. The bald eagle competes with, and steals prey from, osprey (Zeiner et al. 1990b). It has also been observed causing a turkey vulture to disgorge its food (Brown and Amadon 1968).

Wintering bald eagles in New Mexico spent 95.3 percent of their time perched and 4.7 percent in flight (Zwank et al. 1996). Of the time spent in flight, 13.0 percent was spent foraging (Zwank et al. 1996). Winter feeding usually occurs immediately after dawn and in late afternoon (Zeiner et al. 1990b). Bald eagle nesting occurs in open areas near water. These nests are often in large snags or old-growth trees (Brown 2006a). The bald eagle will also nest in a dominant live tree with open branches, especially ponderosa pine (*Pinus ponderosa*). It nests most frequently in stands with less than 40 percent canopy cover, but usually with some foliage shading the nest (Call 1978). It often chooses the largest tree in a stand on which to build its stick platform nest. The nest may be a massive structure, 12 feet high and 8.5 feet across, with a wet mass of decaying vegetation in the center (Brown and Amadon 1968). The nest is usually located near a permanent water source. In California, 87 percent of the nest sites of the bald eagle were within 1 mile of water. Individuals have been known to use the same nest for up to 35 years (Brown 2006a).

The clutch size of the typically monogamous (Zeiner et al. 1990b) bald eagle is usually two, but can vary from one to three, and eggs are laid once annually (Brown 2006a). The bald eagle breeds from February through July, with peak activity from March to June. Incubation of the eggs usually lasts 34 to 36 days (Ehrlich et al. 1988). The young of the bald eagle leave the nest 70 to 98 days after hatching but do not reach breeding age until four or five (Brown 2006a). A mark-recapture study of a breeding population in Texas concluded that birds fledged there may disperse to breeding communities throughout the southern United States (Mabie et al. 1994).

In one study of bald eagle nests in British Colombia, Canada, food supply was identified as the "key factor" in limiting breeding success (Elliot et al. 1998). Because of the asynchronous hatching, the older nestling may kill the younger, smaller sibling if the food supply is inadequate (Brown and Amadon 1968). The recorded longevity in the wild is 28 years and 36 years in captivity. Bald eagles may follow the survival pattern similar to other raptors with lower first-year survival, followed by increasing survival to adulthood. Adult survival is high in most studies conducted on survivorship (Buehler 2000).

The home range of resident bald eagle pairs on the Columbia River averaged 13.67 square miles for both breeding and non-breeding periods (Garrett et al. 1993). The breeding territory in Alaska (n=14), varied from 11 to 45 hectares (28 to 112 acres), and averaged 23 hectares (57 acres) (Hensel and Troyer 1964). Non-breeding bald eagles, however, are known to use much larger areas. These areas are not used with any consistency like breeding eagles but, instead, they travel widely in search of food resources (Buehler 2000). Winter home ranges vary widely; Chesapeake Bay eagles used 10,000s of square miles (Buehler et al. 1991), Arizona eagles used from more than 24,000 square miles to less than 260 square miles (Grubb and King 1991), a Michigan eagle used more than 13,000 square miles (Grubb and King 1991), Colorado eagles used 192.62 square miles (Harmata 1984), and Montana eagles had wintering ranges between 63 to 2,439 square miles (McClelland et al. 1996). The breeding territory is defended from the time of mating through the fledging period, with minimum distances between bald eagle nests from 0.6 mile in Alaska to 10 miles in Washington (Zeiner et al. 1990b). Non-breeding eagles, including wintering individuals, are not very aggressive and associate freely (Buehler 2000); however this is anticipated to change based on food availability (Hansen 1986).

Distribution and Population Trends

The bald eagle is the only sea eagle regularly occurring on the North American continent. Bald eagles breed locally from Alaska eastward to Newfoundland and southward locally to Baja California, Sonora, Texas, and Florida. The species winters in the large majority of the breeding range but generally withdraws from central Alaska and the central and the northern portions of Canada (AOU 1998). Individuals that breed in California may make only local winter movements in search of food.

Within mainland Southern California, the species primarily winters at larger bodies of water in the lowlands and mountains (Garrett and Dunn 1981). It is fairly common as a local winter migrant at a few favored inland waters in Southern California, with the largest numbers

occurring at Big Bear Lake, Cachuma Lake, Lake Mathews, Nacimiento Reservoir, San Antonio Reservoir, and along the Colorado River (Zeiner et al. 1990b). The CNDDB reports two bald eagle observations along the California Aqueduct north of the southern portion of the Tehachapi Mountain Uplands (San Joaquin Valley side) of the Covered Lands (not on Covered Lands); the occurrences were in grasslands and agricultural fields (CDFW 2013; TRC 2007). The observations were made in December 1995, and between January and November, 2001, suggesting the birds were wintering. Grantham (U.S. Fish and Wildlife Service, pers. comm. 2011) also observed low numbers of bald eagles in this same area on Tejon Ranch (not on Covered Lands) on multiple occasions during the 1980s.

In California, breeding populations of bald eagles are restricted mostly to Butte, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou, and Trinity counties (Polite and Pratt 2005). This species remains susceptible to a number of threats, particularly environmental contaminants and excessive disturbance by humans. Despite these threats, the species continues to increase in numbers across its range. According to the National Audubon Society, public and private protection of the bald eagle has increased populations from 417 active nests in the lower 48 states in 1963 to 4,450 in 1994 (Service 1995b). Based on CDFG-coordinated breeding surveys begun in 1973, the bald eagle is also experiencing an increase in the number of breeding territories and an expansion in its range throughout the state. The number of occupied breeding territories increased from 32 in 1977 to 94 in 1990, 105 in 1995, 151 in 1999, and peaked at 175 in 2003 (CDFG 2011c). Between 2001 and 2003, 14 new territories were discovered, extending the southern range to Lake Hemet in Riverside County. The breeding range of the bald eagle expanded from eight counties in 1981 to 32 counties in 2003, when the number of occupied breeding territories peaked. By 2009 and 2010, however, the number of occupied breeding territories declined to 105, and the number of young produced, which peaked in 2003 at 150, declined to 58 in 2010 (CDFG 2011c).

The winter population is estimated to exceed 20,000 individuals within the continental United States (Buehler 2000). In California, the annual Midwinter Bald Eagle Survey indicates that California's winter population of bald eagle appears to be at least stable, although varying from year to year and exceeding 1,000 birds some winters. Typically, about half of California's wintering bald eagles are found in the Klamath Basin along the California–Oregon border, the location of the largest winter concentration of bald eagles in the contiguous United States (CDFG 2011c).

Reasons for Decline

The primary reason for the species' past decline includes effects of select pesticides on reproductive success. The use of DDT after World War II led to eggshell thinning, which drastically reduced reproductive success and the species' populations (Service 1995b). However, successful captive breeding efforts, the banning of certain organochlorine pesticides, and other recovery efforts have resulted in significant increases in eagle numbers on the continent. Other reasons for the species past decline include habitat loss and persecution.

Special pressures on individuals in the southwestern United States include heat stress, nest parasites, and entanglement in fishing line debris from intense fishing pressure (Service 1995b).

A study of nests in Oregon identified the following causes of nest failures: pesticides (32 percent), proximity to nearest-neighbor breeding pairs (11 percent), infertile eggs (7 percent), nestling mortality (3 percent), human disturbance (2 percent), changes in members of a pair (1 percent), and unknown causes (21 percent) (Anthony et al. 1994).

Human recreational use of reservoirs and rivers occupied by bald eagles has been greatly studied (Stalmaster and Kaiser 1998). Territories have been abandoned after there has been disturbance from logging, recreational development, and other human activities near nests of the bald eagle (Thelander 1973). In northwest Washington, feeding activity was found to decline exponentially with increased recreational activity (Stalmaster and Kaiser 1998). Foot traffic caused the greatest flushing distance but boat activities accounted for a greater proportion of the disturbances (Stalmaster and Kaiser 1998). Bald eagles are more likely to flush when approached by a human on foot than when approached by an automobile (Holmes et al. 1993). Spatial buffer zones are commonly used to protect nesting sites from disturbance; however, buffer zones for wintering eagles also could be effective if placed around sensitive foraging areas. In one study, a buffer zone was determined to prevent flushing by approximately 90 percent of the wintering individuals of golden eagle (Holmes et al. 1993). Although this study did not address the bald eagle, presumably establishing a buffer distance for wintering bald eagles is beneficial.

Bald eagles have been shown to be susceptible to collisions with objects including vehicles and powerlines. These impacts have been noted as causing at least 21 percent of the mortalities in one study (Wood et al. 1990). As noted in the SDEIS, bald eagles, along with other raptor Covered Species, including golden eagle, peregrine falcon, and white-tailed kite, may be directly affected by wind projects if they are injured or killed by spinning turbine blades. Plastic and lead ingestion has also been noted as a significant source of illness and death in bald eagles (Kramer and Redig 1997). Berry et al. (1998) determined that the bald eagle is sensitive to urbanization based on a study conducted in Boulder Open Space in the vicinity of Boulder, Colorado. Eagles were scarce at point count stations in plots with approximately 5 percent to 7 percent developed; this species occurred on only one plot in 15 where urban uses exceeded 5 percent of the plot (Berry et al. 1998). Habitat loss through logging may also threaten the bald eagle.

Rangewide, bald eagles occur primarily at or near seacoasts, rivers, swamps, and large lakes (AOU 1998). It is considered a bird of aquatic ecosystems, but, within such areas, it must have an adequate food base, perching areas, and nesting sites to support it (Gerrard and Bortolotti 1988). Perching sites need to be composed of large trees or snags with heavy limbs or broken tops (Brown 2006a). The bald eagle nests in trees, rarely on cliff faces and ground nests in treeless areas, and always relatively close to water with suitable foraging opportunities. The actual distance to water varies within and among populations of the bald eagle. In some cases, the distance to water is not as critical as the quality of the foraging area. The quality of the foraging areas is defined by the diversity, abundance, and vulnerability of the prey base, the

structure of aquatic habitat, such as the presence of mustow water, and absence of human development and disturbance (Buehler 2000). Diurnal perch habitat is characterized by the presence of tall, easily accessible, often "super-canopy" trees"[14] adjacent to the shoreline foraging habitat. The perch tree species used by the bald eagle are highly variable, including both coniferous and deciduous species, if present. Most perch trees are live trees, although dead trees may be preferred, if available. The bald eagle selects a wider range of tree species and sizes for perching than for nesting or roosting (Buehler 2000).

In winter, bald eagles often congregate at specific wintering sites that are generally close to open water and that offer good perch trees and night roosts. The bald eagle may roost communally in winter in dense, sheltered, remote conifer stands (Zeiner et al. 1990b). In the Klamath National Forest, winter roosts were 10 to 12 miles from feeding areas (Spencer 1976). The bald eagle often concentrates in large numbers on the wintering grounds. The winter habitat suitability is defined by food availability, the presence of roost sites that provide protection from inclement weather, and the absence of human disturbance, although bald eagles will tolerate some human activity in areas of high prey availability. The perching habitat during the wintering season is characterized by the presence of tall trees located adjacent to foraging areas similar to other times of the year (Buehler 2000).

ENVIRONMENTAL BASELINE

Focused surveys were conducted in all suitable/potential breeding and wintering habitat within the TMV Planning Area (not the entirety of the Covered Lands) to search for nests and winter roosts; no nests were found and wintering bald eagles were observed irregularly. The surveys were conducted in suitable habitat supporting wintering/roosting, including deciduous or coniferous trees found near and along Castac Lake. Observations of other fish-eating birds, such as cormorants and osprey, were also recorded to evaluate whether Castac Lake could support the bald eagle. Bald eagles have been observed infrequently foraging in the vicinity of Castac Lake over open grasslands and chaparral habitats during various surveys conducted in portions of the Covered Lands (Dudek 2007b). The focused surveys resulted in irregular observations of the species during the winter. In February 2007, a single individual was detected on two different days perching on the north side of Castac Lake. During other focused wildlife surveys in January 2008, a single adult and up to five immature bald eagles were also incidentally observed adjacent to Castac Lake. Nesting individuals were not detected in the TMV Planning Area in the spring and summer of 2007. The bald eagle was not observed on the site during prior surveys between 1999 and 2004 (Impact Sciences, Inc. 2004) or in 2005 (Jones and Stokes 2006a). The survey data indicate that bald eagle uses Castac Lake and the immediate vicinity irregularly during the winter.

The Applicant modeled suitable habitat for the bald eagle, including primary and secondary habitat at all elevations in the action area (Figure 5-7 and Appendix D of the TUMSHCP). Modeled suitable habitats were categorized as either wintering habitat or foraging habitat. No

14 A "super-canopy" tree is a tree that is taller than the immediate surrounding trees that allows the eagle to build its nest in the shelter of the tree crown but still be above the other trees for easy access to the nest.

suitable breeding habitat was modeled for the bald eagle because it has a low potential to breed on Covered Lands. Modeled suitable wintering habitat for bald eagle includes savannah, woodland, and riparian woodland within 1 mile of Castac Lake that may provide roosting opportunities. Modeled suitable foraging habitat includes lake, riparian/wetland, and wetland habitat within 1 mile of Castac Lake. A total of 518 acres of foraging habitat and 1,438 acres of wintering habitat for bald eagle were modeled on Covered Lands by the Applicant.

Winter habitat suitability for bald eagles is defined by food availability, the presence of roost sites that provide protection from inclement weather, and the absence of human disturbance, although bald eagles will tolerate some human activity in areas of high prey availability. Perching habitat during the wintering season is characterized by the presence of tall trees located adjacent to foraging areas, similar to other times of the year (Buehler 2000). Based on observations made during TMV Planning Area surveys for this species, up to 6 bald eagles are expected to winter at Castac Lake; but no wintering congregations were observed. This suggests that the Covered Lands, while providing suitable wintering and foraging habitat for the bald eagle, are not extensively used by the species, nor are wintering congregations expected to occur here in the future.

Recovery

As stated above, the bald eagle was removed from the list of Federal threatened and endangered species on July 9, 2007 (Service 2007a). The Post-delisting Monitoring Plan for the Bald Eagle (*Haliaeetus leucocephalus*) in the Contiguous 48 States was published in 2009. The Post-delisting Monitoring Plan calls for monitoring the status of the bald eagle by collecting data on occupied nests over a 20-year period with sampling events held once every 5 years starting in 2009 (Service 2009). The potential contribution of the Covered Lands to the species' ongoing recovery is limited to the availability of wintering habitat, as no nesting has been observed or recorded.

EFFECTS OF THE ACTION

Planwide Activities

Livestock

The Applicant proposes to graze livestock on the balance of the action area outside development areas consistent with the types and level of historical grazing and ranch management practices. We anticipate that this activity will have negligible effects on the bald eagle because grazing has not been documented to adversely affect bald eagles. The bald eagle has only been recorded in the action area near Castac Lake, and if the species roosts/perches in other areas within the action area, it does so infrequently during the winter. If bald eagles roost/perch outside of the Castac Lake area, in the action area at some point over the permit term, livestock grazing, if not managed appropriately, may, but are not likely to, indirectly impact bald eagle by temporarily disturbing potential roosting/perching trees. In addition, under the TUMSHCP, the Applicant

must submit grazing management plans as a component of the RWMP to the Service every 5 years for review and approval. Additionally, through the adaptive management provisions of the Plan, we may work with the Applicant to develop additional measures or modification of grazing practices to ensure the compatibility of grazing with the conservation of bald eagle. Our review of such plans will allow for the implementation of additional measures or modification of grazing practices, such as the selective use of fencing to limit direct livestock disturbance of roosting/perching trees. Given the small amount of habitat in the action area relative to this range, the protections for riparian areas, any effects on the species from grazing in the action area would be negligible.

Range Management/Ancillary Ranch Structures

Range management activities support livestock operations and consist of construction, operation, and maintenance of watering facilities, feeding areas, fences, and corrals, consistent with the types and level of historical grazing and ranch management practices; repair, reconstruction, and relocation of roads to accommodate historical grazing and ranch management practices; and repair, maintenance, or installation of ranch management communication equipment (e.g., whip antennas) less than 20 feet high. The repair, reconstruction and relocation of roads to accommodate historical grazing and ranch management practices are evaluated below under Roads. Range management also incorporates ancillary ranch structures including squeezes, loading chutes, holding and feeding fields, corrals, branding traps, barns, sewage disposal facilities, livestock and wildlife watering facilities, and utilities serving existing ranch uses.

As described above under Planwide Activities in the Description of the Proposed Action section, *de-minimis* activities associated with ancillary ranch structures would be covered under the TUMSHCP. Non–*de minimis* activities associated with ancillary ranch structures are also allowed (1) if the activity is located in disturbed areas (e.g., undergrounding utilities in road rights-of-way), or (2) following a meet-and-confer process with the Service to ensure that the activity associated with an ancillary ranch structure avoids or adequately minimizes impacts to Covered Species and their habitats.

These activities are subject to the 200-acre disturbance limit and occur at a small scale relative to the size of the action area, and range management facilities already exist in the action area. We do not expect that range management activities will affect the bald eagle because avoidance and minimization measures proposed in Section 7.1.1.2.2 of the TUMSHCP are designed to protect diurnal perches and high-quality roost trees for bald eagle so as to preserve productivity for bald eagles wintering in the area, and to prevent disturbance to individuals (there is no breeding on site and therefore no nests). Specifically, a grazing management plan for open space will be prepared that regulates livestock grazing and range management activities to continue to maintain existing modeled foraging and wintering habitat for bald eagle. Given the relatively small amount of modeled bald eagle habitat relative to the size of the action area, the avoidance measures in place, the irregular nature of range management activities, and the Service’s ability to review and approve the Applicant’s grazing management plan, and work with the Applicant to

implement adaptive management measures, we expect impacts on bald eagle by range management activities to be rare and negligible.

Fuel Management

Fuel management practices would consist primarily of grazing, and the effects of fuel management by grazing should be largely consistent with the effects of livestock. Other fuel management activities include fuel modification zones created by existing roads, and through vegetation clearing and mowing within 120 feet surrounding existing structures (i.e., backcountry cabins, ancillary ranch structures, and other existing structures), although it is likely that the majority of this zone will occur within the development envelope. Vegetation thinning and mowing are the current practices around cabins and roads.

Mowing may create enough noise to cause bald eagle to temporarily avoid suitable habitat. However, the need for fuel modification in riparian areas is not expected, and any nearby mowing for fuel management would occur infrequently/irregularly. In addition, suitable habitat for the wintering bald eagle is located near Castac Lake and away from existing structures where fuel management would occur. Further, there are no backcountry cabins in bald eagle modeled habitat. Therefore, we do not expect bald eagle to be disturbed by fuel management practices and adverse effects will be minimal and rare.

Fuel management associated with proposed development is discussed below under Commercial and Residential Development Activities.

Filming

Filming activities generally consist of temporary on-scene filming and photography-related uses, including, but not limited to the filming and staging of movies, television shows, and commercials; photo shoots; and still photography and related uses. Such activities may include the erection and dismantling of props, temporary installation of trailers and equipment for film crews, filming of on-camera action, catering, rehabilitation of disturbed areas, and the movement of film crews to and from locations.

Film shoots that include explosives or other loud noises could disturb bald eagles that occur in the action area. Explosions (louder than gunshots) or other abnormally loud noises are prohibited throughout the TUMSHCP Mitigation Lands unless the Service-approved Tejon Staff Biologist, in consultation with the Service, determines that no California condors are present, and explosions (louder than gunshots) are strictly prohibited in the Condor Study Area portion of the Covered Lands. These restrictions on explosions to protect California condors would also benefit bald eagles in the action area by minimizing the potential for disturbance to this species from explosions.

We expect filming to cause only minimal impacts to bald eagle habitat because filming occurs over a relatively short time frame, the Applicant would require habitat restoration to pre-filming

conditions for any disturbed habitat due to filming, and the Applicant will require that temporary construction avoid sensitive resources. We do not expect filming activities to result in direct impacts to individual bald eagles or roosting/perching trees because the Applicant will conduct surveys prior to filming related use and would avoid disturbance to preferred roosting/perching trees by establishing 300 foot setbacks around any such trees. In addition, the Applicant will have a qualified biologist monitor filming activities to ensure the terms of the TUMSHCP are implemented (see Table 2 of this biological opinion and Section 2.2.1 of the TUMSHCP). The Applicant's proposal to manage open space lands to maintain the existing habitat conditions described in the TUMSHCP would further minimize adverse effects from filming. Therefore, we do not expect filming activities to cause adverse impacts to bald eagles within the action area.

Recreation

Recreation associated with the Planwide Activities includes private recreation by TRC, its employees and guests and public access is governed by the Interim RWMP and managed by the Conservancy. Such recreational use is also subject to the terms of the TUMSHCP and the terms of Service-approved conservation easements. While the private recreation by TRC occurs currently throughout the Covered Lands, public recreation, which generally consists of docent led tours by the Conservancy per the Interim RWMP, occurs in the Established Open Space portion of the Mitigation Lands. These public and private recreation uses are limited to passive activities listed in the Project Description. Recreation activities associated with Planwide Activities would occur in open space areas generally outside the TMV Planning Area at a relatively small scale, and have infrequent impacts. Recreational uses by TRC, its employees, and the public are limited by the access guidelines and best management practices in the Interim RWMP and will be further regulated in Public Access Plans, which are subject to permanent Service review and approval. We note that future development in the TMV Planning Area will likely lead to increased recreation demand by TMV Project residents and guests, but the type and nature of the use is the same. All such recreational use in the protected open space will also be regulated in the Public Access Plan, which will require monitoring and enforcement and is subject to permanent Service review and approval. The effects of recreation on the bald eagle in the TMV Planning Area Open Space are discussed separately under Commercial and Residential Development Activities.

Recreational activities could have an adverse effect on bald eagles if such activities were in close proximity to suitable roosting/perching or foraging habitat locations. Recreational activities could flush roosting bald eagles if these activities occur too close to roosting/perching or foraging bald eagles. However, given the large size of the conservation lands, the extremely limited occurrences of bald eagles detected on the Covered Lands during surveys, and restrictions on access included in the Interim RWMP, as well as in the TUMPCHCP, we anticipate a very low likelihood of disturbance to bald eagles from covered recreational activities. Active monitoring and regulation of recreational activities by TRC staff or Conservancy docents, as well as restrictions on the location and types of any organized events should reduce the likelihood for disturbance to bald eagles.

Further, private recreation activities are limited by the requirement to preserve conservation values of the Covered Lands, and to follow best management practices. Public recreation activities will be governed by a Public Access Plan in areas managed by the Conservancy, subject to Service review and approval for consistency with the TUMSHCP and the Act. An Interim RWMP is currently in place that provides for docent-led public tours and requires pre-activity surveys prior to any ground-disturbing activities. We anticipate future levels of public access to be consistent with what occurs under the Interim Public Access Plan. Surveys would be conducted prior to the construction of any new trails and all active roost/perch trees would be avoided. These measures would ensure that allowed recreational activities are conducted in a manner that is consistent with the conservation of bald eagle. Therefore, we expect that any effects on bald eagle of Recreation associated with Planwide Activities would be rare and minor.

Indirect recreational impacts related to development are discussed under Commercial and Residential Development Activities below.

Irrigation/Water Diversion

The action area contains a few small agricultural areas within the Covered Lands (e.g., small vineyards and an orchard near Castac Lake) totaling about 232 acres and small existing water diversions for irrigation of agriculture. Agricultural uses that remain in open space, if any, after the Applicant identifies the final development footprint would continue subject to State and local regulations. These agricultural uses are not anticipated to result in any adverse impacts to the bald eagle from on-going agricultural activity, because the Applicant is not proposing to expand agricultural operations, agricultural land is not suitable habitat for the species, and we do not expect the bald eagles to occur in these areas.

We are not aware of adverse effects to the bald eagle as a result of existing farming and irrigation systems. The Applicant is not proposing to expand the current irrigation capacity/diversion capacity, the facilities cover a very small percentage of the Covered Lands, and the operation of irrigation facilities does not cause additional impact to the bald eagle. Maintenance and relocation work, if any, is subject to the survey and avoidance requirements in the TUMSHCP, and prior to TRC relocating water diversions, the Service would review and approve the proposed new locations. Given, the rarity of the species in the action area, and the Applicant's proposed minimization measures; we expect impacts of irrigation/water diversion to be rare and minor.

Roads/Trails

A network of generally unpaved roads exists in the action area as access for fire protection, security, ranching activities, and hunting. As described in the TUMSHCP, the roads outside the development areas would be maintained, relocated, or new roads could be constructed, in compliance with the 200-acre limit on disturbance by Planwide Activities, to facilitate the Planwide Activities. The unimproved dirt roads exist for access for fire protection, security, ranching activities, and hunting. Road/trail use is expected to be irregular and of low intensity.

Any new or relocated roads will be sited to avoid impacts to sensitive resources, including nesting birds and habitat as any new or relocated roads would require efforts to minimize the footprint and use BMPs for the design and installation, including surveys prior to grading, contractor education, staking and temporary construction fencing. Use of roads for Planwide Activities uses includes the private recreation analyzed above and road maintenance/construction to accommodate ranch activities.

New ranch roads could adversely affect wintering bald eagle foraging habitat by reducing water quality in Lake Castac, if they are within the same watershed. However, under TUMSHCP 7.1.1.2.2, road maintenance activities are subject to best management practices related to maintenance for fire prevention, maintenance of berms on dirt roads to handle minor stormwater flows, and dust control management activities on dirt roads. Therefore, indirect effects associated with degradation of foraging habitat in Castac Lake are not anticipated. For the bald eagle (which has not been documented to breed in the Covered Lands), measures would be implemented to reduce effects on overwintering individuals that may perch, roost, and forage on the Covered Lands. This includes distributing educational information to minimize human recreation disturbances. Also, Objective 3.2 in the TUMSHCP requires preconstruction surveys for wintering individuals and mapping of preferred diurnal perches and roosting sites if present. Road use and maintenance have not been observed to be a source of adverse effects to bald eagles historically on the ranch. Bald eagles were infrequently observed during the winter on Covered Lands and do not extensively use the area. Given the limited documented occurrence of bald eagles in the Covered Lands, and the location of most roads and trails away from Castac Lake, we do not anticipate roads as a covered activity to result in adverse effects to bald eagles covered under the TUMSHCP.

The direct and indirect effects of roads as a result of residential and commercial development are addressed below under Commercial and Residential Development Activities.

Utilities

The action area contains, or would contain, various small utilities to support ranch activities. As described in Section 2.2.1 of the TUMSHCP, these utilities would be *de minimis* or would be located in previously disturbed areas (e.g., undergrounding utilities in road rights-of-way). Any utilities associated with Planwide Activities that are not *de minimis* or cannot be located in previously disturbed areas would require Service review and approval prior to relocation or construction. Installation or maintenance of utilities may affect bald eagles by disturbing habitat or individuals. However, we do not expect utilities to have a substantial impact on the bald eagle because of the following: utility posts and towers have small footprints; the proposed utilities will affect a very small percentage of the action area; new utilities will be located primarily underground and relocation of powerlines would be unlikely to occur during the winter months, due to inclement weather (when bald eagles are present within Covered Lands); the extremely limited occurrences of bald eagles detected on the Covered Lands during winter surveys; bald eagle breeding does not occur on Covered Lands; and because the Applicant’s proposal to survey project areas and apply avoidance buffers if bald eagle are present should minimize the potential

for adverse impacts to bald eagle by utilities. Therefore, adverse impacts on wintering eagles due to relocation of powerlines or other utility related activities are not expected to occur.

We address potential impacts by utilities associated with the proposed development under Commercial and Residential Development Activities.

Backcountry Cabins

Eight backcountry cabins occur in the action area and could be maintained, improved, repaired, replaced, or reconstructed in their existing location. We do not expect that activities associated with backcountry cabins will affect the bald eagle because the few bald eagles observed within Covered Lands have only been documented using the Covered Lands in the Castac Lake area and would likely avoid cabin areas because of the lack of suitable foraging habitat in these areas and the distant from the lake. Therefore, no adverse effects to the species from backcountry cabins on the Covered Lands are expected to occur.

Fencing

Fences exist throughout the action area. Fences would be maintained and new fencing could be constructed and maintained as required to support the Covered Activities, including exclusion of cattle from sensitive habitats that support covered species. New fences are also subject to best management practices provided in the RWMP for fencing including measures to avoid fencing-related impacts to sensitive resources, and the selective use of fencing to limit direct livestock interactions with natural water sources. The Applicant proposes to implement measure 14 in Table 2 to avoid disturbing bald eagles. In addition, bald eagles forage almost exclusively over open water in search of fish, their preferred prey, or in adjacent shoreline or open riparian habitats in search of waterfowl and other aquatic wildlife. Because most fencing occurs in habitats on Covered Lands in which bald eagles do not typically forage, it is expected that such fences pose a very limited collision risk to wintering bald eagles within the action area. Under the TUMSHCP, the Applicant must submit grazing management plans to us every 5 years for review and approval. Our review of such plans will allow for the implementation of additional measures or modification of fencing practices to maintain suitable habitat for the bald eagle. For these reasons, we expect effects from fencing to be negligible on the bald eagle.

Lebec/Existing Headquarters Area Uses

Existing activity in the Lebec/Existing Headquarters Area (i.e., corporate headquarters buildings, an antique shop, a post office, a church, and several single-family residences for ranch employees) would continue to occur. While additional development could occur here under the TUMSHCP, the Applicant has not included development plans for this area in the project description. This area includes modeled wintering habitat for the bald eagle (see figure 5.7 of the TUMSHCP). We anticipate that continuance of existing activities in the Lebec/Existing Headquarters Area will have negligible effects on bald eagles, because bald eagles would likely avoid this area due to continuous human presence.

Potential development related impacts in the Lebec/Existing Headquarters Area are addressed below under Proposed Development.

Mitigation, Monitoring, and Management

Mitigation, monitoring, and management activities to carry out identified biological goals and objectives for the California condor or other Covered Species included in the TUMSHCP or other resource agency permits for the commercial and residential Covered Activities, as well as mitigation, monitoring, and management activities imposed pursuant to any local, State, or Federal approval of development on Tejon Ranch would be carried out in accordance with the Act and would be subject to Service review. We acknowledge that other agencies may credit TRC for mitigation and protective measures included in the TUMSHCP for mitigation imposed by such other agencies. Any restoration, enhancement, or similar mitigation activities would not be allowed if they would result in unpermitted adverse effects to species or critical habitat under the Act. Additionally, any mitigation activities for other agencies would be subject to the protective measures included in Tables 1 and 2, in the Description of the Proposed Action section of this biological opinion. Therefore, we anticipate that any potential threats to the bald eagle as a result mitigation, monitoring, and management activities would be effectively minimized.

Estimate of Disturbance by Planwide Activities

The proposed TUMSHCP would cover 200 acres of ground disturbance associated with the Planwide Activities described above. These ground disturbances would occur outside of the proposed development (discussed below) and may be permanent or temporary. The disturbance would primarily be associated with construction of roads, backcountry cabins, and ancillary structures. If the Applicant restores a portion of this disturbance, an area equal in size may then be disturbed. Thus, no more than 200 acres may exist in a developed condition because of Planwide Activities at one time.

For the purposes of this effects analysis, we assume that all parts of the action area that could be affected by Planwide Activities have an equal chance of being affected and that all habitat types would be affected in equal proportion. This assumption is based upon the Applicant's inability to predict exactly where 200 acres of habitat disturbance due to Planwide Activities would occur. In addition, there is no indication that the distribution or location of bald eagle modeled habitat would cause Planwide Activities to disproportionately occur in bald eagle modeled habitat.

For the purposes of estimating species-specific habitat disturbance by Planwide Activities, we are not using the 8,817-acre development envelope used by the Applicant to estimate impacts from development (TUMSHCP Table 2-1, footnote 4), but rather we are using the 5,533-acre area that actually could be developed within the development areas. We did this, because after development of the 5,533-acre development footprint, 3,284 acres of the 8,817-acre development envelope would remain and be subject to Planwide Activities, and modeled habitat for the bald

eagle could occur in the 3,284 acres. Therefore, we included 3,284 acres of the development envelope in this analysis to acquire an estimate of habitat lost by Planwide Activities that is as accurate as possible. When we combine this estimate with anticipated habitat loss from commercial and residential development in a summary effects analysis (discussed below), we will have slightly double-counted and overestimated the amount of bald eagle habitat that would be lost in the action area. This slight overestimation of lost habitat does not compromise our analysis, because the overlap is very small relative to the size of the action area, and this approach ensures that potential species impacts are fully considered by analyzing a larger impact than would actually occur.

Adding together the acres of commercial and residential development, National Cement and La Liebre Mines, the VA Cemetery, and Not-A-Part lands (blocks of land within the boundary of the action area but not owned by the Applicant), a total of 12,423 acres are not subject to Planwide Activities. We expect that Planwide Activities could occur on the remaining 129,463 acres of the action area (141,886 acres within the action area minus the 12,423 acres of excluded areas above). Therefore, the ratio of disturbance due to Planwide Activities (200 acres) to Covered Lands subject to Planwide Activities (129,463 acres) equals 0.0015. We applied this ratio to bald eagle habitat outside the excluded areas but in the action area and rounded the remainder up to a whole acre. Thus, 518 acres of modeled foraging habitat minus 5 lost to development equals 513 acres of modeled breeding and foraging habitat subject to Planwide Activities. Accordingly, 1,438 acres of modeled wintering habitat minus 834 acres lost to development equals 604 acres of modeled wintering habitat subject to Planwide Activities. Using our ratio of 0.0015, we anticipate that Planwide Activities would disturb or remove up to approximately 1 acre of modeled foraging habitat and 1 acre of modeled wintering habitat (2 acres total) for the bald eagle over the permit duration. We acknowledge that this could be an overestimate, because the Applicant is proposing measures to avoid and minimize disturbance to bald eagle habitat.

Thus, while there could be a small loss of bald eagle modeled suitable habitat due to Planwide Activities, in comparison to the modeled suitable habitat conserved, the loss would have a minimal effect on the species. Consequently, we conclude that the effects of habitat loss due to Planwide Activities on the bald eagle and its habitat would be minimal under the TUMSHCP and would not appreciably reduce the species' reproduction, numbers or distribution in the Covered Lands or rangewide.

<u>Commercial and Residential Development Activities</u>

Direct Effects

The proposed residential and commercial development would permanently remove 839 acres (43 percent) of modeled suitable habitat for the bald eagle within Covered Lands, including 834 acres (58 percent) of modeled wintering habitat and 5 acres (less than 1 percent) of modeled foraging habitat. This habitat loss includes any modeled habitat for the bald eagle lost as a result of development activities in the Lebec/Existing Headquarters Area.

Modeled winter roosting habitat is concentrated around and within 1 mile of Castac Lake, particularly to the south and east where trees are sufficiently large to support roosting substrate for bald eagles. A substantial amount of development is planned for the perimeter and in the vicinity of Castac Lake under Covered Activities. Within the Covered Lands, at least six bald eagles were observed in winter 2007. The loss of 58 percent of available modeled winter roosting habitat would represent a loss of a substantial amount of woodland habitat available to the bald eagle as winter roosting habitat in the action area. While foraging habitat at the lake would remain largely undisturbed, bald eagle use of aquatic foraging habitats is in part a function of the availability of roosting and perching trees in the vicinity of the aquatic foraging habitat. Although some roosting and perching trees may be removed, implementation of management and conservation measures (see Table 2 of this biological opinion), which include measures describing how preferred roosting and perching trees would be conserved, setback areas from roosting/perching trees in which no recreation could occur, and interpretive and educational signage informing the public about bald eagles and their sensitivity to human disturbance during the wintering season, will serve to protect and improve important winter roosting and perching habitat and, together with the preservation of 604 acres of wintering roosting/perching habitat and 499 acres of foraging habitat, would likely maintain the small number of wintering bald eagles expected to use the Covered Lands in the future. In addition, most of the wintering bald eagles in Southern California occur at a few favored inland including Big Bear Lake, Cachuma Lake, Lake Mathews, Nacimiento Reservoir, San Antonio Reservoir, and along the Colorado River (Zeiner et al. 1990b). Consequently, the loss of modeled wintering habitat for bald eagles on Covered Lands would not likely adversely affect the number of wintering bald eagles in Southern California or rangewide.

Indirect Effects

Development-related indirect impacts to the bald eagle and modeled suitable habitat could occur from edge effects and increased human presence where modeled habitat is near developed areas. Specifically, these effects include noise/lighting, recreation, utilities, and roads/trails, as discussed below.

Developed areas would have increased lighting and noise that may disturb individual bald eagles. Under the TUMSHCP, lighting, where it is needed, will be directed away from sensitive habitats to reduce this effect (Sections 2.2.3 and 7.1.1.2). Noise that could affect potential roosting/perching areas will be minimized/avoided by establishment of a 300-foot protection zone around any active roosting/perching sites as well as protection measures included in a Service-approved Public Access Plan; therefore, we expect these effects to be negligible to the bald eagle.

In addition, the increased population of the development areas is likely to increase the pressure for recreational activities, and constitute an aspect of the edge of developed areas. Recreational activities allowed within the TMV Planning Area Open Space are limited to passive recreation as described above under Planwide Activities. Even so, in the SDEIS for the TUMSHCP, we

estimated that the TUMSHCP would increase the human population of the TMV Planning Area by 11,441 people, and we expect the recreational activities of future residents of the proposed development to cause a higher level of disturbance and impacts in this area than in other parts of the action area that are more remote. If recreation occurs in occupied habitat, it could potentially alter bald eagle behavior including feeding, roosting, and perching activities. However, to minimize impacts of recreation, the Applicant will provide Home Owners' Association(s) with educational information regarding acceptable activities in open space areas, including recreational activities and pet restrictions. In addition, TRC will require that recreation in the TMV Planning Area in the Castac Lake area be conducted in a manner that would avoid adverse impacts to the bald eagle and associated winter roosting/perching and foraging habitats. In addition, the access restrictions, monitoring and enforcement measures will be implemented pursuant to the Public Access Plan that will be reviewed and approved by the Service. These measures would ensure that allowed recreational activities are conducted in a manner that avoids or minimizes impacts to the bald eagle.

Specificially for bald eagles, recreational uses would be excluded from the roosting and setback area. Objective 7.3 for the bald eagle specifies that the minumum setback during this period would be 300 feet, but the setback may be adjusted by the qualified Service-approved biologist based on site conditions (e.g., topography). The TUMSHCP provides a management zone of 1 mile (see Table 2 of this biological opinion) and a minimum setback of 300 feet, which can be increased depending on site-specific considerations. Bald eagle occurrences on site are infrequent foraging observations. Because this species has been observed infrequently during the winter, bald eagle presence on site is not considered to be a wintering congregation. The 300-foot setback is based on the Stalmaster and Newman (1978) study. For vegetated wintering grounds where disturbances are common, Stalmaster and Newman recommend a buffer of 75 to 100 meters (247 to 329 feet). The Stalmaster and Newman study also noted that bald eagles can adjust to routine human activities. Consistent with Stalmaster and Newman, the 300-foot setback proposed under the TUMSHCP is adequate to avoid disturbing or taking bald eagles considering the site conditions around Castac Lake and in combination with the conservation and management of diurnal roosts and perches. Moreover, the bald eagle is an infrequent winter visitor on site, and the Covered Activities in proximity to the wintering habitat would be primarily recreational (trail and golf course) and residential, and these are activities to which the returning eagles can likely adjust.

In the TUMSHCP Objective 7.1: Home Owners' Association(s) will be provided with educational information regarding acceptable activities in open space areas, as reviewed and approved by the Tejon Staff Biologist, including recreational activities, pet restrictions, and wildlife restrictions, including prohibition on collecting individuals (Commercial and Residential Development Activities). Objective 7.2: Intentional feeding of bald eagles will be prohibited on the Covered Lands, and language will be included in the covenants, conditions, and restrictions (CC&Rs) that prohibits the feeding of this species and other wildlife species on the Covered Lands. The project biologist will install signage adjacent to Castac Lake indicating that feeding bald eagles is prohibited. Such signage will indicate that prohibitions will be enforceable for all residents and guests. Objective 7.4: Hunting will be limited within the TMV Planning Area to

guided hunts under the direction of a designated project conservation manager for the purpose of population management of game species. All participants in any such on-site population management efforts will be educated in the identification and behavior of the bald eagle and supervised by the designated project conservation manager to avoid any accidental encounter with bald eagle. Objective 7.5: Interpretive and educational signage will be installed at Castac Lake, informing the public about bald eagles, their habitat requirements, and their sensitivity to human disturbance during the wintering season for the species (late October through March). We expect these impacts to be minor and to occur infrequently, because the bald eagle occurs in very low numbers in the action area, and the Applicant proposed measures to avoid impacts to the subspecies (Table 2 of this biological opinion; TUMSHCP Section 7.1.1.2.2). To further minimize potential effects, recreational activities within the TMV planning area will be restricted under the terms of Service-approved conservation easements over those lands. These measures would ensure that allowed recreational activities are conducted in a manner that avoids or minimizes impacts to the bald eagle. Between the rarity of bald eagle presence within Covered Lands, the proposed setback buffers and other conservation and protective measures, we anticipate adverse effects to the bald eagle to be minimized to the levele that avaoides distrubing roosting/perching and foraging behavior from the indirect effects of recreation.

Two existing above-ground powerlines in the TMV Planning Area Open Space may be relocated within 1000 feet of their existing location, and one existing power line will be temporarily relocated and then permanently relocated underground. Bald eagles could be injured or killed if they collide with existing or relocated powerlines or experience electrocution from direct contact with existing or relocated powerlines, and could be temporarily disturbed from foraging or roosting if present during the relocation of powerlines and support structures. Based on the limited use of the Covered Lands by bald eagles, we anticipate a low potential for collision or electrocution associated with existing or relocated powerlines. Relocation of powerlines would be unlikely to occur during the winter months, due to inclement weather (when bald eagles are present within Covered Lands); the extremely limited occurrences of bald eagles detected on the Covered Lands during winter surveys; bald eagle breeding does not occur on Covered Lands; and because the Applicant's proposal to survey project areas and apply avoidance buffers if bald eagle are present should minimize the potential for adverse impacts to bald eagle by existing or relocated powerlines. Therefore, adverse impacts on wintering eagles due to existing or from relocation of powerlines activities are not expected to occur.

New utilities to support development would be undergrounded, except that two communication towers described under "Communication Towers" in the Description of the Proposed Action section above (also on page 4-52 and elsewhere in Section 4 of the TUMSHCP) would be installed above ground. Once underground, operating these new utilities would not cause ongoing impacts to species. The two communication towers pose a limited collision risk for bald eagles; however, the towers are not in modeled suitable habitat for the species, and the towers occupy a very small fraction of the action area. In addition, the two communication towers will include design restrictions identified by the Service to minimize the potential for collisions. These restrictions must be reviewed and approved by the Service and require that (1) the towers be self-supporting (i.e., no guide wires must be included as part of the design); and (2) the tower

facades will be primarily solid (e.g., through use of panels or other sidings, wider or denser lattice work, or alternative tower solutions as approved by the Service) to increase their visibility. Therefore, we determined that the risk of collision for bald eagle is minimal, and effects negligible.

The Applicant proposes to clear and thin vegetation within 200 feet of the proposed development, creating and up to 1,773-acre fuel modification zone. The expected intensity of disturbance associated with these activities alone would not preclude bald eagles from using modeled habitat near the area; however, the ongoing maintenance of this, whether by grazing or mechanical means, could cause bald eagles to temporarily avoid suitable habitat. The estimated areal extent in which fuel modification may affect the bald eagle is included in the 839 acres of modeled habitat estimated be lost with the 8,817-acre development envelope.

Roads and trails receiving the most use would be located in the TMV Planning Area. Under the TUMSHCP, we expect road use in the TMV Planning Area to be typical of residential/ commercial areas. In the SDEIS for the TUMSHCP, we estimated that the TUMSHCP would increase the human population of the action area by 11,441 people resulting in 79,514 additional vehicle trips per day. We expect most of these vehicle trips to occur near the commercial areas, and the number of vehicle trips would decrease with distance from Interstate 5. Vehicular traffic to the open space would be restricted but managed. With respect to Castac Lake, the primary road providing access to the Planning Area will pass along the north side of Castac Lake. Commercial facilities will be located on the east side of the lake. Consequently, the use of roads in the TMV Planning Area would increase substantially over baseline conditions and could adversely affect the bald eagle.

Noise and human/vehicle presence associated with frequent road use could preclude individuals from using nearby suitable habitat or flush bald eagles from roosts subjecting them to increased energy expenditure. Motorized vehicles, off-highway vehicles, etc. could potentially, injure or kill bald eagles if collisions occur. However, bald eagles typically forage over water bodies and aquatic habitat areas and are less likely to pursue the type of prey species (e.g., ground squirrels, rabbits, other small mammal species) that would be found near or crossing roadways such that pursuit flights could result in roadway vehicle collisions. In addition, because of the relatively slow speed limits along the private rural standard main road (with traffic calming features; such as split roadway sections and low design speed) passing north of the lake, and expected within proposed commercial areas on the east side of the lake, bald eagles feeding on any road-killed animals are likely to flush from any road-kill as a vehicle approaches; likewise, at the slow speed limits, individuals in vehicles are likely to have more time to spot an eagle on/adjacent to a roadway and have more time to take avoidance measures. Furthermore, much of the large aquatic wetland foraging area northwest of the lake that has been identified as foraging habitat for wintering eagles lies away from existing roadways. The other large foraging area, Castac Lake itself, obviously does not provide opportunities for vehicle collisions to foraging eagles. Additionally, to minimize adverse effects of roads, the Applicant proposes to include educational materials as required by the CC&Rs to all homeowners and recreational users. Access to the open space will continue to be controlled by the Public Access Plan and is not anticipated to

increase significantly in the open space area. Therefore, given that the foraging behaviors and habitats of wintering bald eagles generally avoids roads and areas with vehicles, that a majority of the identified winter foraging habitat for bald eagles is located away from road areas, and given the protective measures, we expect that vehicles collisions will be avoided. Therefore, we determined that the risk of vehicle collision for bald eagle is minimal.

TUMSHCP Mitigation

The Applicant proposes to preserve in perpetuity virtually all of the action area outside the development envelopes in the TMV Planning Area and Lebec/Existing Headquarters Area, including 604 acres (42 percent) of modeled suitable wintering habitat (including perching and roosting habitat) and 499 acres (96 percent) of modeled foraging habitat for the bald eagle. We estimate that bald eagles do not occur in the action area outside the Castac Lake area, and the Applicant would maintain the preserved land in its current condition. The proposed conservation of 604 acres (42 percent) of modeled suitable wintering habitat (including perching and roosting habitat) and 499 acres (96 percent) of modeled foraging habitat for the bald eagle is consistent with conservation biology principles calling for large, interconnected blocks of habitat that support a given species' life history requirements. The conservation of the Mitigation Lands would benefit the bald eagle by permanently securing them from future habitat loss in the action area and maintaining a large area of bald eagle habitat.

For the bald eagle (which does not breed on site), measures would be implemented to reduce direct and indirect effects on overwintering individuals that may perch, roost, and forage on the Covered Lands. Objective 3.2 in Section 7.1.12.2, Bald Eagle, of the TUMSHCP requires preconstruction surveys for wintering individuals and mapping of preferred diurnal perches and roosting sites if present. Preferred diurnal perches and roosting sites would be conserved according to a protocol described in Objective 3.2, including a consideration of tree size (larger trees are better) and distance from Castac Lake, replacement of affected large trees near Castac Lake, and girdling of some trees to create snags for perching. Objective 3.4 for the bald eagle requires adequate setbacks from preserve roosting areas. These would be determined by a qualified Service-approved biologist based on focused surveys for wintering bald eagles conducted prior to approval of the grading plan for each phase of development within 1 mile of Castac Lake. Objective 3.4 specifies that uses within the roost area and setback would be limited to those approved by the qualified Service-approved biologist in the bald eagle wintering period between October 15 and March 16. Objective 7.3 for the bald eagle specifies that the minimum setback during this period would be 300 feet, but the setback may be adjusted by the qualified Service-approved biologist based on site conditions (e.g., topography). In addition, as stated in Objective 4.1 for the bald eagle, construction-related ground disturbances in wetland habitat associated with Castac Lake and woodland habitat within 1 mile of Castac Lake would be avoided from October through March.

Conservation of 604 acres (42 percent) of modeled wintering habitat (including perching and roosting habitat) and 499 acres (96 percent) of modeled foraging habitat for this species within Covered Lands, along with the avoidance, minimization, and mitigation measures, will provide

adequate habitat to support the small number of wintering bald eagles expected to use the Covered Lands in the future. The overall wintering population is estimated to exceed 20,000 individuals within the continental United States (Buehler 2000). We anticipate the loss of 835 acres (834 acres due to Development, and 1 acre due to Planwide Activities) of wintering habitat on the Covered Lands, which is a fraction of 1 percent of the available habitat for the bald eagle across its range, to have a negligible effect on wintering bald eagles across its range. In addition, proposed conservation measures, including buffers, would prohibit disturbance or take of wintering bald eagles. Additionally, this loss of habitat would not likely adversely affect the number of wintering bald eagles in Southern California; bald eagles are much more common as a local winter migrant at a few favored inland waters in Southern California, with the largest numbers occurring at Big Bear Lake, Cachuma Lake, Lake Mathews, Nacimiento Reservoir, San Antonio Reservoir, and along the Colorado River (Zeiner et al. 1990b).

Summary of Effects

After examining the direct and indirect effects in the action area, the next step in determining whether a proposed action is likely to jeopardize the continued existence of a species is to consider the effects of the action as against the environmental baseline with respect to the reproduction, numbers, and distribution of the species. We also consider the effects of the action on the recovery of the species. In that context, the following paragraphs summarize the effects of the proposed TUMSHCP on the bald eagle.

The bald eagle was entirely removed from the list of Federal threatened and endangered species on July 9, 2007 (Service 2007a). The Service does not prepare recovery plans for non-listed species and expects that delisted species have met recovery requirements. The Post-delisting Monitoring Plan for the Bald Eagle (*Haliaeetus leucocephalus*) in the Contiguous 48 States was published in 2009. The Post-delisting Monitoring Plan requires monitoring of the status of the bald eagle by collecting data on occupied nests over a 20-year period with sampling events held once every 5 years starting in 2009 (Service 2009).

The Planwide Activities and the Commercial and Residential Development Activities, could have some effect on the bald eagle. As stated above, TRC estimates that up to 839 acres of modeled suitable habitat (834 of which is modeled winter roosting/perching habitat) could be lost due to development, and we have calculated that in the remainder of the action area Planwide Activities could affect an additional 2 acres of modeled suitable habitat (1 acre of modeled foraging habitat and 1 acre of modeled winter roosting/perching habitat) for the bald eagle, for a total of 841 acres of lost modeled suitable habitat for the species. In addition, the Planwide Activities, including recreation, and the indirect effects of development, including recreation and roads, could result in adverse impacts to the bald eagle. However, the TUMSHCP includes measures to avoid take, disturbance and to minimize the effects of Planwide Activities and Commercial and Residential Development Activities impacts to the bald eagle, including construction, lighting, and recreation impacts (see Table 2 of this biological opinion; TUMSHCP Section 7.1.1.2.2). Disturbance to individuals during construction would be avoided through the use of 300-foot setbacks from human activities in the TMV Planning Area.

The removal of 58 percent of the modeled winter roosting habitat would represent a loss of a substantial amount of woodland habitat available to the bald eagle as winter roosting habitat in the action area. While foraging habitat at the lake would remain largely undisturbed, bald eagle use of aquatic foraging habitats is in part a function of the availability of roosting and perching trees in the vicinity of the aquatic foraging habitat. Within the Covered Lands, at least six bald eagles were observed in winter 2007, and the loss of 58 percent of available modeled winter roosting habitat could reduce the use of Castac Lake by wintering bald eagles. However, based on the conservation of 604 acres (42 percent) of wintering roosting habitat and 499 acres (96 percent) of foraging habitat, the infrequent and particularly due to the small numbers of wintering bald eagles historically observed and expected in the future in the action area, along with the implementation of management activities (see Table 2 of this biological opinion) to protect and improve important roosting and perching habitat, the number of wintering bald eagles would likely be maintained at the same level in the action area.

The overall wintering population of bald eagles in the continental United States is estimated to exceed 20,000 (Buehler 2000), and we anticipate the loss of 835 acres of the wintering habitat on the Covered Lands, which is a fraction of 1 percent of the winter foraging and roosting habitat for the bald eagle across its range, to have a negligible effect on wintering bald eagles. Additionally, this loss of habitat would not likely significantly affect the population of wintering bald eagles in Southern California; bald eagles are much more common as a local winter migrant at a few favored inland waters in Southern California, with the largest numbers occurring at Big Bear Lake, Cachuma Lake, Lake Mathews, Nacimiento Reservoir, San Antonio Reservoir, and along the Colorado River (Zeiner et al. 1990b). With the combination of avoidance and minimization proposed by the Applicant to reduce the effects of both Planwide and Commercial and Residential Development Activities, and the conservation of almost all of the modeled suitable habitat on the Covered Lands, to mitigate for unavoidable adverse impacts, we find that the Covered Activities alone would not substantially affect the rangewide reproduction, numbers, or distribution of the bald eagle.

Recovery

The Service removed the bald eagle from the list of threatened and endangered species on July 9, 2007 (Service 2007a). Banning the use of DDT in the U.S. and habitat protection for nest sites, feeding and roost sites, under the Act, led to the delisting of the bald eagle. A limited number of bald eagles are anticipated to use the Covered Lands, nesting has not been documented on the Covered Lands, and conservation measures included in the proposed TUMSHCP would minimize the loss of any future wintering habitat. The overall wintering population is estimated to exceed 20,000 individuals within the continental United States (Buehler 2000) and we anticipate the loss of 841 acres of the wintering habitat on the Covered Lands, which is a fraction of 1 percent of the foraging habitat for the bald eagle across its range, to have a negligible effect on wintering bald eagles. In addition, proposed conservation measures including buffers would prohibit disturbance to wintering bald eagles. Therefore, the issuance of the Service's proposed section 10(a)(1)(B) permit would not affect the recovery of the bald eagle.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section, because they require separate consultation pursuant to section 7 of the Act.

Hunting

Private and commercial hunting operations occur on Tejon Ranch, including the action area; however, hunting is not an activity covered by the TUMSHCP. The Applicant proposes to continue hunting operations throughout the ranch during the proposed permit term. The Applicant proposes to manage the hunting program to avoid disturbing and take of bald eagles. The Applicant also proposes to manage the hunting program to avoid take of any federally protected species. Hunting in the TMV Planning Area would be limited to guided hunts. Hunting activities involve travel on existing paved and unpaved roads, overnight use of back-country cabins, hiking, discharging hunting weapons, etc. The effects from hunting will generally be consistent with, and to a considerable extent are captured in, the descriptions of effects for Roads/Trails, and Recreation described above. Therefore, we expect that continued hunting in the action area will have negligible cumulative effects on the bald eagle.

Mining

Two commercial mining operations occur in the action area, La Liebre and National Cement; these mining operations are not Covered Activities under the TUMSHCP. The total area used for the two operations is about 2,636 acres, and the Applicant would maintain the mining leases through the proposed permit term. The species is not known to occur in proximity to these mines, nor has the Applicant modeled any suitable habitat in the mining areas. In addition, any use of chemicals in mining must be in conformance with Federal, State and local laws. For these reasons, we expect that continued mining in the action area will have no cumulative effects on the bald eagle.

Other Activities

As discussed above under project description, within the external boundaries of the Covered Lands, there are existing inholdings and utilities. The Bakersfield National Cemetery also occurs inside the Covered Lands. These projects and activities are not Covered Activities under the TUMSHCP. We are not aware of any reasonably foreseeable activities within the 3,870 acres of inholdings that may affect the bald eagle. Activities associated with utilities, transmission lines and related structures, such as maintenance activities, would be restricted to currently established easement areas. Given that only a few bald eagles use the area around Castac Lake seasonally for wintering, and these are existing structures and transmission lines and we are not aware of any adverse impacts to the species, the potential for disturbance from maintenance activities or

injury from collision with transmission lines would be low. Therefore, we do not anticipate any cumulative effects from the ongoing maintenance and operation of non-covered existing utilities. The Bakersfield National Cemetery is in place, and we are not aware of any activities associated with the cemetery that may have an adverse effect on the bald eagle.

CONCLUSION

After reviewing (1) the current status of the bald eagle; (2) the environmental baseline for this species in the action area; (3) the effects of the proposed action; and (4) the cumulative effects, it is our biological opinion that the Service's issuance of the proposed ITP is not likely to jeopardize the continued existence of the bald eagle. We reached this conclusion because:

1. The bald eagle occupies a large geographic range across the United States, and the wintering population of bald eagles within the continental U.S. is estimated to exceed 20,000, while only a limited number (6 or fewer) of individuals are likely to winter on the Covered Lands. The action area constitutes a small fraction of the bald eagle's range and the amount of modeled suitable habitat on the Covered Lands is a smaller fraction of the action area. Even with the loss of 58 percent of wintering habitat at Castac Lake, sufficient wintering habitat and almost all suitable foraging habitat will remain in amounts sufficient to support current and expected future use of Covered Lands. Thus, the proposed Covered Activities would affect a small portion of the species and its range and would not appreciably reduce the range-wide reproduction, numbers, or distribution of the species.

2. Bald eagles have not historically and are not currently breeding within the Covered Lands. The bald eagle is only an infrequent winter visitor to Castac Lake.

3. The Applicant will implement protective measures as part of the proposed activities (e.g., surveying development areas prior to construction and providing setback from roost trees) that will avoid disturbance of and similar human caused indirect impacts, i.e., noise, to the bald eagle. Disturbance to individuals during construction would be avoided through 300-foot setbacks from human activities in the TMV Planning Area. More generally, where the modeled suitable habitat overlaps with proposed activities, TRC proposes to conduct pre-activity surveys and carry out the action while avoiding any discovered occurrences of the bald eagle.

4. The TUMSHCP includes additional conservation measures to protect modeled suitable bald eagle habitat, including a prohibition on removal of preferred diurnal perches and high quality roost trees from fuel modification zones within 1 mile of Castac Lake. In addition, snags and large trees would be avoided within 100 feet of the shoreline of Castac Lake, where possible, and an adequate setback from preferred roosting areas would be established by the Service-approved Tejon staff biologist.

5. No disturbance, injury, or mortality of bald eagles would occur based on the proposed avoidance and minimization measures

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

Amount or Extent of Take

We anticipate few (6 or fewer) bald eagles would winter on the Covered Lands based on the information in the Environmental Baseline section of this biological opinion. The proposed Covered Activities would cause the loss of an estimated 841 acres of modeled suitable habitat (6 acres of modeled foraging habitat and 835 acres of modeled wintering habitat) for the bald eagle. However, we do not expect this amount of habitat loss to cause take of the bald eagle because sufficient wintering habitat and virtually all foraging habitat would remain in and surrounding Castac Lake, (the only portion of the Covered Lands where eagles occur), to support the small number of eagles that have and are expected to use the area as wintering habitat. Thus, a sufficient amount of habitat to support eagles that have been known to winter and forage at Castac Lake will remain with implementation of the Covered Activities. Under the TUMSHCP several measures including the retention of preferred diurnal perches and high quality roost trees near Castac lake, preconstruction surveys, and the imposition of setbacks on human activities will be implemented to ensure that disturbance of eagles and interference with essential feeding, roosting and sheltering behaviors of bald eagles are avoided.

Effect of the Take

In the accompanying biological opinion, the Service determined the proposed actions would not result in jeopardy of the bald eagle, and that no take of bald eagles is expected to occur.

Bald and Golden Eagle Protection Act

As discussed above, the Service has issued rules permitting the incidental take of eagles and extended BGEPA take authorization to holders of existing ESA authorizations, including specifically allowing take authorization to be extended to future ESA Section 10 ITPs associated with habitat conservations plans for multiple species that include bald or golden eagles as Covered Species (Service 2008). The Service has completed its analysis of potential take of bald eagle under both ESA and the BGEPA. Based on our review of the proposed Covered Activities, we conclude the Covered Activities would not result in take in the form of disturbance of any bald eagle or in any other prohibited form of take under the BGEPA, (i.e., pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest.) Therefore, a BGEPA permit is not required to carry out the proposed Covered Activities, and the proposed ITP does not constitute BGEPA authorization to take bald eagles. The basis for our conclusion follows.

In 2007, the Service defined “disturb” under the BGEPA as meaning "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle (2) a decrease in its productivity, by substantially interfering with normal, breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding or sheltering behavior”. The BGEPA is not a habitat management law and habitat loss, by itself, is not take under the BGEPA. However, to the extent that a loss of, or other effects to, habitat cause direct effects to an eagle within the definition of take under the BGEPA and its implementing regulations, such effects are prohibited without authorization. To constitute take under the BGEPA definition of disturb, a loss of habitat must agitate or bother an eagle to the extent that the loss causes or is likely to cause an injury to, a decrease in the productivity of, or nest abandonment by, an eagle. The Covered Activities would result in the permanent loss of some modeled habitat but are not likely to cause injury to or a decrease in productivity of any bald eagles. No eagles are known to nest on the Covered Lands; therefore nest abandonment would not occur. The Applicant will implement protective measures as part of the proposed activities (e.g., surveying development areas prior to construction and providing setback from roost trees) that will avoid disturbance of and similar human caused indirect impacts, i.e., noise, to the bald eagle. Disturbance to individuals during construction would be avoided through 300-foot setbacks from human activities in the TMV Planning Area. More generally, where the modeled suitable habitat overlaps with proposed activities, TRC proposes to conduct pre-activity surveys and carry out the action while avoiding any discovered occurrences of the bald eagle. These measures will effectively avoid injury to any bald eagle. Finally, the TUMSHCP includes additional conservation measures to protect modeled suitable wintering bald eagle habitat, including a prohibition on removal of preferred diurnal perches and high quality roost trees from fuel modification zones within 1 mile of Castac Lake. In addition, snags and large trees would be avoided within 100 feet of the shoreline of Castac Lake, where possible, and an adequate setback from preferred roosting areas would be established by the Service-approved biologist. The TUMSHCP would result in the conservation of a significant amount of modeled habitat sufficient to support bald eagles using the Covered Lands and therefore avoid substantial interference with bald eagle feeding or sheltering behavior.

REASONABLE AND PRUDENT MEASURES / TERMS AND CONDITIONS

As described above, the proposed TUMSHCP and associated documents identify anticipated impacts to the bald eagle as well as measures that are necessary and appropriate to minimize those impacts. These measures will effectively avoid take of the bald eagle under the Act and BGEPA from the Covered Activities. Therefore, no reasonable and prudent measures or implementing terms and conditions to minimize take are required or included in this incidental take statement.

GOLDEN EAGLE

STATUS OF THE SPECIES

Regulatory History

The golden eagle (*Aquila chrysaetos*) is federally protected under the Bald and Golden Eagle Protection Act (BGEPA), 16 United States Code (USC) 668 – 668d passed in 1940 to protect the bald eagle and amended in 1962 to include the golden eagle (16 U.S.C. 668a-d). It is also protected under the Federal Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703–712). The golden eagle is a California Species of Concern and is fully protected in the State of California (CDFG 2007a).

The Bald and Golden Eagle Protection Act (BGEPA), 16 United States Code (U.S.C.) 668 – 668d, prohibits take of eagles. Take as defined under the BGEPA, includes the actions to "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb" (16 U.S.C 668c). To disturb a bald or golden eagle means “to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best available scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding or sheltering behavior” (50 CFR 22.3). The BGEPA "is not a habitat management law" (Service 2007b), and does not protect habitat per se, other than eagle nests. Therefore, permit coverage for eagles is not required for activities that modify habitat, unless the activities result in take of an eagle under one of the terms in the definition. The Service determined through recent rulemaking that ITPs issued pursuant to the Act and its implementing regulations (16 U.S.C. 1531 et seq.; 50 CFR 17.1 et seq.) may be lawfully issued to cover take under the BGEPA.

In 2008, the Service issued a Final Rule regarding authorization under the BGEPA for take of bald and golden eagles (Service 2008). This rule, which became effective on June 19, 2008, extended BGEPA take authorization to holders of existing ESA Section 10 permits and allowed take authorization to be extended to future Section 10 ITPs associated with HCPs for multiple species that include bald or golden eagles as Covered Species (50 CFR 22.11). The new regulations state that "a permit that covers take of bald eagles or golden eagles under [Section 10 of ESA and its implementing regulations at 50 CFR Part 17] for purposes of providing prospective or current ESA authorization constitutes a valid permit issued under this part for any take authorized under the permit under part 17 as long as the permittee is in full compliance with the terms and conditions of the permit issued under part 17” (50 CFR 22.11(a)). In general, the statutory and regulatory criteria for issuing ESA incidental take authorization include minimization, mitigation, or other conservation measures that also satisfy the statutory mandate under the BGEPA that authorized take be compatible with the preservation of the bald or golden eagle (Service 2008). The new regulation provides for revocation of the ITP as applied to bald and golden eagles if the Service determines that activities covered by the ITP are “incompatible with preservation of the bald eagle or golden eagle

Natural History/ Habitat Requirements

The golden eagle is a large, dark-brown raptor with long, broad wings (Kochert et al. 2002). Golden eagle length ranges from 28 to 33 inches, with a wingspan of 73 to 87 inches. The rear crown, nape, and sides of the neck are golden and the bars on the tail are gray. In adults, the rest of the body is dark brown with lighter rear under-parts and upper wing-coverts. Juveniles are distinguished from adults by their darker color and white at the base of the secondary and inner primary feathers. The sexes are similar in appearance, although females are larger than males on average. Plumage is the same throughout the year (Kochert et al. 2002).

The golden eagle eats primarily lagomorphs (hairs, rabbits, and pikas) and rodents; it also takes other medium to large mammals, birds, reptiles, and some carrion (Johnsgard 1990; Olendorff 1976). The golden eagle is considered to be an opportunistic forager (Olendorff 1976). In Southern California, the prey of golden eagles is made up predominantly of the California ground squirrel and the Audubon cottontail (*Sylvilagus audubonii*) (Hoechlin 1976). The golden eagle occasionally preys on domestic calves and lambs. Within certain portions of its range, it may compete with ferruginous hawks for small mammals, and with California condors for carrion (Zeiner et al. 1990b).

The golden eagle requires a broad, open terrain for hunting. It soars approximately 100 to 300 feet above the ground in search of prey, or makes low, quartering flights, often 20 to 30 feet above ground. Occasionally it searches from a perch and flies directly to the prey (Carnie 1954). Sometimes it pirates food from other predators. Hunting in pairs is apparently common, with one member of the pair chasing the prey to exhaustion and the other swooping down to kill the prey (Terres 1980).

The golden eagle exhibits year-long, diurnal activity (Zeiner et al. 1990b). This species spends most of the day perched (78 percent to 85 percent of the day) and the remainder of the day in flight (Collopy and Edwards 1989).

Nest building can occur almost any time during the year (Brown 1976). Pairs may build more than one nest and attend them prior to laying eggs (McGahan 1968). Each pair can have up to 10 nests, but only two to three are generally used in rotation from one year to the next. Some pairs use the same nest each year, while others use alternate nests year after year, and still others apparently nest only every other year. The same nest may even be used by succeeding generations of eagles (Terres 1980).

The golden eagle builds a large platform nest, often 10 feet across and 3 feet in height, of sticks, twigs, and greenery. It breeds from late January through August, with a peak in March through July. The clutch size is one to three eggs, usually two eggs (McGahan 1968). Eggs are laid in early February to mid-May. The young birds hatch several days apart. The older, stronger eaglets often kill their smaller siblings (Terres 1980). The average incubation period lasts approximately 42 days, and the nestling period ranges from 45 to 81 days (Kochert et al. 2002).

Parental care continues into August, and family groups remain together into November (Scott 1985).

Breeding success depends on local prey abundance. A 15-year study of golden eagles in Oregon found a mean of 1.08 young fledged per breeding territory, 1.7 young fledged per successful nest, and 51 percent overall breeding success (Thompson et al. 1982). Sexual maturity is generally reached in about 4 years, and the average lifespan of adults in the wild is approximately 10 years (Brown and Amadon 1968). After the young golden eagles have fledged, they remain in the vicinity of the nest for about 2 weeks (Brown and Amadon 1968). In some populations, they are thought to be dependent on parental assistance for about 3 months after learning to fly, and normally separate from the parents by October. The young often appear near the nest site in the early part of the following breeding season and immature golden eagles sometimes frequent a nest site for several years before they finally breed there.

Golden eagles defend nest areas from conspecifics (i.e., member of the same species) and appear to defend part of their home range; however there can be substantial overlap between the home ranges of adjacent pairs (Scott 1985). The home range of the golden eagle is probably the same as the territory (Zeiner et al. 1990b). The size of the home range is related to prey density and availability, and the openness of terrain (Zeiner et al. 1990b). Home range size has been estimated to average 7.85 square miles (5,024 acres) in Wyoming (Phillips and Beske 1982; Platt 1984), 8.92 square miles (5,709 acres) in Utah (Smith and Murphy 1973), and an average of 7.85 square miles (5,024 acres) from three studies in Idaho (Dunstan et al. 1978; Collopy and Edwards 1989; Marzluff et al. 1997). Territories remain occupied in years of low prey availability, even when golden eagles do not breed. Territorial boundaries are generally static, changing little from year to year (Marzluff et al. 1997).

Golden eagle home range size, which is probably the same as the territory (Zeiner et al. 1990b), has been estimated to average 5,709 acres in Utah (Smith and Murphy 1973) and 8,092 acres in southwestern Idaho (Collopy and Edwards 1989). Radiotelemetry studies of golden eagles in the Snake River Birds of Prey National Conservation Area in Idaho, however, demonstrated that home ranges can be seasonally quite variable, ranging from 0.7 square mile (469 acres) to 32 square miles (20,575 acres) during the breeding season and from 5 square miles (3,384 acres) to 656 square miles (419,900 acres) during the non-breeding season (Marzluff et al. 1997). Golden eagles will often have overlapping nest territories or smaller territories if a particular area has high prey availability and abundant breeding habitat opportunities. Active nest densities averaged 23.8 square miles (15,232 acres) per pair in Wyoming (Phillips and Beske 1984), 25.5 square miles (16,320 acres) in Idaho (Kochert 1972), and 10.8 square miles (6,912 acres) in Alaska (McIntyre and Adams 1999).

Distribution and Population Trends

The golden eagle has a Holarctic distribution (i.e., northern continents), extending as far south as north Africa, Arabia, and the Himalayas in the Old World, and Mexico in North America. It is a partial migrant within this distribution, with the northern breeding birds migrating south in

winter, while those of more temperate climates remain all year round (Brown and Amadon 1968). Golden eagles primarily occur in the western regions of North America and breed locally from Alaska southward to northern Baja California and northern Mexico and eastward to the western Great Plains. The species winters from southern Alaska and southern Canada southward through the breeding range (Johnsgard 1990).

This species is sparsely distributed throughout most of California, occupying primarily mountain, foothill, and desert habitats (Zeiner et al. 1990b). This species may be more common in Southern California than in northern regions. The species ranges from sea level up to 11,500 ft. amsl (Grinnell and Miller 1944). Golden eagles are mostly resident, but may move down-slope for the winter or upslope after the breeding season. Some individuals migrate into California for the winter (Zeiner et al. 1990b). Although the golden eagle was formerly considered common within suitable habitats in California (Grinnell and Miller 1944), the species was more recently judged to be uncommon throughout much of California (Garrett and Dunn 1981). The golden eagle avoids settled areas and, therefore, has almost certainly declined in California within the past century due to loss of large, unfragmented habitat areas (Grinnell and Miller 1944).

The most recent survey of golden eagles across four large Bird Conservation Regions (BCRs) in the West (80 percent of the species' range in the lower 48 states is in these BCRs) provided an estimate of 20,722 golden eagles of all ages across the survey area. The best available survey data we have for golden eagles indicate, at best, a stable population in the four Bird Conservation Regions, with a possible decline in the population of juvenile golden eagles in the southern Rockies. The Service extrapolates those survey data to estimate that there may be 30,000 golden eagles across the United States. However, golden eagle populations are believed to undergo a (roughly) ten year cycle, so having only four years data (surveys 2006 - 2009) limits the Service's ability to assess the long-term population trend (Service 2011b).

Rangewide, golden eagles occur in open country (e.g., tundra, open coniferous forest, desert, and barren areas), especially in hills and mountainous regions (AOU 1998). Golden eagles typically are not found in heavily forested areas or on the immediate coast and are almost never detected in urbanized environments (Grinnell and Miller 1944; Garrett and Dunn 1981). Preferred territory sites have a favorable nest site, a dependable food supply, and broad expanses of open country for foraging. Hilly or mountainous country that provides updrafts that facilitate takeoff and soaring are occupied more than flat habitats (Johnsgard 1990). In the interior central Coast Ranges of California, golden eagles are often found in open grasslands and oak savannah, but also occupy oak woodland and open shrub lands (Hunt et al. 1998). Within Southern California, the species prefers grasslands, brush lands (coastal sage scrub and sparse chaparral), deserts, oak savannahs, open coniferous forests, and montane valleys (Garrett and Dunn 1981).

Breeding of the golden eagle is primarily restricted to rugged, mountainous country, with canyons and escarpments (Garrett and Dunn 1981, Johnsgard 1990, Call 1978). Most nests are located on cliffs or trees near forest edges or in small stands near open fields (Bruce et al. 1982; Hunt et al. 1995, 1998). Some nests occur in Douglas-fir (*Pseudotsuga menziesii*), pines (*Pinus*

spp.) or other large trees (McGahan 1968), such as several species of oak (*Quercus* spp.), foothill pine (*Pinus sabianiana* and *P. coulteri*), California bay laurel (*Umbellularia californica*), eucalyptus (*Eucalyptus* spp.), and western sycamore (Hunt et al. 1998).

The golden eagle needs a broad expanse of open country for hunting, including grasslands, deserts, savannahs, and early successional stages of forest and shrub habitats (Johnsgard 1990). Foraging takes place over large areas of open chaparral or coastal sage scrub as well. In parts of Idaho, golden eagles have been shown to select areas with abundant and large shrub patches, which provide preferential jackrabbit habitat (Marzluff et al. 1997).

Reasons for Decline

In California, loss of golden eagle foraging and breeding habitat is largely due to the loss of grasslands to agriculture and urbanization. Additional threats to this species are human disturbance of nest areas leading to desertion of the nest in early incubation, urbanization, poaching, and electrocution from high tension wires (Remsen 1978; Thelander 1974). Other sources of direct golden eagle fatalities include wind turbine strikes and lead poisoning (Thelander 1974). Of 61 golden eagles radio-tagged and recovered in the Diablo Range, in western California, from January 1994 to December 1997 (Hunt et al. 1998), 37 percent were killed by turbine strikes, 16 percent by electrocution, and 5 percent by lead poisoning (Hunt et al. 1998). Shootings (2 percent), car strikes (5 percent), botulism (2 percent), territorial fights with other eagles (5 percent), collision with fences (3 percent), fledging mishaps (10 percent), and other unknown factors (15 percent) account for the remaining bird fatalities.

The golden eagle is particularly sensitive to human disturbance and to land use changes that disrupt natural food supplies and breeding sites. An increase in human disturbance of a nest area and urbanization may result in abandonment of the nest, thereby threatening the species' reproductive success (Thelander 1974). Human developments on ridge tops within view of breeding sites may cause nest abandonment (Camp et al. 1997). In a study of golden eagles in San Diego County, the count of residences was shown to have a significant correlation to the number of abandoned golden eagle territories (Richardson and Miller 1981).

The issue of raptor electrocutions on power lines started receiving serious attention in the early 1970s. Several studies identified how raptors, including golden eagles, were being electrocuted and recommendations have been established to reduce the risk (Olendorff et al. 1981; Avian Power Line Interaction Committee 2006). Single-phase poles, three-phase poles, and pole-mounted transformers all pose an electrocution threat to raptors but can be retrofitted with various devices to reduce the risk.

ENVIRONMENTAL BASELINE

Surveys for special-status breeding raptors, including golden eagle nests, were initiated in the TMV Planning Area by the Applicant's consultant during two time periods starting in 2007 (Dudek 2009). Raptor surveys were conducted using the methods described by Fuller and

Mosher (1987), including early season driving and road surveys to identify nest locations and follow-up driving, road, or pedestrian surveys to identify additional locations and provide breeding success information. The surveys focused on oak woodlands.

A focused survey was conducted in all suitable/potential breeding habitat within the TMV Planning Area to search for nests, and anecdotal observations of golden eagle foraging and soaring were recorded. Golden eagle nests observed during the surveys were classified as either "Active", "Inactive", or "Abandoned". "Active" nests were those nests at which one or more of the following were observed: (1) nest building; (2) courtship behaviors; (3) incubation or brooding behaviors; (3) young in the nest; (4) adults landing on or near a nest; (5) prey being brought to the nest; (6) white-wash, feathers, food pellets, or prey remains, below the nest tree; and (7) any other indications that the nest was, at some time during the breeding season, being used by adult eagles. "Inactive" nests were those nests at which no evidence of use by adult or young eagles in a particular season was observed, but the nest was determined to be intact and could potentially be used by eagles in the future. "Abandoned" nests were those that were observed to be not used within at least five consecutive breeding seasons, or that were dilapidated, in the process of losing sticks and nest materials, or otherwise determined to be unusable in its current state due to inclement weather or non-use over an extended period of time.

During the initial field surveys conducted in 2007, five eagle nests were identified within the TMV project site. Three nests were identified as active, while one was determined to be inactive and one in Johnson Canyon was determined to be abandoned. Follow-up surveys of each of these nest sites were conducted each year from 2008-2012 (Dudek 2012). Two of the active nests identified in 2007 were active each of these years. A third nest was inactive in 2008, active in 2009 and 2010 (but did not produce fledged young), active in 2011 (produced two young), and active in 2012. Two additional nests were recently located in 2012, one active and the other inactive. The new active nest was located in October of 2012. This newly discovered active nest site also included an alternate nest located in the same tree. The nest site that was identified as inactive in 2007, remained inactive from 2007-2012 and is considered "abandoned"; the nest is still intact. The abandoned nest site identified in 2007 in Johnson Canyon was noted to have completely fallen out of the tree by 2008, with only a few nest sticks remaining. To summarize, there are currently 4 active nest sites, 1 inactive nest site, and 2 abandoned nest sites located within the TMV Planning Area.

Suitable habitat for golden eagle was modeled on Covered Lands. Modeled suitable habitats (Figure 5-9 of the TUMSHCP) were categorized as: (1) primary breeding habitat, which serves only breeding functions; (2) breeding and foraging habitat, which serves both breeding and foraging functions; or (3) foraging habitat, which serves only foraging functions. Modeled suitable primary breeding habitat includes oak woodland and riparian woodland. Modeled suitable breeding and foraging habitat is savannah, and modeled suitable foraging habitat includes scrub, grassland, agriculture, wash, and riparian/wetland. The Applicant modeled a total of 48,019 acres of primary breeding habitat, 33,056 acres of breeding/foraging habitat, and 33,891 acres of foraging habitat for the golden eagle in the action area (114,966 acres total).

Because of the relatively large prey base on Tejon Ranch and surrounding area, and the relative close proximity of the four known active nests within the TMV Planning Area, we assume that the home range sizes of breeding pairs on the ranch are at the lower end of the home range estimates provided in the literature and may possibly be similar to the average sizes noted by Smith and Murphy (1973) and Collopy and Edwards (1989); i.e., from 5,000 to 8,000 acres in size, and possibly smaller. Assuming that home range sizes of breeding golden eagles on the Covered Lands are at the lower end of range size estimates given in the literature (i.e., 5,000 to 8,000 acres), the conservation of 30,972 acres of modeled breeding/foraging habitat and 30,791 acres of modeled foraging habitat is considered adequate to support the four known active nest territories within the TMV Planning Area, as well as several additional territories that may occur within Covered Lands outside the TMP Planning Area. Assuming home ranges of 5,000 to 8,000 acres, conservation of 61,763 acres of modeled breeding/foraging and modeled foraging habitat could support an estimated 8 to 12 pair of breeding golden eagles on Covered Lands.

Recovery

The golden eagle is not listed under the ESA, so we have not developed a recovery plan for the species to which we can refer to assess its recovery status. In the absence of a recovery plan, we default to the general conservation of the species. For a species like the golden eagle that has lost a large percentage of its former known occupied habitat, recovery would necessitate the conservation of much of the remaining habitat that supports the species. In addition, restoration of suitable habitat that has been disturbed but otherwise remains undeveloped would be a priority. Lastly, efforts to establish the species in unoccupied but otherwise suitable habitat would contribute to its recovery. The Covered Lands currently support both nesting and foraging habitat for the species and in that sense, may function in the species' conservation.

EFFECTS OF THE ACTION

Planwide Activities

Livestock

The Applicant proposes to graze livestock on the balance of the action area outside development areas consistent with the types and level of historical grazing and ranch management practices. We anticipate that this activity will have negligible effects on the golden eagle because grazing levels would remain consistent with current practices of an average of 14,500 head of cattle including cow/calf operations. In general, livestock grazing can be beneficial in supporting the prey base for golden eagles (W.G. Hunt, The Peregrine Fund, pers. comm. 2013). We are not aware of any adverse effects to the golden eagle as a result of grazing at current levels or from range management activities on the Covered Lands. As noted above, there are currently 4 active nests within the TMV Planning Area, which is an indication that current grazing activities are compatible with foraging and breeding golden eagles. In addition, under the TUMSHCP, the Applicant must submit a grazing management plans as a component of the RWMP to the Service

every 5 years for review and approval. Additionally, through the adaptive management provisions of the Plan, we may work with the Applicant to develop up-front mutually agreed-upon changes in the operating conservation plan that may be necessary for Covered Species in light of new information. Our review of such plans will allow for the implementation of additional measures or modification of grazing practices to ensure the continued compatibility of grazing in the action area with the conservation of the golden eagle. Therefore, grazing would have a negligible and possibly beneficial effect on the golden eagle.

Range Management/Ancillary Ranch Structures

Range management activities support livestock operations and consist of construction, operation, and maintenance of watering facilities, feeding areas, fences, and corrals, consistent with the types and level of historical grazing and ranch management practices; repair, reconstruction, and relocation of roads to accommodate historical grazing and ranch management practices; and repair, maintenance, or installation of ranch management communication equipment (e.g., whip antennas) less than 20 feet high. The repair, reconstruction and relocation of roads to accommodate historical grazing and ranch management practices are evaluated below under Roads. Range management also incorporates ancillary ranch structures including squeezes, loading chutes, holding and feeding fields, corrals, branding traps, barns, sewage disposal facilities, livestock and wildlife watering facilities, and utilities serving existing ranch uses.

As described above under Planwide Activities in the Description of the Proposed Action section, *de-minimis* activities associated with ancillary ranch structures would be covered under the TUMSHCP. Non–*de minimis* activities associated with ancillary ranch structures are also allowed (1) if the activity is located in disturbed areas (e.g., undergrounding utilities in road rights-of-way), or (2) following a meet-and-confer process with the Service to ensure that the activity associated with an ancillary ranch structure avoids or adequately minimizes impacts to Covered Species and their habitats.

These activities are subject to the 200-acre disturbance limit and occur at a small scale relative to the size of the action area, and range management facilities already exist in the action area. Given the irregular nature of range management activities, and the Service's ability to review and approve the Applicant's grazing management plans and work with the Applicant to implement adaptive management measures, we expect impacts on golden eagles to be rare and negligible. Golden eagles continue to use the land for breeding and foraging, which is an indication that the range management activities are compatible. Additionally, avoidance and minimization measures proposed in Section 7.1.1.2.4 of the TUMSHCP are designed to protect foraging and breeding habitat for golden eagles to preserve productivity for breeding golden eagles in the area, and to prevent disturbance to individuals. Thus, we expect impacts on golden eagles to be negligible.

Fuel Management

Fuel management practices would consist primarily of grazing, and the effects of fuel management by grazing should be largely consistent with the effects of grazing discussed above. Other fuel management activities include fuel modification zones created by existing roads, and through irrigation and/or vegetation clearing and mowing within 120 feet surrounding existing structures (i.e., backcountry cabins, ancillary ranch structures, and other existing structures), although it is likely that the majority of this zone will occur within the development envelope. Vegetation thinning and mowing are the current practices around cabins and roads.

Mowing may create enough noise to cause golden eagle to temporarily avoid suitable habitat. However, fuel management would occur infrequently/irregularly in established open space, and there are no existing structures near nest sites. Additionally, avoidance and minimization measures proposed in Section 7.1.1.2.4 of the TUMSHCP are designed to protect foraging and breeding habitat for golden eagles to preserve productivity of breeding for golden eagles in the area, and to prevent disturbance to individuals. Therefore, we expect adverse effects from fuel management practices to be minimal and rare.

Fuel management associated with proposed development is discussed below under Commercial and Residential Development Activities.

Filming

Filming activities generally consist of temporary on-scene filming and photography-related uses, including, but not limited to the filming and staging of movies, television shows, and commercials; photo shoots; and still photography and related uses. Such activities may include the erection and dismantling of props, temporary installation of trailers and equipment for film crews, filming of on-camera action, catering, rehabilitation of disturbed areas, and the movement of film crews to and from locations.

Film shoots that include explosives or other loud noises could adversely affect golden eagles that may be feeding or breeding in the action area. Explosions (louder than gunshots) or other abnormally loud noises are prohibited throughout the TUMSHCP Mitigation Lands unless the Service-approved Tejon Staff Biologist, in consultation with the Service, determines that no condors are present, and explosions (louder than gunshots) are strictly prohibited in the Condor Study Area portion of the Covered Lands. These restrictions on explosions to protect California condors would also benefit golden eagles in the action area by minimizing the potential for disturbance to this species from explosions.

We expect filming to cause only minimal impacts to golden eagle habitat, because filming occurs over a relatively short time frame, the Applicant would require habitat restoration to pre-filming conditions for any disturbed habitat due to filming, and the Applicant will require that temporary construction avoid sensitive resources, and all known active eagle nest sites are located within hilly and wooded terrain that is expected to further attenuate noises. We do not expect direct

impacts to individual golden eagles or nest sites from filming, because the Applicant would conduct surveys prior to filming related use and the Applicant will avoid disturbance to nest sites by establishing setbacks around any active nests; in addition, the Applicant will have a qualified biologist monitor filming activities to ensure the terms of the TUMSHCP are implemented (see Table 2 of this biological opinion and Section 2.2.1 of the TUMSHCP). The Applicant's proposal to manage open space lands to maintain the existing habitat conditions described in the TUMSHCP would further minimize adverse effects from filming. Therefore, we do not expect filming activities to cause adverse impacts to golden eagles within the action area.

Recreation

Recreation associated with the Planwide Activities includes private recreation by TRC, its employees and guests and public access is governed by the Interim RWMP and managed by the Conservancy. Such recreational use is also subject to the terms of the TUMSHCP and the terms of Service-approved conservation easements. While the private recreation by TRC occurs currently throughout the Covered Lands, public recreation, which generally consists of docent led tours by the Conservancy per the Interim RWMP, occurs in the Established Open Space portion of the Mitigation Lands. These public and private recreation uses are limited to passive activities listed in the Project Description. Recreation activities associated with Planwide Activities would occur in open space areas generally outside the TMV Planning Area at a relatively small scale, and have infrequent impacts. Recreational uses by TRC, its employees, and the public are limited by the access guidelines and best management practices in the Interim RWMP and will be further regulated in Public Access Plans, which are subject to permanent Service review and approval. We note that future development in the TMV Planning Area will likely lead to increased recreation demand by TMV Project residents and guests, but the type and nature of the use is the same. All such recreational use in the protected open space will also be regulated in the Public Access Plan, which will require monitoring and enforcement and is subject to permanent Service review and approval. The effects of recreation on the golden eagle in the TMV Planning Area Open Space are discussed separately under Commercial and Residential Development Activities.

Recreational activities could have an adverse effect on golden eagles if such activities were in close proximity to suitable foraging habitat or breeding locations. However, given the large size of the conservation lands, and restrictions on access included in the Interim RWMP as well as in the TUMSHCP, we anticipate a low likelihood of disturbance to golden eagles from covered recreational activities. Active monitoring and regulation of recreational activities by TRC staff or Conservancy docents, as well as restrictions on the location and types of any organized events should reduce the potential for disturbance to golden eagles.

Further, private recreation activities are limited by the requirement to preserve conservation values of the Covered Lands, and to follow best management practices. Public recreation activities will be governed by a Public Access Plan in areas managed by the Conservancy, subject to Service review and approval for consistency with the TUMSHCP and the Act. An Interim Public Access Plan is currently in place that provides for docent-led public tours and

requires pre-activity surveys prior to any ground-disturbing activities. We anticipate future levels of public access to be consistent with what occurs under the Interim Public Access Plan. Furthermore, surveys would be conducted prior to the construction of any new trails and all active nest sites would be avoided. As stated in Section 7 of the TUMSHCP, trail use will be restricted between 0.25 and 0.5 mile from any active golden eagle nest during the breeding season (February 1 through June 1). This buffer distance from nest is adequate to avoid disturbing golden eagles during the breeding season (SDEIS). Trail use may be allowed during the breeding season, if the project biologist or the Service-approved Tejon Staff Biologist has determined that the nest has become inactive and/or trail use would not affect breeding golden eagle. These measures would ensure that allowed recreational activities are conducted in a manner that is consistent with the conservation of the golden eagle. Therefore, we expect that any effects on golden eagles of Recreation associated with Planwide Activities would be minor.

Indirect recreational impacts related to development are discussed under Commercial and Residential Development Activities below.

Irrigation/Water Diversion

The action area contains a few small agricultural areas within the Covered Lands (e.g., small vineyards and an orchard near Castac Lake) totaling about 232 acres and small existing water diversions for irrigation of agriculture. Agricultural uses that remain in open space, if any, after the Applicant identifies the final development footprint would continue subject to State and local regulations. These agricultural uses are not anticipated to result in any adverse impacts to the golden eagle from on-going agricultural activity, because the Applicant is not proposing to expand agricultural operations, agricultural land is not suitable habitat for the species, and we do not expect the golden eagles to occur in these areas.

We are not aware of adverse effects to the golden eagle as a result of existing farming and irrigation systems. The Applicant is not proposing to expand the current irrigation capacity/diversion capacity and the operation of irrigation facilities would not cause additional impact to the golden eagle. We do not expect that water diversions for irrigation or agriculture will affect the golden eagle because these water diversions are very small, require little human presence to maintain. Maintenance and relocation work, if any, is subject to the survey and avoidance requirements in the TUMSHCP, and prior to TRC relocating water diversions, the Service would review and approve the proposed new locations. Therefore, foraging and breeding golden eagles will not be affected from these human activities and there will be no loss of suitable habitat for golden eagles. Furthermore, golden eagle measures would be implemented to reduce effects on individuals that may forage and nest within the action area. Consequently, these effects would be negligible.

Roads/Trails

A network of generally unpaved roads exists in the action area as access for fire protection, security, ranching activities, and hunting. As described in the TUMSHCP, the roads outside the

developed areas would be maintained, relocated, or new roads could be constructed, in compliance with the 200-acre limit on disturbance by Planwide Activities, to facilitate the Planwide Activities. The unimproved dirt roads exist for access for fire protection, security, ranching activities, and hunting. Road/trail use is expected to be irregular and of low intensity. Any new or relocated roads will be sited to avoid impacts to sensitive resources, including breeding birds and habitat as any new or relocated roads would require efforts to minimize the footprint and use BMPs for the design and installation, including surveys prior to grading, contractor education, staking and temporary construction fencing. Use of roads for Planwide Activities uses includes the private recreation analyzed above and road maintenance/construction to accommodate ranch activities.

For the breeding golden eagle, measures would be implemented to reduce effects on the Covered Lands. The measures proposed in Section 7.1.1.2.4 of the TUMSHCP would effectively avoid disturbance to individual eagles or their nests from road and/or trail construction. Prior to grading, surveys would be conducted during the breeding season within 1.0 mile of construction areas to determine the status of those previously identified nests and to identify any associated recently established alternate nests by existing eagle pairs, or recently constructed nests by new golden eagle pairs. All active primary and alternate nests would be preserved. If active golden eagle nest sites are observed on site during the survey, a nest-specific analysis would be prepared to identify the primary nest and establish its view shed. Because golden eagles typically build primary and alternate nests in relative close proximity to each other, often within the same tree groves, active alternate nest sites will generally be protected by the same view shed analysis as applied to the primary nest site. Therefore, we expect that impacts of maintenance, relocation, or construction of roads or trails to breeding golden eagles would be avoided, and that any impacts of foraging golden eagles would be minor.

The direct and indirect effects of roads as a result of residential and commercial development are addressed below under Commercial and Residential Development Activities.

Utilities

The action area contains, or would contain, various small utilities to support ranch activities. As described in Section 2.2.1 of the TUMSHCP, these utilities would be *de minimis* or would be located in previously disturbed areas (e.g., undergrounding utilities in road rights-of-way). Any utilities associated with Planwide Activities that are not *de minimis* or cannot be located in previously disturbed areas would require Service review and approval prior to relocation or construction. Installation or maintenance of utilities may affect golden eagles by disturbing habitat or individuals. However, we do not expect utilities to have a substantial adverse impact on the golden eagle because of the following: utility posts and towers have small footprints; the proposed utilities will affect a very small percentage of the action area; new utilities will be located primarily underground; measures would be implemented to reduce effects on individual golden eagles that may forage or nest on the Covered Lands. The measures proposed in Section 7.1.1.2.4 of the TUMSHCP would effectively avoid effects to individual eagles or their nests from construction. Prior to grading, surveys would be conducted during the breeding season

within 1.0 mile of construction areas to determine the status of those previously identified nests and to identify any associated recently established alternate nests by existing eagle pairs, or recently constructed nests by new golden eagle pairs. All active primary and alternate nests would be preserved. If active golden eagle nest sites are observed on site during the survey, a nest-specific analysis would be prepared to identify the primary nest and establish its view shed. Because golden eagles typically build primary and alternate nests in relative close proximity to each other, often within the same tree groves, active alternate nest sites will generally be protected by the same view shed analysis as applied to the primary nest site. Therefore, we anticipate the effects on golden eagles due to relocation of powerlines or other utility to be minor.

We address potential impacts by utilities associated with the proposed development under Commercial and Recreational Development Activities.

Backcountry Cabins

Eight backcountry cabins occur in the action area and could be maintained, improved, repaired, replaced, or reconstructed in their existing location. We do not expect that activities associated with backcountry cabins will affect the golden eagle because golden eagles avoid areas of human activity such as occupied cabin areas, are likely to do so in the future, and no new cabins would be allowed under the TUMSHCP. In addition, prior to TRC relocating an existing cabin, the Service would review and approve the proposed new location. For the golden eagles, avoidance and minimization measures proposed in Section 7.1.1.2.4 of the TUMSHCP are designed to protect foraging and breeding habitat for golden eagles to preserve productivity for breeding golden eagles in the area, and to prevent disturbance to individuals. This would ensure that the new cabin location is compatible with the conservation of the golden eagle. Thus, the continued operation of the cabins would have negligible effects on golden eagles.

Fencing

Fences exist throughout the action area. Fences would be maintained and new fencing could be constructed and maintained as required to support the Planwide Activities, including exclusion of cattle from sensitive habitats that support covered species. The two golden eagles killed in fences near Altamont, California, in the study referenced above, occurred in open rolling hills and most likely caused when fast-flying foraging eagles flew into fences that they did not see in time to avoid because of the topography (W.G. Hunt, pers comm. 2013). Habitat communities on the Covered Lands are much more variable than at Altamont. Woodland (defined as areas with greater than 40 percent cover) is the predominant general vegetation community in the action area. Savannah and grassland are the secondary dominant vegetation communities. These three general communities account for approximately 78 percent of the vegetation on the Covered Lands. Given these habitat types on Covered Lands, which is predominately woodlands and savannah, golden eagles would not encounter the identical open foraging conditions as at Altamont; therefore, it is not likely that golden eagles would collide with ranch fences on Covered Lands.

Under the TUMSHCP, the applicant must submit a grazing management plans to us every 5 years for review and approval. Our review of the grazing management plans, with adaptive management will allow for the implementation of additional measures or modification of fencing practices to maintain suitable habitat for the golden eagle. In addition, the RWA requires that an RWMP that includes fencing BMPs be prepared and followed. An Interim RWMP is currently in place and requires the following: that the Applicant must review requests for new fences and must first consider sensitive natural resources, including golden eagles, that could be affected; that new fences incorporate a "wildlife friendly" design to the extent feasible; and, where appropriate, modify fencing to allow wildlife passage (see Interim RWMP Section 3.2.11, pp. 3.2.11-2, 3.2.11-3). For these reasons, we expect effects of fencing in the action area to be negligible on the golden eagle.

Lebec/Existing Headquarters Area Uses

Existing activity in the Lebec/Existing Headquarters Area (i.e., corporate headquarters buildings, an antique shop, a post office, a church, and several single-family residences for ranch employees) would continue to occur. While additional development could occur here under the TUMSHCP, the Applicant has not included development plans for this area in the project description. This area includes modeled foraging habitat for the golden eagle (see figure 5.9 of the TUMSHCP). However, given the level of human actively, we do not expect that activities associated with this area will affect the golden eagle because golden eagles currently do not occur here and because they tend to avoid areas of human activity, and would likely continue to avoid this area in the future. Additionally, for the golden eagles, avoidance and minimization measures proposed in Section 7.1.1.2.4 of the TUMSHCP are designed to protect foraging and breeding habitat for golden eagles to preserve productivity for breeding golden eagles in the area, and to prevent disturbance to individuals.) We anticipate that continuance of existing activities in the Lebec/Existing Headquarters Area will have negligible effects on golden eagles, because golden eagles would likely avoid this area due to continuous human presence.

Potential development related impacts in the Lebec/Existing Headquarters Area are addressed below under Proposed Development.

Mitigation, Monitoring, and Management

Mitigation, monitoring, and management activities to carry out identified biological goals and objectives for the California condor or other Covered Species included in the TUMSHCP or other resource agency permits for the commercial and residential Covered Activities, as well as mitigation, monitoring, and management activities imposed pursuant to any local, State, or Federal approval of development on Tejon Ranch would be carried out in accordance with the Act and would be subject to Service review. We acknowledge that other agencies may credit TRC for mitigation and protective measures included in the TUMSHCP for mitigation imposed by such other agencies. Any restoration, enhancement, or similar mitigation activities would not be allowed if they would result in unpermitted adverse effects to species or critical habitat under

the Act. Additionally, any mitigation activities for other agencies would be subject to the protective measures included in Tables 1 and 2, in the Description of the Proposed Action section of this biological opinion. Therefore, we anticipate that any potential threats to the golden eagle as a result mitigation, monitoring, and management activities would be effectively minimized.

Estimate of Disturbance by Planwide Activities

The proposed TUMSHCP would cover 200 acres of ground disturbance associated with the Planwide Activities described above. These ground disturbances would occur outside of the proposed development (discussed below) and may be permanent or temporary. The disturbance would primarily be associated with construction of roads, backcountry cabins, and ancillary structures. If the Applicant restores a portion of this disturbance, an area equal in size may then be disturbed. Thus, no more than 200 acres may exist in a developed condition because of Planwide Activities at one time.

For the purposes of this effects analysis, we assume that all parts of the action area that could be affected by Planwide Activities have an equal chance of being affected and that all habitat types would be affected in equal proportion. This assumption is based upon the Applicant's inability to predict exactly where 200 acres of habitat disturbance due to Planwide Activities would occur. In addition, there is no indication that the distribution or location of golden eagle modeled habitat would cause Planwide Activities to disproportionately occur in golden eagle modeled habitat.

For the purposes of estimating species-specific habitat disturbance by Planwide Activities, we are not using the 8,817-acre development envelope used by the Applicant to estimate impacts from development (TUMSHCP Table 2-1, footnote 4), but rather we are using the 5,533-acre area that actually could be developed within the development footprint. We did this, because after the 5,533-acre development footprint is developed, 3,284 acres of the 8,817-acre development envelopes would remain and be subject to Planwide Activities, and modeled habitat for the golden eagle could occur in the 3,284 acres. Therefore, we included 3,284 acres of the development envelopes in this analysis to acquire an estimate of habitat lost by Planwide Activities that is as accurate as possible. When we combine this estimate with anticipated habitat loss from commercial and residential development in a summary effects analysis (discussed below), we will have slightly double-counted and overestimated the amount of golden eagle habitat that would be lost in the action area. This slight overestimation of lost habitat does not compromise our analysis, because the overlap is very small relative to the size of the action area, and this approach errs on the side of the species by analyzing a larger impact than would actually occur.

Adding together the acres of commercial and residential development, National Cement and La Liebre Mines, the Bakersfield National Cemetery, and Not-A-Part lands (blocks of land within the boundary of the action area but not owned by the Applicant), a total of 12,423 acres are not subject to Planwide Activities. We expect that Planwide Activities could occur on the remaining 129,463 acres of the action area (141,886 acres within the action area minus the 12,423 acres of

excluded areas above). Therefore, the ratio of disturbance due to Planwide Activities (200 acres) to Covered Lands subject to Planwide Activities (129,463) equals 0.0015. We applied this ratio to golden eagle habitat outside the excluded areas but in the action area and rounded the remainder up to a whole acre. A total of 48,019 acres of primary breeding habitat, 33,056 acres of breeding/foraging habitat, and 33,891 acres of foraging habitat for a total of 114,966 acres for golden eagle was modeled for Covered Lands. Thus, 114,966 acres of modeled habitat minus 7,698 acres lost to development equals 107,268 acres subject to Planwide Activities. Using our ratio of 0.0015, we anticipate that Planwide Activities would potentially disturb or remove approximately 161 acres of modeled suitable habitat (68 acres of primary breeding habitat, 47 acres of breeding/foraging habitat, and 46 acres of foraging habitat) for the golden eagle over the permit duration. This could be an overestimate because the Applicant is proposing measures to minimize disturbance to golden eagle habitat, including breeding and foraging habitat. Thus, while there could be a small loss of golden eagle modeled suitable habitat due to Planwide Activities, in comparison to the 107,120 acres (93 percent) of modeled suitable habitat conserved, the loss would have a minimal effect on the species. Based on estimated home range size of this species of approximately 5,000 – 8.000 acres, and assuming saturation of all modeled suitable habitat and a uniform distribution, this would amount to a potential loss of about 3 percent of one home range of golden eagles due to Planwide Activities.

Not all modeled habitat on the Covered Lands is occupied by the species and ample habitat would remain with loss of the 161 acres to support both the current active golden eagles nest sites on the Covered Lands and several additional pairs of breeding golden eagles. Thus, no loss of individual golden eagles would result from the permanent loss of 161 acres due to Planwide Activities. Consequently, the effects of Planwide Activities on the golden eagle and its habitat would be minimal under the TUMSHCP and would not reduce the species' reproduction, numbers or distribution in the Covered Lands or rangewide.

<u>Commercial and Residential Development Activities</u>

Direct Effects

The proposed commercial and residential development would result in the permanent loss of 7,698 acres (7 percent) of modeled suitable habitat for the golden eagle within the Covered Lands, including 2,045 acres (6 percent) of modeled breeding/foraging habitat, 3,040 acres (9 percent) of modeled foraging habitat, and 2,613 acres (5 percent) of modeled primary breeding habitat. This habitat loss includes any modeled habitat for the golden eagle lost as a result of development activities in the Lebec/Existing Headquarters Area.

Because of the relatively large prey base on Tejon Ranch and the relative close proximity of the four known active nests within the TMV Planning Area, it is assumed that the home range sizes of breeding pairs on the ranch are at the lower end of the home range estimates provided in the literature and may possibly be similar to the average sizes noted by Smith and Murphy (1973) and Collopy and Edwards (1989); i.e., from 5,000 to 8,000 acres in size, and possibly smaller.

The conservation of 45,357 acres (95 percent) of modeled primary breeding habitat, 30,972 acres (94 percent) of modeled breeding/foraging habitat, and 30,791 acres (91 percent) of modeled foraging habitat would continue to support the four known active nest territories within the TMV Planning Area as well as several additional territories that may occur within the Covered Lands. Assuming home ranges of 5,000 to 8,000 acres, conservation of 61,763 acres of modeled breeding/foraging and modeled foraging habitat could support an estimated 8 to 12 pairs on the Covered Lands. Four active nests were observed in the TMV Planning Area in 2007-2012, which supports 23,344 acres of modeled suitable habitat for the golden eagle. Assuming exclusive territories, this represents about 7,781 acres of available suitable habitat per nest site, which is sufficient to support all of the current active nest sites.

Construction activities could generate noise and vibrations that could disturb foraging and breeding golden eagles. While there is little, if any, literature on the effects of human-induced noises/vibration on golden eagles, based on the species' visual orientation, noise/vibration is generally not as disturbing as visual activities within the nest viewshed (Bloom, pers comm. 2012). The Applicant conducted an analysis, discussed below, to determine if construction noise and vibration would have effects on breeding golden eagles.

Typical construction equipment noise comes from, e.g., front-end loaders, concrete mixing trucks, backhoes, dump trucks, compressors, concrete pump trucks, generators and pick-up trucks (KCPD 2009). The overall average noise levels generated on a construction site could be 87 dBA at 50 feet. Noise associated with construction activities generally attenuates at a rate of 6 dBA per doubling distance (Laborers Health and Safety Fund of North America 2012). For example, at a distance of 100 feet construction noise will be approximately 81 dBA; at a distance of 200 feet, the noise will be approximately 75 dBA; and 69 dBA at a distance of 400 feet. In addition, any construction that will occur between 0.25 and 1.0 mile of active eagle nests (per the setback zones listed below) will be low-density. At 0.25 and 0.5 mile, construction noise will attenuate to approximately 59 dBA and 52 dBA, respectively. At 1.0 mile, the noise would attenuate to approximately 47 dBA. Pile driving and blasting are not anticipated for the project, but could be required if unanticipated soil or other conditions are encountered (KCPD 2009). Airblast sound pressure levels, if the airblast occurs unshielded, would attenuate to approximately 113 decibels and 105 decibels at 0.25 and 0.50 mile, respectively. At 1.0 mile, the decibel level would be reduced to 98 (KCPD 2009).

All of the known active eagle nests are located within hilly and wooded terrain that is expected to further attenuate noise associated with construction activities. Receptors at distances beyond approximately 500 feet from construction equipment are also subject to noise level variations resulting from atmospheric conditions such as wind, temperature, humidity and molecular absorption (K. Babcock, Dudek, *in litt*. 2012).

Therefore, because of the substantial noise attenuation associated with the distances and intervening terrain at which construction may occur from active nests, the existing ranch activities (such as hunting and construction related to cattle operations) that already emit relatively loud noises in close proximity to active nests, and because of measures in the

TMSHPHCP that will further reduce noise emissions associated with development that would occur up to within 0.25 mile of an active eagle nest, noise associated with construction-related activities is expected to be minor on the breeding and foraging golden eagles in the action area.

Vibration impacts are more localized than noise impacts. Blasting from construction activities (typically during grading) can create seismic waves that radiate along the surface of the earth and downward into the earth. These surface waves can be felt as ground vibration, measured by peak particle velocity (PPV) in inches/sec. Varying geology and distance will result in different vibration levels but, in all cases, vibration will decrease with increasing distance (KCPD 2009). At a distance of 0.50 mile (the closest construction could occur to an active eagle nest within the nest viewshed) and at a distance of 0.25 mile (the closest construction could occur outside the nest viewshed), ground vibration from blasting or other activities would likely not be felt by breeding eagles, particularly at the heights of most nests (typically 50 feet or more) and due to the intervening topography and vegetation in many cases. Vibrations at the closest distance (0.25 mile), construction could only occur outside the viewshed of the nest, so it is assumed that intervening topography and other physical features would further attenuate any vibration and noise. In addition, a tree, particularly tall ones such as most of the trees supporting the four active nests, sway much more even in a slight wind than the vibration from a blast could ever possibly transmit up a tree (Babcock *in litt*. 2012). Therefore, because of the relatively low levels of vibration, if any, potentially transmitted to eagle nests from blasting activities, the further attenuation of vibration due to topography and by virtue of nests being located high up in the nest trees, ground vibration from blasting or other construction activities is expected to have minor effects on foraging and breeding golden eagles in the action area.

Indirect Effects

Development-related indirect impacts to the golden eagle and modeled suitable habitat could occur from edge effects and increased human presence where modeled habitat is near developed areas. Specifically, these effects include noise/lighting, recreation, utilities, and roads/trails, as discussed below.

Developed areas would have increased lighting and noise that may disturb individual golden eagles. Under the TUMSHCP, lighting, where it is needed, will be directed away from sensitive habitats to reduce this effect (Sections 2.2.3 and 7.1.1.4). Noise that could affect potential breeding areas will be minimized/avoided by establishment of a 0.25-mile protection zone around any active nests as well as protection measures included in a Service-approved Public Access Plan., therefore, we expect these effects to be negligible to the golden eagles.

In addition, the increased population of the development areas is likely to increase the pressure for recreational activities in the, particularly in the TMV Planning Area. Recreational activities allowed within the TMV Planning Area are limited to passive recreation as described above under Planwide Activities. Even so, in the SDEIS for the TUMSHCP, we estimated that the TUMSHCP would increase the human population of the TMV Planning Area by 11,441 people, and we expect the recreational activities of future residents of the proposed development to cause

a higher level of disturbance and impacts in this area than in other parts of the action area that are more remote. If recreation occurs in occupied golden eagle habitat, it could potentially alter golden eagle behavior including feeding, and breeding activities. However, to minimize impacts of recreation, the Applicant will provide Home Owners' Association(s) with educational information regarding acceptable activities in open space areas, including recreational activities and pet restrictions. In addition, the Applicant will require that recreation in the TMV Planning Area and throughout the open space, be conducted in a manner that would avoid adverse impacts to golden eagles and their habitats or result in less-than-significant impacts. In addition, the access restrictions, monitoring and enforcement measures will be implemented pursuant to the Public Access Plan that will be reviewed and approved by the Service. These measures would ensure that allowed recreational activities are conducted in a manner that avoids or minimizes impacts to the golden eagle.

The avoidance and mitigation measures identified in Section 7.1.1.2.4 of this TUMSHCP are designed to avoid disturbing and take of golden eagles. We expect these effects to be minor and to occur infrequently because nest sites will be surveyed once every year, active golden eagle nest site's viewshed would be established and no recreational activities would be allowed within 0.25 mile from the nest, the majority of golden eagle modeled habitat occurs outside development areas, there will be no disturbance at the nest, and the Applicant's other proposed measures would further avoid impacts to the species. These measures would ensure that allowed recreational activities are conducted in a manner that avoids or minimizes impacts to the golden eagle. The buffers, avoidance of nests and limits on open space access would reduce the impacts to golden eagles.

Two existing above-ground powerlines in the TMV Planning Area Open Space may be relocated within 1,000 feet of their existing locations, and one existing power line would be temporarily relocated and then permanently relocated underground. Golden eagles breeding or foraging nearby could be injured or killed if they collide with the existing or relocated pwerlines or experience electrocution from direct contact wit hthe existing or relocated powerlines and could be temporarily disturbed during the relocation of powerlines and support structures. For the golden eagle, measures would be implemented to reduce effects on individuals that may forage or nest on the Covered Lands. The measures proposed in Section 7.1.1.2.4 of the TUMSHCP would effectively avoid effects to individual eagles or their nests from construction. Prior to grading, surveys would be conducted during the breeding season within 1.0 mile of construction areas to determine the status of those previously identified nests and to identify any associated recently established alternate nests by existing eagle pairs, or recently constructed nests by new golden eagle pairs. All active primary and alternate nests would be preserved. If active golden eagle nest sites are observed on site during the survey, a nest-specific analysis would be prepared to identify the primary nest and establish its viewshed. Because golden eagles typically build primary and alternate nests in relative close proximity to each other, often within the same tree groves, active alternate nest sites will generally be protected by the same view hed analysis as applied to the primary nest site. In general, we do not expect utilities to have a substantial impact on the golden eagle, because utility posts and towers have small footprints, the utilities affect a very small percentage of the action area,they are temporarily located above ground, and

the Applicant's proposal to survey project areas and apply avoidance buffers should minimize the potential for adverse impacts to golden eagles by exiting and relocated powerlines.

New utilities to support development would be undergrounded, except that two communication towers described under "Communication Towers" in the Description of the Proposed Action section above (also on page 4-52 and elsewhere in Section 4 of the TUMSHCP) would be installed above ground. Once underground, operating these new utilities would not cause ongoing impacts to species. The two communication towers pose a limited collision risk for golden eagle; however, while the towers are in modeled suitable habitat for the species, they occupy a very small fraction of the action area. In addition, the two communication towers will include design restrictions identified by the Service to minimize the potential for collisions. These restrictions must be reviewed and approved by the Service and require that (1) the towers be self-supporting (i.e., no guide wires must be included as part of the design); and (2) the tower facades will be primarily solid (e.g., through use of panels or other sidings, wider or denser lattice work, or alternative tower solutions as approved by the Service) to increase their visibility. Therefore, we determined that the risk of collision for golden eagle is minimal and the effects negligble.

The Applicant proposes to clear and thin vegetation within 200 feet of the proposed development, creating and up to 1,773-acre fuel modification zone. The expected intensity of disturbance associated with these activities alone would not preclude golden eagles from using modeled habitat near the area; however, the ongoing maintenance of this, whether by grazing or mechanical means, could cause golden eagles to temporarily avoid suitable habitat. The estimated areal extent in which fuel modification may affect the golden eagle is included in the 7,698 acres of modeled habitat estimated be lost with the 8,817-acre development envelope.

Roads and trails receiving the most use would be located in the TMV Planning Area. Under the TUMSHCP, we expect road use in the development areas to be typical of residential/ commercial areas. In the SDEIS for the TUMSHCP, we estimated that the TUMSHCP would increase the human population of the action area by 11,441 people resulting in 79,514 additional vehicle trips per day. We expect most of these vehicle trips to occur near the commercial areas, and the number of vehicle trips would decrease with distance from Interstate 5. Vehicular traffic to the open space would be restricted and managed but, use of roads in the development area would increase substantially over baseline conditions and could adversely affect the golden eagle.

Noise and human/vehicle presence associated with frequent road use could preclude individuals from using nearby suitable habitat or flush golden eagles from nests subjecting them to higher risk of nest abandonment and increased energy expenditure. Disturbance around active nest sites will be avoided by establishment of a protection zone around nest sites. Motorized vehicles, off-highway vehicles, etc. could potentially, injure or kill golden eagles if collisions occur. To minimize adverse effects of roads, the Applicant proposes to include educational materials as required by the CC&Rs to all homeowners and recreational users. Access to the open space will continue to be controlled by the Public Access Plan and is not anticipated to increase

significantly in the open space areas. Additionally, because of the relatively slow speed limits along the private rural standard main road (with traffic calming features; such as split roadway sections and low design speed) golden eagles feeding on any road-killed animals are likely to flush from any road-kill as a vehicle approaches; likewise, at the slow speed limits, individuals in vehicles are likely to have more time to spot an eagle on/adjacent to a roadway and have more time to take avoidance measures. Therefore, given the size of the action area, and the large amount of modeled habitat is outside the TMV Planning Area, and the protective measures; we expect expect collisions to be avoided. Therefore, we determined that the risk of collision for golden eagle is low.

TUMSHCP Mitigation

The Applicant proposes to preserve in perpetuity virtually all of the action area outside the development envelope in the TMV Planning Area and Lebec/Existing Headquarters Area, including 107,120 acres of modeled habitat for golden eagles. The Applicant would maintain the preserved land in its current condition, thus maintaining its current capacity to support golden eagles. The proposed conservation of more than 93 percent of modeled suitable habitat for the golden eagle is consistent with conservation biology principles calling for large, interconnected blocks of habitat that support a given species' life history requirements. The conservation of the Mitigation Lands would benefit the golden eagle by permanently securing them from future habitat loss in the action area and maintaining a large area of varied golden eagle habitat.

For the golden eagle, measures would be implemented to reduce the direct and indirect effects on individuals that may breed and forage on Covered Lands. Objective 6.1, in Section 7.1.1.2.4, of the TUMSCHP requires surveys would be conducted for active nests during the breeding season (January through August) prior to approval of the grading plan for each phase of development in modeled primary breeding and breeding/foraging habitat. The results of these surveys would be used during site development and would take into consideration viewshed and distance factors to protect nest sites. Objective 6.2 for golden eagle includes several criteria to protect active nest sites from disturbance. No development, new trails or recreational activities would be allowed within 0.25 mile of an active nest site, within or outside the viewshed, and no development would be allowed within the viewshed that is also within 0.5 mile of an active nest. Development would be restricted to low-density development within the viewshed up to 1 mile from the active nest. For development within 0.5 to 1 mile of an active nest site, siting and design criteria would be established to avoid and minimize effects on modeled foraging habitat, primarily through clustering of development. Objective 9.2 states that trail use would be restricted between 0.25 and 0.5 mile within the viewshed of an active nest site during the primary breeding season (generally February 1 through July 30), when birds would be sensitive to human activities, unless a qualified, Service-approved biologist determines that the nest site has become inactive and would not affect breeding golden eagles. These objectives were developed cooperatively between the Service and Applicants consultant team.

The conservation of 45,357 acres (95 percent) of modeled primary breeding habitat, 30,972 acres (94 percent) of modeled breeding/foraging habitat, and 30,791 acres (91 percent) of modeled

foraging habitat would continue to support the four known active nest territories within the TMV Planning Area as well as several additional territories that may occur within the Covered Lands. Assuming home ranges of 5,000 to 8,000 acres, conservation of 61,763 acres of modeled breeding/foraging and modeled foraging habitat could support an estimated 8 to 12 pairs on the Covered Lands. Four active nests were observed in the TMV Planning Area in 2007-2012, which supports 23,344 acres of modeled suitable habitat for the golden eagle. Assuming exclusive territories, this represents about 7,781 acres of available suitable habitat per nest site, which is sufficient to support all of the current active nest sites.

Summary of Effects

After examining the direct and indirect effects in the action area, the next step in determining whether a proposed action is likely to jeopardize the continued existence of a species is to consider the effects of the action as against the environmental baseline with respect to the reproduction, numbers, and distribution of the species. We also consider the effects of the action on the recovery of the species. In that context, the following paragraph(s) summarize(s) the effects of the proposed TUMSHCP on the golden eagle.

The Service does not prepare recovery plans for non-listed species and expects that non-listed species are closer to recovery than listed species.

The Planwide Activities and the proposed development could have some effect on the golden eagle. As stated above, the Applicant estimates that up to 7,698 acres of modeled suitable habitat could be lost due to development, and we have calculated that in the remainder of the action area Planwide Activities could affect an additional 161 acres of modeled suitable habitat for the golden eagle, for a total of 7,859 acres of lost modeled suitable habitat for the species. In addition, the Planwide Activities, including recreation, and the indirect effects of development, including recreation and roads, could result in impacts to the golden eagles. These potential impacts include flushing of individuals, disturbance of nests, or otherwise altering feeding and breeding behavior, we expect the impact to occur rarely and have minor effects on the species in the action area.

The Applicant proposes to preserve in perpetuity virtually all of the action area outside the development envelopes, including 107,120 acres, (approximately 93 percent) of the modeled suitable habitat for golden eagles on the Covered Lands. In addition, the TUMSHCP includes measures to avoid disturbing and take and to minimize the effects of Planwide and development related impacts to the golden eagle, including pre-construction surveys, viewshed analysis and setbacks. With the combination of avoidance and minimization proposed by the Applicant to reduce the effects of both Planwide and Commercial and Residential Development Activities, and the conservation of almost all of the modeled suitable habitat on the Covered Lands to mitigate for unavoidable impacts, we find that the Covered Activities alone would not substantially affect the rangewide reproduction, numbers, or distribution of the golden eagle.

Recovery

The golden eagle is not listed under ESA, so we have not developed a recovery plan for the species to which we can refer to assess its recovery status. In the absence of a recovery plan, we default to the general conservation of the species, and recovery would focus on determining the species' distribution and the conservation of much of the remaining habitat that supports the species. In general terms, where suitable habitat exists, it should be conserved and where possible, additional habitat should be created or restored.

The proposed action would have a small negative effect on the species in the action area but would not affect the reproduction, numbers or distribution of the golden eagle rangewide. The proposed action would also result in the permanent conservation of 107,120 acres (over 93 percent) of modeled suitable habitat for the species within the action area, which would have long-term, stabilizing benefits to the species by securing a portion of the species' range from future habitat loss, thus addressing a primary reason for the species' decline. Therefore, the Covered Lands, and specifically the conservation of modeled suitable habitat on the Covered Lands, may contribute to the recovery of the golden eagle.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section, because they require separate consultation pursuant to section 7 of the Act.

Hunting

Private and commercial hunting operations occur on Tejon Ranch, including the action area; however, hunting is not an activity covered by the TUMSHCP. The Applicant proposes to continue hunting operations throughout the ranch during the proposed permit term. The Applicant proposes to manage the hunting program to avoid disturbing and the take of golden eagles. The Applicant also proposes to manage the hunting program to avoid take of any federally protected species. Hunting in the TMV Planning Area would be limited to guided hunts. Hunting activities involve travel on existing paved and unpaved roads, overnight use of backcountry cabins, hiking, discharging hunting weapons, etc. The effects from hunting will generally be consistent with, and to a considerable extent are captured in, the descriptions of effects for Roads/Trails, Backcountry Cabins, and Recreation described above. Therefore, we expect that continued hunting in the action area will have negligible cumulative effects on the golden eagle.

Mining

Two commercial mining operations occur in the action area, La Liebre and National Cement; these mining operations are not Covered Activities under the TUMSHCP. The total area used

for the two operations is about 2,636 acres, and the Applicant would maintain the mining leases through the proposed permit term. However, the Applicant has modeled approximately 192 acres of breeding/foraging habitat, 508 acres of foraging habitat, and 271 acres of breeding habitat in the mining areas. Much of the modeled habitat in the mining areas is already disturbed and very little, if any, suitable breeding habitat for the golden eagle still exists in the mining areas. It is likely that some modeled foraging habitat exists on the periphery of one or both of the mining areas. As a result, earthmoving vehicles and other mining activities may disturb golden eagles foraging in the mining areas. If vehicles and earthmoving activities cause excessive noise in modeled habitat adjacent to the mines, golden eagles may be displaced from suitable habitat. Given the small amount of modeled habitat that could be affected, and the large amount of habitat in the action area, we expect any effects from such effects of mining to be minor. In addition, any use of chemicals in mining must be in conformance with Federal, State and local laws. For these reasons, we expect that continued mining in the action area will have negligible cumulative effects on the golden eagle.

Other Activities

As discussed above under project description, within the external boundaries of the Covered Lands, there are existing inholdings and utilities. The Bakersfield National Cemetery also occurs inside the Covered Lands. These projects and activities are not Covered Activities under the TUMSHCP. We are not aware of any reasonably foreseeable activities within the 3,870 acres of inholdings that may affect the golden eagle. Activities associated with utilities, transmission lines and related structures, such as maintenance activities, would be restricted to currently established easement areas. Given that these are existing structures and transmission lines and we are not aware of any adverse impacts to the species, the potential for disturbance from maintenance activities or injury from collision with transmission lines would be low. Therefore, we do not anticipate any cumulative effects from the ongoing maintenance and operation of non-covered existing utilities. The Bakersfield National Cemetery is in place, and we are not aware of any activities associated with the cemetery that may have an adverse effect on the golden eagle.

CONCLUSION

After reviewing (1) the current status of the golden eagle; (2) the environmental baseline for this species in the action area; (3) the effects of the proposed action; and (4) the cumulative effects, it is our biological opinion that the Service's issuance of the proposed ITP is not likely to jeopardize the continued existence of the golden eagle. We reached this conclusion because:

1. The golden eagle occupies a large geographic range across the United States, and the population of golden eagles within the continental U.S. is estimated to be 30,000. The action area constitutes a tiny fraction of the golden eagle's range. Even with the loss of 7,859 acres of modeled suitable habitat for the species a large amount of suitable habitat will remain in amounts sufficient to support the current and expected future use of Covered Lands. Thus, the proposed Covered Activities would affect a tiny portion of the

species' range and would not appreciably reduce the range-wide reproduction, numbers, or distribution of the species.

2. Golden eagles have historically nested and currently nest within the Covered Lands. Currently, there are four known active golden eagle nest sites within TMV Planning Area. These active nest sites within the TMV Planning Area will be conserved and not disturbed.

3. The vast majority of the action area, including the majority of suitable golden eagle habitat (95 percent of modeled primary breeding habitat, 94 percent of modeled breeding/foraging habitat and 91 percent of modeled foraging habitat), would be preserved in perpetuity, reducing the amount of golden eagle habitat that could be lost in the future. We expect this to have long-term, stabilizing benefits to the golden eagle and its remaining habitat.

4. The Applicant will implement protective measures as part of the proposed activities (e.g., surveying development areas prior to construction and providing setback from nest trees) that will avoid disturbance of, and similar human-caused indirect impacts to (e.g., noise), the golden eagle. Disturbance to individuals during construction would be avoided through 0.25- to 1-mile setbacks from human activities in the TMV Planning Area. More generally, where the modeled suitable habitat overlaps with proposed activities, the Applicant proposes to conduct pre-activity surveys and carry out the action while avoiding any discovered occurrences of the golden eagle.

5. No disturbance, injury or mortality of golden eagles would occur based on the proposed avoidance and minimization measures.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

Amount or Extent of Take

The Covered Activities in the action area would result in the loss of a total of 2,681 acres of modeled primary breeding habitat (2,613 acres related to Commercial and Residential Development Activities and 68 acres due to Planwide Activities), 2,092 acres of modeled breeding/foraging habitat (2,045 acres related to the Commercial and Residential Development Activities and 47 acres from Planwide Activities), and the loss of 3,086 acres of modeled foraging habitat (3,040 related to Commercial and Residential Development Activities and 46 acres due to Planwide Activities), for a total, when combined with Planwide Activities, 7,859 acres of lost modeled suitable habitat for the species. Even with loss of this breeding and foraging habitat, sufficient breeding and foraging habitat would remain on the Covered Lands to support the current active golden eagle nest sites and several additional pairs of breeding golden eagles. Therefore, we do not anticipate any take of golden eagles due to habitat loss. The TUMSHCP also includes measures to avoid indirect effects to golden eagles resulting from development and Planwide Activities including measures to reduce noise and prevent human disturbance of eagles and interference with essential breeding, feeding and sheltering behaviors of golden eagles. Therefore we do not anticipate any take of golden eagles under the ESA or BGEPA to result from the Covered Activities.

Effect of the Take

In the accompanying biological opinion, the Service determined the action is not likely to result in jeopardy of the golden eagle, and that no golden eagles would be taken as a result of the proposed activities.

Bald and Golden Eagle Protection Act

As discussed above, the Service has issued rules permitting the incidental take of eagles and extended BGEPA take authorization to holders of existing ESA authorizations, including specifically allowing take authorization to be extended to future ESA Section 10 ITPs associated with habitat conservations plans for multiple species that include bald or golden eagles as Covered Species (Service 2008). The Service has completed its analysis of potential take of bald eagle under both ESA and the BGEPA. Based on our review of the proposed Covered Activities, we conclude the Covered Activities would not result in take in the form of disturbance of any golden eagle or in any other prohibited form of take under the BGEPA, (i.e., pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest.) Therefore, a BGEPA permit is not required to carry out the proposed Covered Activities, and the proposed ITP does not constitute BGEPA authorization to take golden eagles. The basis for our conclusion follows.

In 2007, the Service defined "disturb" under the BGEPA as meaning "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle (2) a decrease in its productivity, by substantially interfering with normal, breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding or sheltering behavior”. The BGEPA is

not a habitat management law and habitat loss, by itself, is not take under the BGEPA. However, to the extent that a loss of, or other effects to, habitat cause direct effects to an eagle within the definition of take under the BGEPA and its implementing regulations, such effects are prohibited without authorization. To constitute take under the BGEPA definition of disturb, a loss of habitat must agitate or bother an eagle to the extent that the loss causes or is likely to cause an injury to, a decrease in the productivity of, or nest abandonment by, an eagle. The Covered Activities would result in the permanent loss of some modeled habitat but are not likely to cause injury to or a decrease in productivity of any golden eagles. The Applicant will implement protective measures as part of the proposed activities (e.g., surveying development areas prior to construction and providing setback from nest trees) that will avoid disturbance of and similar human caused indirect impacts, i.e., noise, to the golden eagle. Disturbance to individuals during construction would be avoided through .25 to 1 mile setbacks from human activities in the TMV Planning Area. More generally, where the modeled suitable habitat overlaps with proposed activities, TRC proposes to conduct pre-activity surveys and carry out the action while avoiding any discovered occurrences of breeding golden eagles. These measures will effectively avoid injury to any bald eagle. The TUMSHCP includes several conservation measures, and avoidance and minimization measures, to protect golden eagles. These include conserving 95 percent of modeled primary breeding habitat, 94 percent of modeled breeding/foraging habitat and 91 percent of modeled foraging habitat for the golden eagle. Therefore, the TUMSHCP would result in the conservation of a significant amount of modeled habitat and would require the avoidance of habitat disturbances during construction activities, the distribution of educational information to minimize disturbances caused by human recreation, and the establishment of seasonal setbacks from breeding areas (See Table 2 of this biological opinion) should avoid effects on and any take of golden eagles within the meaning of the BGEPA and therefore avoid substantial interference with golden eagle breeding, feeding or sheltering behavior.

REASONABLE AND PRUDENT MEASURES / TERMS AND CONDITIONS

As described above, the proposed TUMSHCP and associated documents identify anticipated impacts to the golden eagle as well as measures that are necessary and appropriate to minimize those impacts. These measures will effectively avoid take of the golden eagle under the Act and BGEPA from the Covered Activities. Therefore, no reasonable and prudent measures and implementing terms and conditions to minimize take are required or included in this incidental take statement.

AMERICAN PEREGRINE FALCON

STATUS OF THE SPECIES

Regulatory History

The American peregrine falcon (*Falco peregrinus anatum*) was listed as endangered on June 2, 1970, under the Endangered Species Preservation Act, precursor of the Endangered Species Act (Service 1970). The peregrine falcon was delisted throughout most of its range by the Service on August 25, 1999, due to its recovery (Service 1999). However, the peregrine falcon remains listed as endangered in California, is a State fully protected species (CDFG 2007a), and it also protected under the Federal Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703–712).

Natural History/Habitat Requirements

The peregrine falcon is a medium to large-sized falcon with a dark malar stripe or "mustache" that extends down from its eye to the top of its breast. Adults have slate-gray backs and whitish, grayish, or buff-colored under parts with a variable amount of barring and spotting. Juveniles may have pale to gray or brown backs and have streaked rather than barred undersides. Females are 18 to 23 inches (45 to 58 centimeters) long and weigh approximately 32 ounces (900 grams), making them 15 percent to 20 percent larger than males and 40 percent to 50 percent heavier. Eastern peregrine falcons are larger and darker than their western counterparts (White et al. 2002; Michigan Department of Natural Resources 2008).

Pairs of peregrine falcons occupy territories around their nests that they defend with vocalizations and attacks (White et al. 2002; Cade 1960). Minimally, this territory includes a 300-foot (96-meter) radius around the nest, and is usually larger (Cade 1960). Size of territory and level of boundary defense are probably affected by prey abundance (White et al. 2002). Home range of individual pairs also fluctuates with prey abundance, and varies from approximately 123.5 square miles (320 square kilometers) in Sonoma County to 642 square miles (1,662 square kilometers) in the Rocky Mountains. Inland nest sites in California are 3 to 7 miles (5 to 12 kilometers) apart (Zeiner et al. 1990b). Throughout California, breeding densities of peregrine falcons have ranged from upwards of one pair per 300,000 acres to one pair per 92,000 acres in relatively undisturbed habitats (Thelander 1977).

Pair members often perch side by side, and pair bonds remain established year-round in resident birds (White et al. 2002). Breeding occurs from early March to late August. The clutch size varies from three to seven eggs. Incubation lasts 33 to 35 days and is performed by both parents (White et al. 2002; Brown 2006b). The young typically fledge between 35 and 42 days (Brown 2006b). They are not independent of the parents for several months and often pursue adults to solicit food (White et al. 2002). First-year young remain in social groups several months after nest departure and may start migration together (Cade 1960).

The hatching success of the peregrine falcon in the wild is about 75 percent. An average of one young reaches fledging per laying pair. The juvenile birds continue to be particularly vulnerable during their first year of life as they learn to hunt and develop flying skills (Service 1991). Enderson (1969) estimated annual juvenile mortality at approximately 70 percent and adult mortality at approximately 25 percent. The mean life expectancy for the young that fledge is approximately 4 years. The maximum life span of the peregrine falcon is in excess of 13 years, and it is possible that a few individuals may reach 20 years of age.

The diet of the peregrine falcon primarily consists of birds that, while most are pigeon-sized, can be as small as hummingbirds or as large as small geese (White et al. 2002). Where they are available, pigeons and doves comprise a large portion of this species' diet. Other prey species include jays, flickers, meadowlarks, starlings, woodpeckers, shorebirds, and other readily available birds. The peregrine falcon may feed on large numbers of lemmings and voles when these rodents are present in abundance (Brown 2006b). Bats and squirrels may also be occasionally eaten (White et al. 2002). The peregrine falcon typically hunts its prey in the air or from a perch. Some pairs hunt cooperatively with the larger female diving for the prey first and then, if successful, eating first from the prey item (Brown 2006b). Surplus prey may be cached and eaten later, or used in courtship feeding (White et al. 2002).

The peregrine falcon occurs near wetlands, lakes, rivers, or other waters, and on cliffs, banks, dunes, mounds, and human-made structures (CDFG 2007b). Peregrine falcons use a large variety of open habitats for foraging, including tundra, marshes, seacoasts, savannahs, grasslands, meadows, open woodlands, and agricultural areas. The high mobility, extensive hunting areas, remote nest sites, and preferences of the individual pairs make it difficult to identify what might be typical peregrine falcon habitat (Service 1984); and no particular terrestrial biome appears to be preferred over others (White et al. 2002). However, the species is often observed near tall cliffs and near water sources (AOU 1998; Brown 2006b). Riparian areas, as well as coastal and inland wetlands, are important habitats year-round for this species. Protected cliffs and ledges are often used for cover (Brown 2006b; Zeiner et al. 1990b). Like many other migratory birds of prey, peregrine falcons often travel along mountain ridges on both eastern and western coastlines during migration. During migration, the peregrine falcon may be found near marshes, lakes, and ponds with high concentrations of waterfowl, shorebirds, and other birds. Within Southern California, peregrine falcons are primarily found at coastal estuaries and inland oases (Garrett and Dunn 1981; Brown 2006b).

Breeding requires cliffs or suitable surrogates that are close to preferred foraging areas. Nests are typically located on cliffs between 164 to 656 feet (50 to 200 meters) tall that are prominent in the landscape (White et. al 2002). Peregrine falcons have also been known to nest in trees and on small outcrops. Tall buildings, bridges, or other tall man-made structures are also suitable for nesting (White et al. 2002). The nest site usually provides a panoramic view of open country and often overlooks water. It is always associated with an abundance of avian prey, even in an urban setting. A cliff nest site may be used for many years (Brown 2006b). The nest site itself, often referred to as an eyrie, usually consists of a rounded depression or scrape with accumulated debris that is occasionally lined with grass (Call 1978). Higher quality nest sites confer greater

protection from the elements and have greater breeding success (Olsen and Olsen 1989). On sandy coastal bluffs without cliffs in California, peregrine falcons use deserted raven, cormorant, and red-tailed hawk nests (White et al. 2002).

Distribution and Population Trends

The peregrine falcon occurs throughout much of North America from the subarctic boreal forests of Alaska and Canada south to Mexico. The peregrine falcon nests from central Alaska, central Yukon Territory, and northern Alberta and Saskatchewan, east to the Maritimes and south (excluding coastal areas north of the Columbia River in Washington and British Columbia) throughout western Canada and the United States to Baja California, Sonora, and the highlands of central Mexico (Service 1983). Peregrine falcons that nest in subarctic areas generally winter in South America, while those that nest at lower latitudes exhibit variable migratory behavior; some are non-migratory (Yates et al. 1988).

In California, the peregrine falcon is an uncommon breeder or winter migrant throughout much of the state. It is absent from desert areas (Zeiner et al. 1990b). Active nests have been documented along the coast north of Santa Barbara, in the Sierra Nevada, and in other mountains of northern California. As of 2007, Comrack and Logsdon (2007) documented 274 nesting sites as “active” in California. Wintering migrants can be seen inland throughout the Central Valley, in the western Sierra Nevada, along the coast, and occasionally on the Channel Islands (Zeiner et al. 1990b). Spring and fall migrants of the peregrine falcon occur along the coast and in the western Sierra Nevada Range (Brown 2006b). As a transient species, the peregrine falcon may occur almost anywhere that suitable habitat is present (Garrett and Dunn 1981).

Reasons for Decline

The peregrine falcon was formerly critically endangered after populations declined drastically between 1950 and 1970. Only 39 breeding pairs were known in California in 1981 (Monk 1981). In recent years, the peregrine falcon population has been increasing and the species is re-occupying areas from which it was extirpated (White et al. 2002). Private and public captive breeding and release programs have played an important role in this increase. Up to 3,005 nesting pairs of peregrine falcons occurred in the United States, Canada, and Mexico in 2003, compared to approximately 1,750 pairs at the time of delisting. Estimates of the nesting parameters and additional data from across the United States indicate that the peregrine falcon population is secure and vital (Service 2003). The current estimate of the number of territory-holding pairs of peregrine falcons is 3,394, which is a conservative estimate based on results from the 2009 post-delisting monitoring effort, (M. Green, U.S. Fish and Wildlife Service, *in litt.* 2012).

The principal cause of the peregrine falcon population decline was the use of organochlorine pesticides, especially dichloro-diphenyl-trichloroethane (DDT), which metabolizes to dichlorodiphenyldichloroethylene (DDE). These compounds accumulated in falcons that fed on contaminated prey and interfered with their calcium metabolism. Eggs laid by peregrine falcons

(and other bird species) had thin shells, rendering them easily broken. DDT greatly lowered the reproductive success of peregrine falcons and other raptor species, and was banned from use in the United States in 1972. Levels of DDT in peregrine falcons in the United States (from individuals that winter in countries still using DDT and other pesticides) are currently low enough as to not affect reproductive success (Service 2003).

Before the species was legally protected, hundreds of adult and young peregrine falcons were taken by falconers. Hunters and others often shot at the birds from famous migratory passes (White et al. 2002). However, the species was never systematically persecuted in North America as much as it was in Europe. Peregrine falcons, especially those in remote locations, can be sensitive to human activity other than hunting. Eyries have been abandoned due to human encroachment or increased levels of nearby activity (White et al. 2002), although this did not contribute significantly to population declines.

It is difficult to assess the impact of habitat loss and degradation on the peregrine falcon because the species uses so many habitats and landscapes, including those highly modified by humans. The loss of suitable nesting places is probably detrimental to the species, and the loss of wetland habitat supporting large avian populations probably hurts migratory populations (White et al. 2002). Because rapid population growth rates and high densities were achieved despite habitat modification in North America, we conclude that habitat modification or destruction was not a limiting factor in peregrine recovery. It does not currently threaten the existence of the peregrine falcon nor is it likely to in the foreseeable future (Service 1999).

Recovery

As stated above, the American peregrine falcon was delisted by the Service on August 25, 1999 due to its recovery (Service 1999). Recovery plans outlined the goals that were to be reached in four regions of the United States (Alaska, Pacific, Eastern, and Rocky Mountains/Southwest) before the peregrine falcon could be considered recovered (Service 1982a, 1982b, 1984, 1991). California is part of the Pacific recovery region. Recovery of this species was largely due to restrictions on organochlorine pesticides in the United States and Canada, and following the implementation of successful management activities including captive breeding and release programs. Currently, the Federal Monitoring Plan for the American Peregrine Falcon is in effect, requiring populations in six regions in the country to be monitored until 2015 (Service 2003). This is the first nationwide monitoring plan for a recovered delisted species.

The peregrine falcon has been observed on the Covered Lands, and suitable habitat has been identified that could support the species (26,822 acres total of modeled suitable habitat) in its continued recovery.

ENVIRONMENTAL BASELINE

Suitable habitat for the peregrine falcon on the Covered Lands was modeled by the Applicant's consultants. Vegetation was used to model foraging habitat at all elevations; breeding habitat

was modeled at all elevations using vegetation communities where there are steep cliffs (defined as greater than 120° slopes). Based on these parameters, a total of 26,742 acres of foraging habitat and 79 acres of nesting habitat for the peregrine falcon was modeled on the Covered Lands.

In 2007, focused surveys were conducted for peregrine falcon in all suitable/potential breeding habitat within the TMV Planning Area to search for nests. Three peregrine falcons were documented during the wintering bird survey at Castac Lake in mid-November 2006 (Dudek 2009). One adult peregrine falcon was observed on-site chasing a heron into Castac Lake. Two other individuals were observed foraging over the lake and also were observed immediately adjacent to the lake. These observations occurred during the non-breeding season, and the three individuals were not observed displaying any nesting or courtship behavior. No other peregrine falcons were documented during the 2007 focused peregrine falcon survey or during the other spring bird surveys in 2007. Previous surveys conducted between 1999 and 2004 (Impact Sciences, Inc. 2004) and 2005 (Jones and Stokes 2006a) did not observe peregrine falcons. Because the peregrine falcon is known to migrate through the region, and because of the relatively limited amount of suitable nest (cliff-type) habitat within Covered Lands, we agree with the Applicant's conclusion that this species uses the action area during migration and for winter foraging, but is unlikely to nest on Covered Lands (Dudek 2009).

In summary, peregrine falcons have only been observed during the fall in the portions of the Covered Lands that have been surveyed, and no current or historical nest sites have been reported to occur within Covered Lands. Therefore, we expect that the peregrine falcon currently uses the Covered Lands only as a stopover during migration periods or possibly as an occasional winter visitor. However, approximately 80 acres of modeled breeding (cliff-type) habitat occur on Covered Lands, and though the peregrine falcon is not expected to nest in the action area, the possibility of this species nesting on site in the future cannot be dismissed. . At the higher breeding density cited previously (one pair per 92,000 acres in relatively undisturbed habitats [Thelander 1977]) and considering that in inland areas, nest sites tend to be 3-7 miles apart, the approximately 26,742 acres of foraging habitat within the Covered Lands could contribute to the amount of foraging habitat needed to support one breeding pair of peregrine falcons. We assume that one breeding pair nesting on the Covered Lands would likely also forage outside the Covered Lands.

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EFFECTS OF THE ACTION

Planwide Activities

Livestock

The Applicant proposes to graze livestock on the balance of the action area outside development areas, consistent with the types and level of historical grazing and ranch management practices. We anticipate that this activity will have negligible effects on the peregrine falcon because grazing has not been documented to adversely affect peregrine falcons. Peregrine falcons nest on cliff ledges which are not accessible to livestock and are primarily aerial foragers associated with wetlands. In addition, under the TUMSHCP, the Applicant must submit a grazing management plan to the Service every 5 years for our review and approval. Additionally, through the adaptive management provisions of the Plan, we may work with the Applicant to develop up-front mutually agreed-upon changes in the operating conservation plan that may be necessary for Covered Species in light of new information. Our review of such plans will allow for the implementation of additional measures or modification of grazing practices to maintain suitable habitat for the peregrine falcon if necessary. Given the lack of overlap between grazing and falcon nesting and foraging, and the measures to protect conservation values such as wetlands, we anticipate that grazing will have at most a negligible effect.

Range Management/Ancillary Ranch Structures

Range management activities support livestock operations and consist of construction, operation, and maintenance of watering facilities, feeding areas, fences, and corrals, consistent with the types and level of historical grazing and ranch management practices; repair, reconstruction, and relocation of roads to accommodate historical grazing and ranch management practices; and repair, maintenance, or installation of ranch management communication equipment (e.g., whip antennas) less than 20 feet high. The repair, reconstruction and relocation of roads to accommodate historical grazing and ranch management practices are evaluated below under Roads. Range management also incorporates ancillary ranch structures including squeezes, loading chutes, holding and feeding fields, corrals, branding traps, barns, sewage disposal facilities, livestock and wildlife watering facilities, and utilities serving existing ranch uses.

As described above under Planwide Activities in the Description of the Proposed Action section, *de-minimis* activities associated with ancillary ranch structures would be covered under the TUMSHCP. Non–*de minimis* activities associated with ancillary ranch structures are also

allowed (1) if the activity is located in disturbed areas (e.g., undergrounding utilities in road rights-of-way), or (2) following a meet-and-confer process with the Service to ensure that the activity associated with an ancillary ranch structure avoids or adequately minimizes impacts to Covered Species and their habitats.

These activities are subject to the 200-acre disturbance limit, occur at a small scale relative to the size of the action area, and range management facilities already exist in the action area. We anticipate that this activity will have negligible effects on the peregrine falcon because such activities are irregular, and the Service will review and approve the Applicant's grazing management plan, and work with the Applicant to implement adaptive management measures as necessary. Range management/ancillary ranch structures have not been documented to adversely affect peregrine falcons. Therefore, we do not anticipate any adverse effects from these activities when covered under the TUMSHCP.

Fuel Management

Fuel management practices consist primarily of grazing and the effects of fuel management by grazing should be largely consistent with the effects of livestock. Other fuel management activities include fuel modification zones created by existing roads, and through irrigation and/or vegetation clearing and mowing within 120 feet surrounding existing structures (i.e., backcountry cabins, ancillary ranch structures, and other existing structure), although it is likely that the majority of this zone will occur within the development envelope. Mowing may create enough noise to cause peregrine falcons to avoid suitable habitat. However, mowing for fuel management would occur infrequently/irregularly, and the temporary disturbance from irrigation, mowing, and/or maintenance of existing roads (which does not constitute habitat) would have a negligible impact on the peregrine falcon.

Fuel management associated with proposed development is discussed below under Commercial and Residential Development Activities.

Filming

Filming activities generally consist of temporary on-scene filming and photography-related uses, including, but not limited to the filming and staging of movies, television shows, and commercials; photo shoots; and still photography and related uses. Such activities may include the erection and dismantling of props, temporary installation of trailers and equipment for film crews, filming of on-camera action, catering, rehabilitation of disturbed areas, and the movement of film crews to and from locations.

Film shoots that include explosives or other loud noises could adversely affect peregrine falcons that may be roosting, feeding or nesting in the action area. Explosions (louder than gunshots) or other abnormally loud noises are prohibited throughout the TUMSHCP Mitigation Lands unless the Service-approved Tejon Staff Biologist, in consultation with the Service, determines that no California condors are present, and explosions (louder than gunshots) are strictly prohibited in

the Condor Study Area portion of the Covered Lands (see Table 2 of this biological opinion). These restrictions on explosions to protect California condors would also benefit any peregrine falcons in the action area.

We expect filming to cause only minimal impacts to peregrine falcon because filming occurs over a relatively short timeframe, and the Applicant will require that habitat disturbed by filming activities be restored to pre-filming conditions for any disturbed habitat due to filming. Applicant would require that temporary construction avoid sensitive resources, including reducing noise-related disturbance. We do not expect direct impacts to individual falcons from filming, because Peregrine falcons are considered an occasional fall and winter migrant on the Covered Lands and given the size of the action area and that filming is generally small scale and intermittent, it is unlikely that peregrine falcons would be present in the same location and time. Additionally, peregrine falcons would likely avoid foraging in areas when film crews are present. The Applicant's proposal to manage open space lands to ensure that the existing natural resource and conservation values of the Ranch are protected, including reducing noise-related disturbance, would minimize adverse effects from filming. Therefore, we do not expect filming activities to cause adverse effects to peregrine falcons.

Recreation

Recreation associated with the Planwide Activities includes private recreation by TRC, its employees and guests and public access is governed by the Interim RWMP and managed by the Conservancy. Such recreational use is also subject to the terms of the TUMSHCP and the terms of Service-approved conservation easements. While the private recreation by TRC occurs currently throughout the Covered Lands, public recreation, which generally consists of docent led tours by the Conservancy per the Interim RWMP, occurs in the Established Open Space portion of the Mitigation Lands. These public and private recreation uses are limited to passive activities listed in the Project Description. Recreation activities associated with Planwide Activities would occur in open space areas generally outside the TMV Planning Area at a relatively small scale, and have infrequent impacts. Recreational uses by TRC, its employees, and the public are limited by the access guidelines and best management practices in the Interim RWMP and will be further regulated in Public Access Plans, which are subject to permanent Service review and approval. We note that future development in the TMV Planning Area will likely lead to increased recreation demand by TMV Project residents and guests, but the type and nature of the use is the same. All such recreational use in the protected open space will also be regulated in the Public Access Plan, which will require monitoring and enforcement and is subject to permanent Service review and approval. The effects of recreation on the peregrine falcon in the TMV Planning Area Open Space are discussed separately under Commercial and Residential Development Activities.

Recreational activities that could have an adverse effect on peregrine falcons if such activities were in close proximity roosting, foraging, or potential nesting locations. Peregrine falcons have only been observed during the fall in the portions of the Covered Lands that have been surveyed, and no current or historical nest sites have been reported to occur within Covered Lands. It is

expected that the American peregrine falcon uses the Covered Lands only as a stopover during migration periods or possibly as an occasional winter visitor. Approximately 80 acres of modeled breeding (cliff-type) habitat occur on Covered Lands and though the peregrine falcon is not expected to nest on Covered Lands, the possibility of this species nesting on Covered Lands cannot be dismissed. Therefore, unrestricted recreation activities, such as rock climbing, could disturb nesting peregrine falcons. To minimize the likelihood of this, under the TUMSHCP, all public and private recreation would be generally restricted to existing roads and trails and conducted in a manner that would avoid adverse impacts to the Covered Species and their habitats, and effects that cannot be avoided would be minimized to the extent practicable (see Section 2.2.1 of the TUMSHCP).

Recreation would be monitoring and regulation by TRC staff, the Tejon Ranch Staff Biologist, or Conservancy docents, as well as provision of educational materials and restrictions on the location and types of any organized event should further reduce the potential for disturbance. Pursuant to the TUMSHCP (7.1.1.2.1), if active peregrine falcon nests are detected during pre-activity surveys, a 1,000-foot protection zone will be established around each active nest and recreational and other activities within the 1,000-foot zone will be prohibited until all the young have fledged and are no longer dependent upon the nest for survival to avoid causing nest abandonment by adults. Active nests and 1,000-foot protection zones will be mapped on appropriate planning maps (see Table 2 of this biological opinion). Further, private recreation activities are limited by the requirement to preserve conservation values of the Covered Lands and to follow best management practices required to be developed through the RWA as part of the RWMP. Public recreation activities will be governed by a Public Access Plan in areas managed by the Conservancy, subject to Service review and approval for consistency with the TUMSHCP and ESA and the terms of applicable TUMSHCP conservation easements. An Interim RWMP is currently in place that provides for docent-led public tours and requires pre-activity surveys prior to any ground-disturbing activities. We anticipate the number of tours or events may increase, but the future type and management of public access would be consistent with what occurs under the Interim RWMP.

Given the abundance of the conserved foraging habitat, small amount of nesting habitat on the Covered Lands, generally limited occurrences of peregrine falcons in the Covered Lands, and restrictions on access from the TUMSHCP, we anticipate a low likelihood of disturbance to peregrine falcons from recreational activities.

Indirect recreational impacts related to development are discussed under Commercial and Residential Development Activities below.

Irrigation/Water Diversion

The action area contains a few small agricultural areas within the Covered Lands (e.g., small vineyards and an orchard near Castac Lake) totaling about 232 acres and small existing water diversions for irrigation of agriculture. Agricultural uses that remain in open space, if any, after the Applicant identifies the final development footprint would continue subject to State and local

regulations. These agricultural uses are not anticipated to result in any adverse impacts to the peregrine falcon from on-going agricultural activity, because the Applicant is not proposing to expand agricultural operations, agricultural land is not suitable habitat for the subspecies, and we do not expect the peregrine falcon to occur in these areas.

We are not aware of adverse effects to the peregrine falcon as a result of existing farming and irrigation systems. The Applicant is not proposing to expand the current irrigation capacity/diversion capacity, the facilities cover a very small percentage of the Covered Lands, and the operation of irrigation facilities does not cause additional impact to the peregrine falcon. Maintenance and relocation work, if any, is subject to the survey and avoidance requirements in the TUMSHCP, and prior to TRC relocating water diversions, the Service would review and approve the proposed new locations. Given, the rarity of the subspecies in the action area, and the Applicant's proposed minimization measures; we expect impacts of irrigation/water diversion to be rare and minor.

Roads/Trails

A network of generally unpaved roads exists in the action area as access for fire protection, security, ranching activities, and hunting. As described in the TUMSHCP, the roads outside the developed areas would be maintained, relocated, or new roads could be constructed, in compliance with the 200-acre limit on disturbance by development areas, to facilitate the Planwide Activities. The unimproved dirt roads exist for access for fire protection, security, ranching activities, and hunting. Road/trail use is expected to be irregular and of low intensity. Any new or relocated roads will be sited to avoid impacts to sensitive resources, including nesting birds and habitat as any new or relocated roads would require efforts to minimize the footprint and use BMPs for the design and installation, including surveys prior to grading, contractor education, staking and temporary construction fencing. Use of roads for Planwide Activities uses includes the private recreation analyzed above and road maintenance/construction to accommodate ranch activities.

In general, the likelihood of impacts is low, because the subspecies occupies the action area at low density, and the majority of modeled suitable habitat is in areas with infrequent road/trail use. Road/trail use outside of the TMV Planning Area would be irregular and less intense, and we do not expect the presence and use of roads/trails to preclude peregrine falcons from using nearby suitable habitat or to cause peregrine falcons to vacate occupied habitat. However, road construction and maintenance could destroy peregrine falcon habitat or disturb individuals. Also, roads are common vectors for non-native plant species that could negatively alter peregrine falcon habitat. However, new or relocated roads must first be evaluated, including a site assessment, to avoid impacts to sensitive resources including nesting peregrine falcon. As stated in the TUMSHCP (7.1.1.2.1), if active peregrine falcon nests are detected during surveys, a 0.25-mile protection zone will be established around each active nest and prohibit grading and land-altering activities within the 0.25-mile protection zone as long as the nest is active. Active nests and 0.25-mile protection zones will be mapped on appropriate planning maps. The 0.25-mile protection zone may be reduced at the discretion of the project biologist depending on site

characteristics. Given the limited documented occurrence of peregrine falcons in the Covered Lands, we do not anticipate roads as a covered activity to result in adverse effects to peregrine falcons covered under the TUMSHCP.

The direct and indirect effects of roads as a result of residential and commercial development are addressed below under Commercial and Residential Development Activities.

Utilities

The action area contains, or would contain, various small utilities to support ranch activities. As described in Section 2.2.1 of the TUMSHCP, these utilities would be *de minimis* or would be located in previously disturbed areas (e.g., undergrounding utilities in road rights-of-way). Any utilities associated with Planwide Activities that are not *de minimis* or cannot be located in previously disturbed areas would require Service review and approval prior to relocation or construction. Installation or maintenance of utilities may affect peregrine falcons by disturbing habitat or individuals. However, we do not expect utilities to have a measureable impact on the peregrine falcon, because the utilities affect a very small percentage of the action area, the limited use of the Covered Lands by peregrine falcons, and the Applicant's proposal to survey prior to grading and construction and apply avoidance buffers if peregrine falcons are present should avoid adverse impacts to peregrine falcons by utilities.

We address potential impacts by utilities associated with the proposed development under Commercial and Recreational Development Activities.

Backcountry Cabins

Eight backcountry cabins occur in the action area and could be maintained, improved, repaired, replaced, or reconstructed in their existing location. We do not expect that activities associated with backcountry cabins will affect the peregrine falcons because few peregrine falcons have been documented using the Covered Lands and would likely avoid cabin areas because of the lack of suitable foraging habitat in these areas. Additionally, we are unaware of adverse effects to the species from cabins on the Covered Lands or in other areas. Also, prior to TRC relocating an existing cabin, the Service would review, and potentially approve the proposed new location. This would ensure that the new cabin location is compatible with the conservation of the peregrine falcon.

Fencing

Fences exist throughout the action area. Fences would be maintained and new fencing could be constructed and maintained as required to support the Covered Activities, including exclusion of cattle from sensitive habitats that support covered species. New fences are also subject to best management practices provided in the RWMP for fencing including measures to avoid fencing-related impacts to sensitive resources, and the selective use of fencing to limit direct livestock interactions with natural water sources. In addition, because most fencing within the action area

occurs within upland woodland and grassland/savannah habitats in which peregrine falcons do not typically forage, it is expected that such fences pose a very limited collision risk to wintering or migrating peregrine falcons within the action area. Under the TUMSHCP, the Applicant must submit grazing management plans to us every 5 years for review and approval. Our review of such plans will allow for the implementation of additional measures or modification of fencing practices to maintain suitable habitat for the peregrine falcon. For these reasons, we expect the effects from fencing to be negligible on the peregrine falcon.

Lebec/Existing Headquarters Area Uses

Existing activity in the Lebec/Existing Headquarters Area (i.e., corporate headquarters buildings, an antique shop, a post office, a church, and several single-family residences for ranch employees) would continue to occur. While additional development could occur here under the TUMSHCP, the Applicant has not included development plans for this area in the project description. This area includes modeled foraging habitat for the peregrine falcon (see figure 5.6 of the TUMSHCP). We anticipate that continuance of existing activities in the Lebec/Existing Headquarters Area will have negligible effects on peregrine falcons because prior to grading, the Service-approved Tejon Ranch Staff Biologist will conduct focused surveys for peregrine falcons within the proposed project phase and, if present, their locations will be mapped and avoided. Therefore, we expect the effects to peregrine falcons to be negligible as a result of ongoing activities at the Lebec/Existing Headquarters Area.

Potential development related impacts in the Lebec/Existing Headquarters Area are addressed below under Commercial and Residential Development Activities.

Mitigation, Monitoring, and Management

Mitigation, monitoring, and management activities to carry out identified biological goals and objectives for the California condor or other Covered Species included in the TUMSHCP or other resource agency permits for the commercial and residential Covered Activities, as well as mitigation, monitoring, and management activities imposed pursuant to any local, State, or Federal approval of development on Tejon Ranch would be carried out in accordance with the Act and would be subject to Service review. We acknowledge that other agencies may credit the Applicant for mitigation and protective measures included in the TUMSHCP for mitigation imposed by such other agencies. Any restoration, enhancement, or similar mitigation activities would not be allowed if they would result in unpermitted adverse effects to species or critical habitat under the Act. Additionally, any mitigation activities for other agencies would be subject to the protective measures included in Tables 1 and 2, in the Description of the Proposed Action section of this biological opinion. Therefore, we anticipate that any potential threats to the peregrine falcon as a result of mitigation, monitoring, and management activities would be effectively minimized.

Estimate of Disturbance by Planwide Activities

The Applicant estimates that approximately 200 acres of ground disturbance may occur outside of proposed development areas (discussed below). These ground disturbances may be permanent or temporary and would result from the Planwide Activities described above. The Applicant does not know where or when these activities would occur that would cause the 200 acres of ground disturbance, including whether any would be in areas occupied by the peregrine falcon.

For the purposes of this effects analysis, we assume that all parts of the action area that could be affected by Planwide Activities have an equal chance of being affected and that all habitat types would be affected in equal proportion. This assumption is based upon the Applicant's inability to predict exactly where 200 acres of habitat disturbance due to Planwide Activities would occur. In addition, there is no indication that the distribution or location of peregrine falcon modeled habitat would cause Planwide Activities to disproportionately occur in the peregrine falcon modeled habitat.

For the purposes of estimating species-specific habitat disturbance by Planwide Activities, we are not using the 8,817-acre development envelope used by the Applicant to estimate impacts from development (TUMSHCP Table 2-1, footnote 4), but rather we are using the 5,533-acre area that actually could be developed within the development footprint. We did this, because after the 5,533-acre development footprint is developed, 3,284 acres of the 8,817-acre development envelopes would remain and be subject to Planwide Activities, and modeled habitat for the peregrine falcon could occur in the 3,284 acres. Therefore, we included 3,284 acres of the development envelopes in this analysis to acquire an estimate of habitat lost by Planwide Activities that is as accurate as possible. When we combine this estimate with anticipated habitat loss from commercial and residential development in a summary effects analysis (discussed below), we will have slightly double-counted and overestimated the amount of peregrine falcon habitat that would be lost in the action area. This slight overestimation of lost habitat does not compromise our analysis, because the overlap is very small relative to the size of the action area, and this approach errs on the side of the species by analyzing a larger impact than would actually occur.

Adding together the acres of commercial and residential development, National Cement and La Liebre Mines, the VA Cemetery, and Not-A-Part lands (blocks of land within the boundary of the action area but not owned by the Applicant), a total of 12,423 acres are not subject to Planwide Activities. We expect that Planwide Activities could occur on the remaining 129,463 acres of the action area (141,886 acres within the action area minus the 12,423 acres of excluded areas above). Therefore, the ratio of disturbance due to Planwide Activities (200 acres) to Covered Lands subject to Planwide Activities (129,463) equals 0.0015. We applied this ratio to peregrine falcon habitat outside the excluded areas but in the action area and rounded the remainder up to a whole acre. There are 26,742 acres of foraging habitat and 80 acres of nesting habitat for the peregrine falcon present on Covered Lands, for a total of 26,822 acres of modeled habitat. Thus, 26,742 acres of modeled foraging habitat minus 2,741 acres of foraging habitat

lost to development equals 24,001 acres of foraging habitat. In addition, 80 acres of modeled nesting habitat minus 1 acre lost to development equals 79 acres of modeled nesting habitat subject to Planwide Activities. Using our ratio of 0.0015, we anticipate that Planwide Activities would disturb or remove approximately 37 acres (36 acres of modeled foraging habitat and 1 acre of modeled breeding habitat) of modeled suitable habitat for the peregrine falcon over the permit duration or just over one-tenth of 1 percent of the 26,742 acres of modeled foraging habitat in the action area (excluding modeled habitat in development areas) and less than 1 percent of modeled breeding habitat. This could be an overestimate because the Applicant is proposing measures to minimize disturbance to peregrine falcon foraging and nesting habitat.

Thus, while there could be a very small loss of peregrine falcon modeled suitable habitat due to Planwide Activities, in comparison to the modeled suitable habitat conserved, the loss would have a minimal effect on the subspecies. Consequently, we conclude that the effects of Planwide Activities on the American peregrine falcon and its habitat would be minimal under the TUMSHCP and would not appreciably reduce the subspecies' reproduction, numbers or distribution in the Covered Lands or rangewide.

Proposed Commercial and Residential Development Activities

Direct Effects

The proposed commercial and residential development would result in the permanent loss of 2,742 acres of modeled suitable habitat for the peregrine falcon within Covered Lands, including 2,741 acres of foraging habitat (10 percent) and 1 acre (less than 1 percent) of breeding habitat. This habitat loss includes any modeled habitat for the peregrine falcon lost as a result of development activities in the Lebec/Existing Headquarters Area.

As stated above, the peregrine falcon is an uncommon breeder or winter migrant throughout much of California, as well as in western Oregon, the southwest, and Central Plains region of the United States. It is absent from desert areas (Zeiner et al. 1990b). Spring and fall migrants of the peregrine falcon occur along the coast and in the western Sierra Nevada Mountains (Brown 2006b). As a transient species, this subspecies may occur almost anywhere that suitable habitat is present (Garrett and Dunn 1981). For this reason, the scale for analyzing the impacts to peregrine falcon considers the broad migration and wintering range of the species throughout the western, southwestern, and Central Plains regions of the United States. Where it nests, nesting densities vary and are generally dependent upon availability of prey (Thelander 1977). Throughout California, breeding densities of peregrine falcons have ranged from upwards of one pair per 300,000 acres to one pair per 92,000 acres in relatively undisturbed habitats (Thelander 1977). Approximately 79 acres of modeled breeding (cliff-type) habitat occur in the action area, and though the peregrine falcon is not expected to nest in the action area, the possibility of this subspecies nesting on site in the future cannot be dismissed. Even at the higher breeding density cited above, however, and assuming that undisturbed areas adjacent to the action area would also be used by this subspecies, the action area could likely support at most one breeding pair of peregrine falcons.

The loss of 2,741 acres (10 percent) of modeled foraging habitat for migrating and wintering peregrine falcons within Covered Lands would not affect this subspecies' use in the action area during migration and wintering because 23,862 acres (89 percent) of modeled foraging habitat would be conserved.

Implementation of avoidance and minimization measures, including pre-construction and pre-activity surveys for nesting peregrine falcons and establishment of a 0.25-mile protection zone if nesting is observed, will ensure that no take of the subspecies occurs as a result of Covered Activities. With a maximum of one breeding pair potentially occurring within the action area, this on-site conservation of modeled suitable habitat, and the large extent of undisturbed habitat adjacent to the Covered Lands that could be used by a pair of peregrine falcon for breeding as well as for foraging, the small loss of modeled suitable habitat in the action area would support the same level of peregrine falcon use in and around the action area. Further, the loss of one acre of suitable breeding habitat and 2,741 acres foraging habitat would not adversely affect any of the estimated 274 nesting sites that were documented as "active" in California as of 2007 (Comrack and Logsdon 2007) and would not result in any population level impacts to the Pacific Coast recovery region (which includes California) or the subspecies' larger range across continental United States and Alaska.

Indirect Effects

Development-related indirect impacts to peregrine falcon and modeled suitable habitat could occur from edge effects and increased human presence where modeled habitat is near developed areas. Specifically, these effects include noise/lighting, recreation, utilities, and roads/trails, as discussed below.

Developed areas would have increased lighting and noise that may disturb individual peregrine falcons or increase predation risk. Under the TUMSHCP, lighting, where it is needed, will be directed away from sensitive habitats to reduce this effect (Sections 2.2.3 and 7.1.1.2). Noise that could affect potential breeding areas will be minimized/avoided by establishment of a 0.25-mile protection zone around any active nests as well as protection measures included in a Service-approved Public Access Plan; therefore, we expect these effects to be negligible to the peregrine falcon.

In addition, the increased population of the development areas is likely to increase the pressure for recreational activities, particularly in the TMV Planning Area. Recreational activities allowed within the TMV Planning Area are limited to passive recreation as described above under Planwide Activities. Even so, in the SDEIS for the TUMSHCP, we estimated that the TUMSHCP would increase the human population of the TMV Planning Area by 11,441 people, and we expect the recreational activities of future residents of the TMV Planning Area to potentially cause a higher level of disturbance and impacts in this area than in other parts of the action area that are more remote. If recreation occurs in occupied peregrine falcon habitat, it could cause a higher level of disturbance and impacts in the TMV Planning Area than in other

parts of the action area that are more remote. If recreation occurs in occupied habitat, it could potentially alter peregrine falcon behavior, including feeding, and nesting activities. To minimize impacts of recreation, the Applicant will provide Home Owners' Association(s) with educational information regarding acceptable activities in open space areas, including recreational activities and pet restrictions. In addition, the Applicant will require that recreation in the TMV Planning Area, and throughout the open space, use existing roads and trails where possible and be conducted in a manner that would avoid adverse impacts to the Covered Species and their habitats or result in less-than-significant impacts. Lastly, the access restrictions, monitoring and enforcement measures will be implemented pursuant to the Public Access Plan that will be reviewed and approved by the Service. These measures should ensure that allowed recreational activities are conducted in a manner that avoids or minimizes impacts to the peregrine falcon.

Two existing powerlines in the TMV Planning Area Open Space may be relocated within 1000 feet of their existing location, and one existing power line will be temporarily relocated and then permanently relocated underground. Peregrine falcons could be injured or killed if they collide with existing or relocated powerlines or experience electrocution from direct contact with existing or relocated powerlines, and could be disturbed from foraging or nesting if present during the relocation of powerlines and support structures. Based on the limited use of the Covered Lands by peregrine falcons, we anticipate a low potential for collision or electrocution associated with existing or relocated powerlines. If active nests are detected during surveys a 0.25-mile protection zone around any active nests will be established to minimized/avoided adverse impacts.

New utilities to support development would be undergrounded within the development area, except that two communication towers described under "Communication Towers" in the Description of the Proposed Action section above (also on page 4-52 and elsewhere in Section 4 of the TUMSHCP) would be installed above ground. Once underground, operating these new utilities would not cause ongoing impacts to species. The two communication towers pose a limited collision risk for peregrine falcon; however, the towers are not in modeled suitable habitat for the species, and the towers occupy a very small fraction of the action area. In addition, the two communication towers will include design restrictions identified by the Service to minimize the potential for collisions. These restrictions must be reviewed and approved by the Service and require that (1) the towers be self-supporting (i.e., no guide wires must be included as part of the design); and (2) the tower facades will be primarily solid (e.g., through use of panels or other sidings, wider or denser lattice work, or alternative tower solutions as approved by the Service) to increase their visibility. Therefore, the risk of collision for the peregrine falcon is low and the effect would be negligible.

The Applicant proposes to clear and thin vegetation within 200 feet of the proposed development, creating and up to 1,773-acre fuel modification zone. The expected intensity of disturbance associated with these activities alone would not preclude peregrine falcons from using modeled habitat near the area; however, the ongoing maintenance of this, whether by grazing or mechanical means, could cause peregrine falcons to temporarily avoid suitable habitat. The estimated areal extent in which fuel modification may affect the peregrine falcon is

included in the 2,742 acres of modeled habitat estimated be lost with the 8,817-acre development envelope.

Roads and trails receiving the most use would be located in the TMV Planning Area. Under the TUMSHCP, we expect road use in the development areas to be typical of residential/ commercial areas. In the SDEIS for the TUMSHCP, we estimated that the TUMSHCP would increase the human population of the action area by 11,441 people resulting in 79,514 additional vehicle trips per day. We expect most of these vehicle trips to occur near the commercial areas, and the number of vehicle trips would decrease with distance from Interstate 5. Vehicular traffic to the open space would be restricted and managed, but nonetheless, use of roads in the development area would increase substantially over baseline conditions and could adversely affect the peregrine falcon. Use of trails in open space is addressed in the recreation discussion above.

Noise and human/vehicle presence associated with frequent road use could preclude individuals from using nearby suitable habitat or flush peregrine falcon from nests subjecting them to higher risk of nest abandonment and increased energy expenditure. Disturbance around active nest sites will be avoided by establishment of a 0.25-mile protection zone around such nests. Motorized vehicles, off-highway vehicles, etc. could potentially, injure or kill peregrine falcon if collisions occur. To minimize adverse effects of roads, the Applicant proposes to include educational materials as required by the CC&Rs to all homeowners and recreational users. In general, though, because peregrine falcons typically forage on bird species associated with wetland habitats, and foraging behavior is such that pursuit of prey items would not bring individual falcons in close proximity to roads at a level above the ground subject to vehicle strikes, because this species does not eat carrion or road-killed animals and therefore would not forage on food items in the path of vehicles, and given the size of the action area and the majority of modeled habitat is outside the TMV Planning Area, as well as the protective measures, we determined that the risk of collision for peregrine falcon very low and the effect would be negligible.

TUMSHCP Mitigation

The Applicant proposes to preserve in perpetuity virtually all of the action area outside the development envelopes, including 23,862 acres (89 percent) of modeled foraging habitat and 79 acres (99 percent) of modeled breeding habitat for the peregrine falcon. The Applicant would maintain the preserved land in its current condition, thus maintaining the current capacity to support peregrine falcons. The proposed conservation of 89 percent of modeled foraging habitat and 99 percent of modeled breeding habitat for the peregrine falcon is consistent with conservation biology principles calling for large, interconnected blocks of habitat that support a given species' life history requirements. The conservation of the Mitigation Lands would benefit the peregrine falcon by permanently securing them from future habitat loss in the action area and maintaining a large area of peregrine falcon habitat.

Summary of Effects

After examining the direct and indirect effects in the action area, the next step in determining whether a proposed action is likely to jeopardize the continued existence of a species, is to consider the effects of the action as against the environmental baseline with respect to the reproduction, numbers, and distribution of the species. We also consider the effects of the action on the recovery of the species. In that context, the following paragraphs summarize the effects of the proposed TUMSHCP on the peregrine falcon.

The Planwide Activities and the proposed development could have some effect on the peregrine falcon. As stated above, the Applicant estimates that up to 2,742 acres of modeled suitable habitat could be lost due to development and we have calculated that in the remainder of the action area Planwide Activities could affect an additional 37 acres of modeled suitable habitat for the peregrine falcon, for a total of 2,779 acres of lost modeled suitable habitat for the subspecies. In addition, the Planwide Activities, including recreation, and the indirect effects of development, including recreation, could result in impacts to the peregrine falcon. These potential impacts include flushing of individual, disturbance of nest sites, or otherwise altering feeding or breeding behavior, we expect these impacts to occur rarely and have minor effect on the subspecies in the action area.

The Applicant proposes to preserve in perpetuity virtually all of the action area outside the development envelopes, including 23,862 acres (89 percent) of modeled foraging habitat and 79 acres (99 percent) of modeled breeding habitat for the peregrine falcon. As described in the effects analyses above, the TUMSHCP includes measures to avoid take and minimize the effects of Planwide Activities and Commercial and Residential Development Activities impacts to the peregrine falcon, including construction, lighting, recreation, roads, utilities, and fuel management impacts (see Table 2 of this biological opinion; TUMSHCP Section 7.1.1.2.1) With the combination of avoidance and minimization measures proposed by TRC to reduce the effects of both Planwide and Commercial and Residential Development Activities, and the conservation of almost all of the modeled suitable habitat on the Covered Lands to mitigate for unavoidable impacts, we find that the Covered Activities, would not substantially affect range-wide reproduction, numbers, or distribution of the peregrine falcon.

Recovery

The peregrine falcon population numbers have continued to increase since delisting (Service 2003, M. Green, *in litt*. 2012). The 2,741 acres (10 percent) of foraging habitat and 1 acre (less than 1 percent) of breeding habitat on the Covered Lands that would be lost as a result of development would have a negligible effect on peregrine falcons that use Covered Lands and not result in measurable local or population level affects to the species as defined in the PDMP, and therefore would not affect the recovered status of the peregrine falcon.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section, because they require separate consultation pursuant to section 7 of the Act.

Hunting

Private and commercial hunting operations occur on Tejon Ranch, including the action area; however, hunting is not an activity covered by the TUMSHCP. The Applicant proposes to continue hunting operations throughout the ranch during the proposed permit term. Hunting activities involve travel on existing paved and unpaved roads, overnight use of backcountry cabins, hiking, discharging hunting weapons, etc. The effects from hunting will generally be consistent with, and to a considerable extent are captured in the descriptions of effects for Roads/Trails, Backcountry Cabins, and Recreation described above. The Applicant proposes to manage the hunting program to avoid take of any federally protected species. Hunting in the TMV Planning Area would be limited to guided hunts. Therefore, we expect that hunting in the action area will have negligible cumulative effects on the peregrine falcon.

Mining

Two commercial mining operations occur in the action area, La Liebre and National Cement; these mining operations are not Covered Activities under the TUMSHCP. The total area used for the two operations is about 2,636 acres, and the Applicant would maintain the mining leases through the proposed permit term. The Applicant has modeled 0.4 acre of suitable habitat in the National Cement mining area, so a very small area of suitable foraging habitat exists in that lease, and much of the mining areas are already disturbed. The noise and the level of human activity on the National Cement mine lease could disturb foraging peregrine falcons; however, the effects of mining occur in such a small area relative to the amount of modeled suitable habitat in the action area, that we expect that continued mining in the action area will have little to no cumulative effects on the peregrine falcon.

Other Activities

As discussed above under project description, within the external boundaries of the Covered Lands, there are existing inholdings and, utilities. The Bakersfield National Cemetery also occurs inside the Covered Lands. These projects and activities are not Covered Activities under the TUMSHCP. We are not aware of any reasonably foreseeable activities within the 3,870 acres of inholdings that may affect the peregrine falcon. Activities associated with existing utilities, transmission lines and related structures, such as maintenance activities, would be restricted to currently established easement areas. Given that only a few peregrine falcons use the area seasonally for foraging, and these are existing structures and transmission lines that we are not aware of any adverse impacts to the species, the potential for disturbance from

maintenance activities or injury from collision with transmission lines would be infrequent and minor. Therefore, we do not anticipate any cumulative effects from the ongoing maintenance and operation of non-covered existing utilities. The Bakersfield National Cemetery is in place, and we are not aware of any activities associated with the cemetery that may have an adverse effect on the peregrine falcon.

CONCLUSION

After reviewing (1) the current status of the American peregrine falcon; (2) the environmental baseline for this species in the action area; (3) the effects of the proposed action; and (4) the cumulative effects, it is our biological opinion that the Service's issuance of the proposed ITP is not likely to jeopardize the continued existence of the American peregrine falcon. We reached this conclusion because:

1. The American peregrine falcon occupies a large geographic range, of which the action area is a very small fraction. The loss of 1 acre of suitable breeding habitat and 2,741 acres foraging habitat from direct impacts and 37 acres under the Planwide Activities would not adversely affect any of the estimated 274 nesting sites that were documented as "active" in California as of 2007 (Comrack and Logsdon 2007) and would not result in any population level impacts to the Pacific Coast recovery region (which includes California). The proposed Covered Activities would affect a tiny portion of the species and its range and would not reduce the range-wide reproduction, numbers, or distribution of the species.

2. Peregrine falcons have not historically and are not currently known to breed within the Covered Lands. The peregrine falcon currently uses the Covered Lands as a stopover during migration periods or possibly as an occasional winter visitor.

3. We estimate that the Covered Lands provide partial support for one pair of nesting peregrine falcons based on the amount of modeled suitable foraging habitat (approximately 27,000 acres).

4. The vast majority of the action area, including the majority of suitable peregrine falcon habitat (99 percent of modeled breeding habitat and 89 percent of modeled foraging habitat), would be preserved in perpetuity, reducing the amount of peregrine falcon habitat that can be lost in the future. We expect this to have long-term, stabilizing benefits to the peregrine falcon and its remaining habitat.

5. Only one acre of modeled suitable nesting habitat (less than 1 percent) would be lost as a result of the proposed TUMSHCP. The Applicant will implement numerous conservation measures as part of the proposed activities (e.g. surveying development areas prior to construction) that will reduce or avoid impacts to the peregrine falcon. Adverse effects on potential nesting in the future would be avoided with buffer zones of 0.25-mile from development and 1,000 feet from passive recreational activities.

6. We do not anticipate the effects of the action to adversely affect the recovered status of the peregrine falcon. Populations of the peregrine falcon are continuing to increase following the species delisting in 1999.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

Amount or Extent of Take

Populations of the peregrine falcon are continuing to increase following the species delisting in 1999. We estimate that the Covered Lands would only provide partial support for one pair of nesting peregrine falcons based on the amount of modeled suitable foraging habitat (approximately 27,000 acres), and we anticipate only one pair of peregrine falcons could potentially nest on the Covered Lands based on the information in the Environmental Baseline section of this biological opinion. An additional undetermined number of migratory and wintering birds may forage on the Covered Lands outside the nesting season. Based on the limited potential for peregrine falcons to occur on the Covered Lands, limited threats associated with the proposed commercial and residential development and Planwide Activities and the conservation measures proposed as part of the TUMSHCP, we do not anticipate any incidental take of the peregrine falcon as a result of the Service's issuance of the proposed section 10(a)(1)(B) permit.

Effect of the Take

In the accompanying biological opinion, the Service determined that the proposed action is not likely to result in jeopardy of the American peregrine falcon and that none would be taken.

REASONABLE AND PRUDENT MEASURES / TERMS AND CONDITIONS

As described above, the proposed TUMSHCP and associated documents identify anticipated impacts to the peregrine falcon as well as measures that are necessary and appropriate to minimize those impacts. These measures will effectively avoid take of the peregrine falcon under the Act from the Covered Activities. Therefore, no reasonable and prudent measures or terms and conditions to minimize take are required or included in this incidental take statement.

BURROWING OWL

STATUS OF THE SPECIES

Regulatory History

The burrowing owl (*Athene cunicularia*) has no Federal designation, but has been considered a California Species of Special Concern by the CDFG since 1978 (Remsen 1978). Because the burrowing owl is unlisted, no critical habitat has been designated for this species. The species is also protected under the MBTA.

Natural History/Habitat Requirements

Up to 21 subspecies of burrowing owls have been recognized (Clark 1997), but only one subspecies, the western burrowing owl (*Athene cunicularia hypugea*), occurs in North America west of the Great Plains (Haug et al. 1993). Other burrowing owl subspecies occur in arid, open habitats in Florida, the Caribbean Basin, and South America (Haug et al. 1993; Clark 1997).

The burrowing owl is a small, ground-dwelling owl that occurs in natural open habitats, such as grasslands and deserts, but is also found in agricultural and suburban areas. Males and females are approximately the same size, measuring from 7.7 to 9.8 inches in length and weighing about 5.3 ounces. Burrowing owls are generally brown overall, are short-tailed and long-legged, and have a rounded or flat head lacking ear tufts (Haug et al. 1993). Burrowing owls have a pale white eyebrow stripe and lemon-yellow irises, and adults generally have white under parts with buffy brown barring (Haug et al. 1993; Sibley 2000). Burrowing owls are the only small owl likely to be seen perched in the open in daylight (Sibley 2000). Juveniles are similar to adults but are unstreaked to lightly streaked, light to brownish buff below, and have more pale secondary coverts (Klute et al. 2003).

Burrowing owls are active night and day, often perching in open sunlight in the early morning and moving to shade or burrows in the heat of the day. The burrowing owl is considered a semi-colonial species that often forms loose colonies. The range of distances between nest burrows varies and has been documented from 2,950 feet to less than 46 feet (Haug et al. 1993). Haug et al. (1993) suggest that burrowing owls exhibit high site-fidelity and reuse burrows year after year; however, recent studies indicate site fidelity to be low (Holroyd 2008).

The following is an excerpt from Gervais et al. (2008): "Useful as a rough guide to evaluating project impacts and appropriate mitigation for burrowing owls, adult male burrowing owls home ranges have been documented (calculated by minimum convex polygon) to comprise anywhere from 280 acres in intensively irrigated agroecosystems in Imperial Valley (Rosenberg and Haley 2004) to 450 acres in mixed agricultural lands at Lemoore Naval Air Station, CA (Gervais et al. 2003), to 600 acres in pasture in Saskatchewan, Canada (Haug and Oliphant 1990). But owl home ranges may be much larger, perhaps by an order of magnitude, in non-irrigated grasslands such as at Carrizo Plain, California (Gervais et al. 2008), based on telemetry studies and

distribution of nests. Foraging occurs primarily within 600 meters of their nests (within approximately 300 acres, based on a circle with a 600-meter radius) during the breeding season."

The majority of western burrowing owls that breed in Canada and the northern United States are believed to migrate south during September and October and north from March into the first week of May. Western burrowing owls in Southern California are predominantly non-migratory (Thomsen 1971), while the western burrowing owls in northern California are believed to migrate (Coulombe 1971). Therefore, individuals observed in southern portions of the range during the winter may include both resident and migratory individuals (Haug et al. 1993).

Breeding occurs from March through August, with a peak in April and May. In migratory populations, western burrowing owls arrive on the breeding areas either singly or paired. On arrival the males occupy burrows, prepare them for use, and begin courtship and territorial behavior. According to Haug et al. (1993), non-migratory owls retain their pair bonds throughout the year (Haug et al. 1993). The clutch size is 6 to 11 eggs, with an average of 7 to 9 eggs. The young emerge from the burrow at about 2 weeks and fly after about 4 weeks (Zarn 1974). Martin (1973) reported 95 percent of the young fledged with a mean reproductive success of 4.9 young per pair.

Burrowing owls are opportunistic feeders, primarily feeding on arthropods, small mammals, and birds, and often need short grass, mowed pastures, or overgrazed pastures for foraging (Haug et al. 1993). Burrowing owls are primarily active at dawn and dusk in their foraging habits but hunting has been observed throughout the day (Thomsen 1971; Marti 1974). Insects are often taken during daylight whereas small mammals are taken more often after dark (Haug et al. 1993). Burrowing owls are aided by keen binocular vision (Bates 2006). According to Bates (2006), "burrowing owls hunt by walking, running, hopping along the ground, flying from a perch, hovering, particularly over tall vegetation, and fly-catching in mid-air."

In California, western burrowing owls are yearlong residents of flat, open, dry grassland and desert habitats at lower elevations (Bates 2006). Western burrowing owl nests in California have been observed at elevations from 200 feet below sea level at Death Valley up to 12,000 feet in elevation at the Dana Plateau in Yosemite National Park (Bates 2006). They can inhabit annual and perennial grasslands and scrublands characterized by low-growing vegetation. They may be found in areas that include trees and shrubs if the cover is less than 30 percent (Bates 2006); however, they prefer treeless grasslands. Although burrowing owls prefer large, contiguous areas of treeless grasslands, they have also been known to occupy fallow agriculture fields, golf courses, cemeteries, road allowances, airports, vacant lots in residential areas and university campuses, and fairgrounds when nest burrows are present (Bates 2006, Haug et al. 1993). They typically require burrows made by fossorial mammals, such as California ground squirrels (*Spermophilus beecheyi*). The availability of numerous small mammal burrows is a major factor in determining whether an area with apparently suitable habitat will support burrowing owls (Coulombe 1971). Burrowing owls rarely use areas unoccupied by colonies of burrowing mammals (Zarn 1974).

Distribution and Population Trends

The western burrowing owl is found throughout non-mountainous western North America, from the Great Plains grasslands in southern portions of the western Canadian provinces south through the U.S. into Mexico (Haug et al. 1993). In many parts of the United States, the western burrowing owl's breeding range has been reduced, and it has been nearly extirpated from certain areas, including western Minnesota; eastern North Dakota, Nebraska, and Oklahoma; eastern and central Kansas; large portions of the San Francisco Bay area in California; and the Rogue Valley in southwestern Oregon (DeSante et al. 1997, Martell et al. 2001, Murphy et al. 2001, Sheffield and Howery 2001, Wellicome and Holroyd 2001). In California, the western burrowing owl's range extends throughout the lowlands from the northern Central Valley to the U.S./Mexico border, with large populations in the Imperial Valley region of southeast California (Gervais et al. 2008) and a small (perhaps extirpated) population in the Great Basin bioregion in northeast California (Cull and Hall 2007). The subspecies' distribution and abundance vary considerably throughout its range (DeSante et al. 2007; Wilkerson and Siegel 2010). The western burrowing owl breeds in Washington State, Oregon, California, Montana, Idaho, Utah, Nevada, Arizona, Wyoming, Colorado (VerCauteren et al. 2001), New Mexico, western North and South Dakota (Igl and Johnson 1997, South Dakota Ornithologists' Union 1995)), Nebraska, Kansas (Busby and Zimmerman 2001), Oklahoma, and Texas (Skrei 2006).

One of the largest concentrations of western burrowing owls occurs in the Imperial Valley, California, and is estimated at 5,600 pairs with a density of about 1 pair per 124 acres (DeSante et al. 2004). In Nebraska, estimates range from 1 to 20 pairs per prairie dog town (Desmond and Savidge 1996). In Montana, a study by Restani et al. (2001) determined that 1 pair of western burrowing owls occurred per 272 acres of prairie dog towns. In North Dakota, estimates range from 0 to 3 pairs per 39 square miles (Murphy et al. 2001).

Although the overall range of the western burrowing owl in California has not drastically changed from that described by Grinnell and Miller (1944), the subspecies has disappeared as a breeding bird from portions of its former range (DeSante et al. 2007; Miller 2007; Gervais et al. 2008; Wilkerson and Siegel 2010). A statewide survey conducted from 1991 to 1993 found that breeding western burrowing owls had disappeared from the central coast (Marin, San Francisco, Santa Cruz, Napa, and coastal San Luis Obispo Counties), Ventura County, and the Coachella Valley in Riverside County, and were nearly extirpated from Sonoma, Santa Barbara, Orange, coastal Monterey, and San Mateo counties, where only one or two known breeding pairs remained (DeSante et al. 2007). Overall, research has suggested that breeding western burrowing owls have functionally disappeared from 22 percent of their former range and continue to decline in an additional 23 percent of their range (Miller 2007).

Reasons for Decline

The distribution of western burrowing owls has changed considerably since introduction of industrial agriculture and increased urbanization, reflecting both losses and gains in local populations. Surveys conducted during 1991 to 1993 reported greater than 9,000 breeding pairs.

Most of the western burrowing owls occurred in the Imperial and Central Valleys, and primarily in agricultural areas (Klute et al. 2003). The number of western burrowing owl breeding pairs in central, western, and Southern California has drastically declined in the last 50 years; during the 1980s, the decline was probably greater than 70 percent (DeSante et al. 1997). In the United States, the decline of this subspecies has accelerated as a result of habitat loss caused by increased residential and commercial development (Bates 2006). Intensive cultivation of grasslands and native prairies has long been recognized as a cause of declining western burrowing owl populations (Integrated Hardwood Range Management Program, University of California, Berkeley and Center for Conservation Biology, University of California, Riverside (IHRMP and CCB) 2001). Intensive agriculture results in loss of burrows, loss of foraging habitat, creation of suboptimal nesting habitat, and increases in vulnerability to predation (IHRMP and CCB 2001); agricultural activity may also reduce the chance that unpaired western burrowing owls will be able to find mates. The use of pesticides for agriculture may affect burrowing owls through secondary poisoning, the loss of prey, and/or loss of burrows in the case of controls on ground squirrels using rodenticides.

Of 24 jurisdictions in the western United States, 46 percent reported a population size between 1,000 and 10,000 pairs, and 33 percent reported between 100 and 1,000 pairs. No jurisdiction reported an increase, and 54 percent reported their owl population was probably declining (Haug et al. 1993). Klute et al. (2003) lists the elimination of burrowing mammal populations through small mammal reduction programs and habitat loss as the primary factor responsible for declines of western burrowing owls.

Other reasons for decline listed include habitat fragmentation, predation, illegal shooting, pesticides and other contaminants. Burrowing owls are relatively tolerant of human activity, but are susceptible to human-related impacts, such as shooting and burrow destruction, while populations of native predators (e.g., gray foxes (*Urocyon cineroargenteus*), coyotes (*Canis latrans*)) and introduced predators (e.g., red foxes (*Vulpes vulpes*), cats, dogs) near burrowing owl colonies are also problematic (Bates 2006). Burrowing owls are subject to predation by mammals including badgers (*Taxidea taxus*) and domestic cats, while eggs and young may be taken by opossums (*Didelphis virginiana*), weasels (*Mustela* spp.), skunks (e.g., *Spilogale* spp., *Mephitis* spp.) and dogs (Haug et al. 1993). Burrowing owl has been found as prey remains in Swainson's hawk (*Buteo swainsoni*) and ferruginous hawk (*B. regalis*) nests. Other raptors may also prey upon burrowing owl, including the merlin (*Falco columbarius*), prairie falcon (*F. mexicanus*), peregrine falcon (*F. pergrinus*), great horned owl (*Bubo virginianus*), red-tailed hawk (*Buteo jamaicensis*), Cooper's hawk (*Accipiter cooperii*), and American crow (*Corvus brachyrhynchos*) (Haug et al. 1993).

Western burrowing owls occur in large numbers across agricultural areas in the Central and Imperial valleys and are likely to be impacted by changes in agricultural practices, particularly water conveyance (Bates 2006). Survival and reproductive success were apparently negatively impacted by direct toxicity when Carbofuran, a carbamate insecticide, was sprayed over nest burrows (Bates 2006). Indirect mortality due to contaminated prey may be significant but is

unknown to date (Haug et al. 1993). As noted above, use of rodenticides for ground squirrel control may reduce available burrows.

ENVIRONMENTAL BASELINE

The Applicant conducted CDFG protocol surveys for the burrowing owl in the TMV Planning Area between April 17 and June 27, 2007. No burrows were found on site that showed evidence of use by burrowing owls. No breeding, resident, or wintering burrowing owls were detected on site during the focused surveys. However, one migrant burrowing owl was incidentally observed in October 2007 during California condor surveys; this observation occurred near Tunis Ridge in non-native grassland at an elevation of 4,900 feet (Dudek 2009). The burrowing owl survey efforts were not comprehensive of the action area.

The burrowing owl[15] is considered to have a low potential to breed in the action area based on negative protocol survey results for the TMV Planning Area and because its breeding range is typically at lower elevations than the study area. In addition, no burrowing owls were observed within the Covered Lands during survey efforts for other species. Furthermore, no burrowing owl breeding observations have been made during surveys in any portion of the Covered Lands (Dudek 2009).

The CNDDB reports various western burrowing owl observations in the vicinity of the Covered Lands, but none within the Covered Lands (CDFG 2012b). Specifically, four CNDDB records for the western burrowing owl are located approximately 3 miles due east of Arvin, between the southern portion and the northern portion of the Covered Lands (CDFW 2013). These observation sites are within relatively flat grasslands at lower elevations than the Covered Lands (Dudek 2007).

The Applicant modeled suitable habitat for the burrowing owl, including primary and secondary habitat at all elevations in the action area (Figure 5-8 of the HCP). Suitable primary habitat is defined as the main habitat used by the burrowing owl and that meets all of its life history requirements (i.e., foraging/breeding). Suitable secondary habitat is defined as habitat that may be used less frequently and may not be adequate to meet all or most life history requirements of the subspecies. Modeled suitable primary habitat for the burrowing owl on Covered Lands is grassland. Modeled suitable secondary habitats on Covered Lands are areas of scrub vegetation.

The action area contains 24,944 acres of modeled suitable primary foraging/breeding habitat, and 8,073 acres of secondary breeding/foraging habitat for the burrowing owl. Determining the potential number of individual burrowing owls that may occur at a given point in time within the action area is difficult, and several factors confound such an estimate.

[15] While the permit application seeks incidental take coverage for the burrowing owl, only the western burrowing owl, a subspecies of the burrowing owl, occurs in North America west of the Great Plains. Therefore, references to the burrowing owl in the following discussion generally refer to the western burrowing owl subspecies.

First, burrowing owls have relatively specific habitat requirements and suitable habitat tends to occur in a patchy distribution in association with small mammal burrows. Given the relatively coarse scale of the suitable habitat model, we do not expect suitable habitat for the burrowing owl to occur uniformly within modeled suitable habitat. Second, livestock graze in modeled suitable habitat. Livestock usually tend to degrade wildlife habitat; however, burrowing owls tend to prefer grasslands that are moderately or heavily grazed (James and Seabloom 1968, Butts 1973, Wedgwood 1976, MacCracken et al. 1985, Bock et al. 1993). Therefore, while overall the likelihood of burrowing owl occurrence in the Covered Lands is low, the likelihood of transient or wintering burrowing owl occurrence may be higher in moderately grazed portions of modeled suitable habitat relative to areas that are less intensively grazed.

Based on available modeled suitable habitat and one documented occurrence of the subspecies on the Covered Lands, we expect western burrowing owls to occur in limited numbers in modeled suitable habitat in the action area over the term of the proposed permit (50 years). Although the action area is near the periphery of the species' range, we expect transient or wintering western burrowing owls could occur in the action area. In addition, though unlikely based on the lack of documented observations of breeding western burrowing owls on the Covered Lands, it is possible that the subspecies could attempt to breed in suitable habitat in the action area over the 50-year term of the proposed permit. However, we expect western burrowing owls to occur at low densities and to occupy large home ranges in the action area, if they occur. We base this on the facts that (1) only one individual western burrowing owl has ever been documented or observed during surveys on the Covered Lands, and (2) the action area is at the periphery of the species' breeding range.

It is difficult to estimate the number of western burrowing owls that could occur in the action area because the subspecies occurs at low density; population numbers will vary from year to year; and the Applicant's model uses fairly coarse input parameters, which likely overestimates the amount of suitable habitat. These factors make application of known home range sizes to modeled habitat in the action area less reliable.

Observed home range sizes for the subspecies vary significantly – ranging from 280 acres in intensively irrigated agroecosystems in the Imperial Valley, California (Rosenberg and Haley 2004), to 450 acres in mixed agricultural lands at Lemoore Naval Air Station, California (Gervais et al. 2003), to 600 acres in pasture in Saskatchewan, Canada (Haug and Oliphant 1990). However, western burrowing owl home ranges may be much larger, perhaps by an order of magnitude, in non-irrigated grasslands such as at Carrizo Plain, California (Gervais et al. 2008). The majority of modeled suitable western burrowing owl habitat in the Covered Lands consists of non-irrigated grasslands with similar habitat structure/features to that of the Carrizo Plain. Using the more conservative 600-acre home range figure derived from a study in pasture in Canada, theoretically 55 pairs of western burrowing owls could occupy the 33,017 acres of modeled suitable habitat on the Covered Lands under ideal conditions.

However, this rough extrapolation does not distinguish between primary and secondary modeled suitable habitat on the Covered Lands, and the majority of the modeled habitat on the Covered

Lands exists in a patchy, discontinuous configuration. In addition, many of the patches of suitable modeled habitat on the Covered Lands may be too small to serve as a home range for breeding western burrowing owls, which further compromises the reliability of such estimates. As also noted previously, the Applicant's model used coarsely mapped input parameters, which likely overestimates the amount of suitable habitat. Furthermore, there is only one confirmed record of the western burrowing owl on the Covered Lands, and this observation was of a transient/migrant rather than a breeding bird. Given these uncertain variables, we cannot determine the exact number of western burrowing owls that could potentially occur in the action area, although it is possible that the action area could support wintering or breeding burrowing owls. Therefore, we will use modeled suitable habitat as a surrogate measure of the species' baseline in the action area.

Recovery

The burrowing owl is not listed under the ESA, so we have not developed a recovery plan for the species to which we can refer to assess its recovery status. In the absence of a recovery plan, we default to the general conservation of the species. For a species like the burrowing owl that has lost a large percentage of its former known occupied habitat, recovery would necessitate the conservation of much of the remaining habitat that supports the species. In addition, restoration of suitable habitat that has been disturbed but otherwise remains undeveloped would be a priority. Lastly, efforts to establish the species in unoccupied but otherwise suitable habitat would contribute to its recovery.

The burrowing owl has been observed on the Covered Lands, and suitable habitat has been identified that could support the species (33,017 acres total of modeled suitable habitat). Therefore, the Covered Lands, and specifically the conservation of modeled suitable habitat on the Covered Lands, may contribute to the recovery of the burrowing owl.

EFFECTS OF THE ACTION

Planwide Activities

Livestock

The Applicant proposes to graze livestock on the balance of the action area outside development areas, consistent with the types and level of historical grazing and ranch management practices. We anticipate that this activity will have negligible or beneficial effects on the burrowing owl because grazing in general is compatible with burrowing owls. As stated previously, burrowing owls prefer grasslands that are moderately or heavily grazed (James and Seabloom 1968, Butts 1973, Wedgwood 1976, MacCracken et al. 1985, Bock et al. 1993).

Under the proposed action, 22,406 acres (90 percent) of modeled primary breeding/foraging habitat for the burrowing owl would be conserved within the action area. In addition, 7,521 acres (93 percent) of modeled secondary breeding/foraging habitat for the burrowing owl would

be conserved within the action area. Due to the low likelihood of occurrence of burrowing owls on the Covered Lands and the proposed conservation of suitable habitat for the burrowing owl, any adverse effects on the subspecies from grazing in the action area would be negligible. In addition, under the TUMSHCP, the Applicant must submit a grazing management plan, as a component of the RWMP, to the Service every 5 years for review and approval. Our review of such plans will allow for the implementation of additional measures or modification of grazing practices to promote the compatibility of grazing in the action area with the conservation of the burrowing owl. Therefore, overall, livestock grazing is likely to have neutral to beneficial effects on the burrowing owl and its habitat in the action area.

Range Management/Ancillary Ranch Structures

Range management activities support livestock operations and consist of construction, operation, and maintenance of watering facilities, feeding areas, fences, and corrals, consistent with the types and level of historical grazing and ranch management practices; repair, reconstruction, and relocation of roads to accommodate historical grazing and ranch management practices; and repair, maintenance, or installation of ranch management communication equipment (e.g., whip antennas) less than 20 feet high. The repair, reconstruction, and relocation of roads to accommodate historical grazing and ranch management practices are evaluated below under Roads. Range management also incorporates ancillary ranch structures including squeezes, loading chutes, holding and feeding fields, corrals, branding traps, barns, sewage disposal facilities, livestock and wildlife watering facilities, and utilities serving existing ranch uses.

As described above under Planwide Activities in the Description of the Proposed Action section, *de-minimis* activities associated with ancillary ranch structures would be covered under the TUMSHCP. Non–*de minimis* activities associated with ancillary ranch structures are also allowed (1) if the activity is located in disturbed areas (e.g., undergrounding utilities in road rights-of-way), or (2) following a meet-and-confer process with the Service to ensure that the activity associated with an ancillary ranch structure avoids or adequately minimizes impacts to Covered Species and their habitats.

These activities are subject to the 200-acre disturbance limit, occur at a small scale relative to the size of the action area, and range management facilities already exist in the action area. However, the workers or equipment, as well as placement of ancillary ranch structures, may create enough noise or disturbance to cause burrowing owls to temporarily avoid suitable habitat. In addition, the construction of new ancillary ranch structures could destroy burrows. However, under the TU MSHCP (7.1.1.2.3) the Applicant would conduct pre-activity surveys 30 days prior to construction and avoid active burrows and more generally, the TUMSHCP requires the effects of cattle-related impacts, including fencing and ancillary ranch structures, in modeled primary and secondary breeding/foraging habitat for the burrowing owl to be avoided, or if effects to modeled habitat cannot be avoided, to be minimized to the extent practicable. Given the irregular nature of range management activities, the low likelihood of burrowing owls occurring in the action area, the Applicant’s proposed conservation of suitable breeding habitat for the burrowing owl, and the Service’s ability to review and approve the Applicant’s grazing

management plan, we expect adverse effects on burrowing owls from range management activities to be very rare and negligible.

Fuel Management

Fuel management practices would consist primarily of grazing, and the effects of fuel management by grazing should be largely consistent with the effects of livestock. Other fuel management activities include fuel modification zones created by existing roads, and through irrigation and/or vegetation clearing and mowing within 120 feet surrounding existing structures (i.e., backcountry cabins, ancillary ranch structures, and other existing structures). Mowing may create enough noise to cause burrowing owls to temporarily avoid suitable habitat. However, suitable habitat for the burrowing owl is primarily located away from proposed development, mowing for fuel management would occur infrequently/irregularly, and only one backcountry cabin is within burrowing owl modeled habitat. The TUMSHP includes a specific requirement to survey for nesting burrowing owls prior to any non-grazing fuel modification activities during the breeding season, and any active nests would be mapped and avoided (see Table 2 of this biological opinion). Therefore, we expect adverse effects from fuel management practices to be negligible.

Fuel management associated with proposed development is discussed below under Commercial and Residential Development Activities.

Filming

Filming activities generally consist of temporary on-scene filming and photography-related uses, including, but not limited to the filming and staging of movies, television shows, and commercials; photo shoots; and still photography and related uses. Such activities may include the erection and dismantling of props, temporary installation of trailers and equipment for film crews, filming of on-camera action, catering, rehabilitation of disturbed areas, and the movement of film crews to and from locations.

Film shoots that include explosives or other loud noises could adversely affect burrowing owls that may be roosting, feeding or nesting in the action area. Explosions (louder than gunshots) or other abnormally loud noises are prohibited throughout the TUMSHCP Mitigation Lands unless the Service-approved Tejon Staff Biologist, in consultation with the Service, determines that no California condors are present, and explosions (louder than gunshots) are strictly prohibited in the Condor Study Area portion of the Covered Lands. These restrictions on explosions in the action area would also benefit burrowing owls in the action area by minimizing the potential for disturbance to this species from explosions.

We expect filming to cause only minimal impacts to burrowing owl habitat, because filming occurs over a relatively short time frame, the Applicant would require habitat disturbed by filming activities to be restored to pre-filming conditions, and the Applicant will require that temporary construction avoid sensitive resources (see Table 2 of this biological opinion and

Section 7.1.1.2.3 of the TUMSHCP). We do not expect direct impacts to individual western burrowing owls or burrow sites from filming, because the Applicant would conduct surveys prior to filming related use and would avoid disturbance to nest burrows by establishing setbacks around any active nest burrows. In addition, the Applicant would have a qualified biologist monitor filming activities to ensure the terms of the TUMSHCP are implemented (see Table 2 of this Biological Opinion and Section 2.2.1 of the TUMSHCP). Food and trash left in or near burrowing owl habitat could attract predators and indirectly increase predation; however, the Applicant would require daily removal of trash to avoid or minimize this effect. The Applicant's proposal to manage open space lands to maintain the existing habitat conditions described in the TUMSHCP would further minimize adverse effects from filming. Therefore, we expect filming activities will cause negligible impacts to any burrowing owls within the action area.

Recreation

Recreation associated with the Planwide Activities includes private recreation by TRC, its employees, and guests, and public access is governed by the Interim RWMP and managed by the Conservancy. Such recreational use is also subject to the terms of the TUMSHCP and the terms of Service-approved conservation easements. While the private recreation by TRC occurs currently throughout the Covered Lands, public recreation, which generally consists of docent led tours by the Conservancy per the Interim RWMP, occurs in the Established Open Space portion of the Mitigation Lands. These public and private recreation uses are limited to passive activities listed in the Project Description. Recreation activities associated with Planwide Activities would occur in open space areas generally outside the TMV Planning Area at a relatively small scale, and have infrequent impacts. Recreational uses by TRC, its employees, and the public are limited by the access guidelines and best management practices in the Interim RWMP and will be further regulated in Public Access Plans, which are subject to permanent Service review and approval. We note that future development in the TMV Planning Area will likely lead to increased recreation demand by TMV Project residents and guests, but the type and nature of the use is the same. All such recreational use in the protected open space will also be regulated in the Public Access Plan, which would require monitoring and enforcement and is subject to permanent Service review and approval. The effects of recreation on the burrowing owl in the TMV Planning Area Open Space are discussed separately under Commercial and Residential Development Activities.

Recreational activities could have an adverse effect on burrowing owls if such activities were in close proximity to suitable foraging habitat or nesting locations. However, given the large size of the conservation lands, the extremely limited occurrences of burrowing owls detected on the Covered Lands during surveys and the absence of any documented nesting by burrowing owls, and restrictions on public access included in the Interim RWMP, we anticipate a low likelihood of disturbance to burrowing owls from covered recreational activities. Active monitoring and regulation of recreational activities by TRC staff or Conservancy docents, as well as restrictions on the location and types of any organized events should minimize the potential for disturbance to burrowing owls. Further, all public and private recreation activities would be conducted in a manner that would avoid adverse impacts to the Covered Species and their habitats or result in less-than-significant impacts (see Table 2 of this biological opinion, and TUMSHCP Section

7.1.1.2.3), and recreation would be monitored and regulated by TRC staff, the Tejon Ranch Staff Biologist, or Conservancy docents, including provision of educational materials and restrictions on the location and types of any organized events. Public recreation activities would be governed by a Public Access Plan in areas managed by the Conservancy, subject to Service review and approval for consistency with the TUMSHCP and the Act. An Interim Public Access Plan is currently in place that provides for docent-led public tours and requires pre-activity surveys prior to any ground-disturbing activities. We anticipate future levels of public access would be consistent with what occurs under the Interim Public Access Plan. Surveys would be conducted prior to the construction of any new trails and all active burrows would be avoided. These measures would ensure that allowed recreational activities are conducted in a manner that is consistent with the conservation of the burrowing owl. Therefore, we expect that effects on burrowing owls of recreation associated with Planwide Activities would be negligible.

Irrigation/Water Diversion

The action area contains existing minor water diversions for irrigation of agriculture, and a few small agricultural areas totaling about 232 acres exist in the TMV Planning Area (e.g., small vineyards and an orchard near Castac Lake). Water use is limited to the level of use as of 2008, so no additional impacts are anticipated from groundwater use or surface alteration. The Applicant is not proposing to expand the current irrigation capacity/diversion capacity and existing uses would not cause additional impacts. Maintenance and relocation work, if any, is subject to the pre-survey and avoidance requirements in the TUMSHCP. Agricultural uses that remain in open space, if any, after TRC identifies the final development footprint are not anticipated to result in any adverse impacts to burrowing owl within Covered Lands because the species is unlikely to be present in these areas, and such activities will continue subject to State and local regulations. Intensive agricultural activities such as crops, vineyards, and orchards usually are not compatible with maintaining suitable habitat due to the high level of human activity and regular ground disturbances. Further, these areas will be managed consistent with the integrated pest management plan requirements regarding use and storage of pesticides and will comply with Federal and State pesticide laws.

We are not aware of any adverse effects to burrowing owls as a result of existing farming and irrigation systems on the Covered Lands. The Applicant is not proposing to expand the current irrigation capacity/diversion capacity, and the operation of irrigation facilities does not cause additional impacts to the burrowing owl. Maintenance and relocation work, if any, is subject to the pre-survey and avoidance requirements in the TUMSHCP, and prior to TRC relocating water diversions, the Service would review and approve the proposed new locations. Therefore, we do not anticipate any adverse effects on burrowing owls from irrigation/water diversion as covered activities under the TUMSHCP.

Roads/Trails

A network of generally unpaved roads exists in the action area as access for fire protection, security, ranching activities, and hunting. As described in the TUMSHCP, the roads outside the

development areas would be maintained, relocated, or new roads could be constructed, in compliance with the 200-acre limit on disturbance by Planwide Activities, to facilitate the Planwide Activities. Road/trail use is expected to be irregular and of low intensity, but road use could result in flushing or otherwise altering feeding, breeding or sheltering behavior, or injury or death from collisions. However, given the infrequent occurrence of burrowing owls in the action area and the irregular/low intensity of road use in association with Planwide Activities, the potential adverse effects of road and trail use associated with Planwide Activities would be uncommon.

Any new ranch roads could adversely affect burrows. However, any road construction activities are likely to be related to road repair and minor realignment. In addition, any new or relocated roads would be sited to avoid impacts to sensitive resources, including nesting birds. BMPs for the design and installation of roads include surveys prior to grading, contractor education, staking and temporary construction fencing. Construction areas would be surveyed 30 days prior to construction to avoid impacts to sensitive resources including burrowing owl habitat (see TUMSHCP 7.1.1.2.3). If active nests are detected during surveys prior to construction, a 300-foot setback would be established around each active nest and grading and land-altering activities would be prohibited as long as the nest is active. The 300-foot setback may be reduced at the discretion of the TRC biologist depending on site conditions (i.e., the presence of topographic features that would serve as buffers within 300 feet of the nest burrow). Nest burrows that become active within designated construction zones after initiation of construction would be avoided (i.e., active nests would not be directly disturbed), and an appropriate setback would be provided in accordance with CDFG's *Staff Report on Burrowing Owl Mitigation* (CDFG 2012a). The Applicant would conduct surveys for burrowing owls 30 days prior to the start of construction. If inactive burrows are found in construction areas, they would be crushed after alternative burrow sites have been provided in accordance with CDFG's *Staff Report on Burrowing Owl Mitigation* (CDFG 2012a) to avoid crushing or entombing burrowing owls that may use such burrows in the future. Therefore, we expect that impacts of maintenance, relocation or construction of roads or trails (associated with Planwide Activities) to nesting burrowing owls, if such nesting were to occur, would be avoided, and that any impacts of these activities to non-breeding burrowing owls would be negligible.

The direct and indirect effects of roads as a result of residential and commercial development are addressed below under Commercial and Residential Development Activities.

Utilities

The action area contains, or would contain, various small utilities to support ranch activities. As described in Section 2.2.1 of the TUMSHCP, these utilities would be *de minimis* or would be located in previously disturbed areas (e.g., undergrounding utilities in road rights-of-way). Any utilities associated with Planwide Activities that are not *de minimis* or cannot be located in previously disturbed areas would require Service review and approval prior to relocation or construction. No new transmission towers or above ground powerlines will be built within the

TMV Planning Area Open Space under the TUMSHCP or elsewhere within the Covered Lands under the TUMSHCP.

In general, we expect utilities to have a negligible impact on the burrowing owl, because utility posts and towers have small footprints, the utilities affect a very small percentage of the action area, the occurrence of burrowing owls detected on the Covered Lands during surveys is extremely limited, breeding has not been documented on the Covered Lands, and the Applicant's proposal to survey project areas and apply avoidance buffers if burrowing owls are present should minimize the potential for adverse impacts to burrowing owls by utilities.

Potential impacts by utilities associated with the proposed development are included in the discussion of effects of Commercial and Residential Development Activities below.

Backcountry Cabins

Eight backcountry cabins occur in the action area and could be maintained, improved, repaired, replaced, or reconstructed in their existing location. One of the cabins is within modeled suitable habitat for the burrowing owl. Human use of the cabin should not cause meaningful new habitat disturbance. While we expect human use of the cabin could occasionally impact burrowing owls (if owls forage or nest in close proximity to the cabin), the effects of backcountry cabins would be largely subsumed within the effects identified for recreation.

The Applicant would also be permitted to relocate existing cabins subject to certain restrictions. Under the Interim RWMP, all new or relocated cabins first are subject to a site evaluation to avoid impacts to sensitive natural resources. In addition, TRC would not relocate an existing cabin unless the Service has first reviewed the proposed relocation and determined that the relocation is consistent with the TUMSHCP, the Act, and any applicable recorded conservation easement restrictions, and provided that none of the six cabins currently located outside of the Condor Study Area are relocated to the Condor Study Area. These measures would ensure that the new cabin location is compatible with the conservation of the burrowing owl. The total impact area of the existing cabin (plus the fuel management buffer) within modeled habitat is approximately 1 acre and we expect cabins and human use associated with cabins to have a negligible impact on the burrowing owl in the action area and range-wide.

Fencing

Fences exist throughout the action area. Fences would be maintained and new fencing could be constructed and maintained as required to support the Covered Activities, including exclusion of cattle from sensitive habitats that could support the burrowing owl. The Applicant proposes measures to avoid fencing-related impacts to sensitive resources, including minimizing associated disturbance footprints, conducting surveys prior to construction, conducting contractor education/resource awareness training, and installing staking and temporary construction fencing to avoid disturbing sensitive areas. Under the TUMSHCP, the Applicant must submit grazing management plans to the Service every 5 years for review and approval.

Our review of such plans would allow for the implementation of additional measures or modification of fencing practices to maintain suitable habitat for the western burrowing owl. For these reasons, we expect fencing in the action area to have negligible impacts on the burrowing owl.

Lebec/Existing Headquarters Area Uses

Existing activity in the Lebec/Existing Headquarters Area (i.e., corporate headquarters buildings, an antique shop, a post office, a church, and several single-family residences for ranch employees) would continue to occur. While additional development could occur here under the TUMSHCP, TRC has not included development plans for this area in the project description. The ongoing activities associated with this area may affect the burrowing owl, because small amounts of modeled suitable habitat for the species occur in this area. Due to the nature of the activities occurring in this area, the impacts to the burrowing owl would be largely subsumed within the effects identified for recreation and roads. Because the activities occur at such a small scale relative to the amount of modeled habitat in the action area, the effects on the burrowing owl in the action area would be minor, and the effects would be negligible rangewide. Potential development related impacts in the Lebec/Existing Headquarters Area are addressed below under Commercial and Residential Development Activities.

Mitigation, Monitoring, and Management

Mitigation, monitoring, and management activities to carry out identified biological goals and objectives for the California condor or other Covered Species included in the TUMSHCP or other resource agency permits for the commercial and residential Covered Activities, as well as mitigation, monitoring, and management activities imposed pursuant to any local, State, or Federal approval of development on Tejon Ranch would be carried out in accordance with the Act and would be subject to Service review. We acknowledge that other agencies may credit TRC for mitigation and protective measures included in the TUMSHCP for mitigation imposed by such other agencies. Any restoration, enhancement, or similar mitigation activities would not be allowed if they would result in unpermitted adverse effects to species or critical habitat under the Act. Additionally, any mitigation activities for other agencies would be subject to the protective measures included in Tables 1 and 2, in the Description of the Proposed Action section of this biological opinion. Therefore, we anticipate that any potential threats to the burrowing owl as a result of mitigation, monitoring, and management activities would be effectively minimized.

Estimate of Disturbance by Planwide Activities

The Applicant proposes a maximum of 200 acres of permanent ground disturbance associated with the Planwide Activities described above. Ground disturbance would occur outside of the proposed development (discussed below). If the Applicant restores a portion of this disturbance, an area equal in size may then be disturbed. Thus, no more than 200 acres may exist in a

developed condition because of Planwide Activities at one time. Ground disturbance would primarily be associated with construction of roads, backcountry cabins, and ancillary structures.

For the purposes of this effects analysis, we assume that all parts of the action area that could be affected by Planwide Activities have an equal chance of being affected and that all habitat types would be affected in equal proportion. This assumption is based upon the Applicant's inability to predict exactly where 200 acres of habitat disturbance due to Planwide Activities would occur. In addition, there is no indication that the distribution or location of burrowing owl modeled habitat would cause Planwide Activities to disproportionately occur in burrowing owl modeled habitat.

For the purposes of estimating species-specific habitat disturbance by Planwide Activities, we are not using the 8,817-acre development envelope used by the Applicant to estimate impacts from development (TUMSHCP Table 2-1, footnote 4), but rather we are using the 5,533-acre area that actually could be developed within the development footprint. We did this, because after the 5,533-acre development footprint is developed, 3,284 acres of the 8,817-acre development envelope would remain and be subject to Planwide Activities, and modeled habitat for the burrowing owl could occur in the 3,284 acres. Therefore, we included 3,284 acres of the development envelope in this analysis to acquire an estimate of habitat lost by Planwide Activities that is as accurate as possible. When we combine this estimate with anticipated habitat loss from Commercial and Residential Development Activities in a summary effects analysis (discussed below), we will have slightly double-counted and overestimated the amount of burrowing owl habitat that would be lost in the action area. This slight overestimation of lost habitat does not compromise our analysis, because the overlap is very small relative to the size of the action area, and this approach ensures that potential species impacts are fully considered by analyzing a larger impact than would actually occur.

Adding together the acres of commercial and residential development, National Cement and La Liebre Mines, the VA Cemetery, and Not-A-Part lands (blocks of land within the boundary of the action area but not owned by the Applicant), a total of 12,423 acres within the exterior boundaries of the plan area are not subject to Planwide Activities. We expect that Planwide Activities could occur on the remaining 129,463 acres of the action area (141,886 acres within the action area minus the 12,423 acres of excluded areas above). Therefore, the ratio of disturbance due to Planwide Activities (200 acres) to Covered Lands subject to Planwide Activities (129,463) equals 0.0015. We applied this ratio to burrowing owl habitat outside the excluded areas but in the action area and rounded the remainder up to a whole acre. Thus, 24,944 acres of modeled primary habitat minus 2,485 acres lost to development equals 22,459 acres of modeled primary habitat subject to Planwide Activities; and 8,073 acres of modeled secondary habitat minus 552 acres lost to development equals 7,521 acres of modeled secondary habitat subject to Planwide Activities. Using our ratio of 0.0015, we anticipate that Planwide Activities would disturb or remove approximately 46 acres (34 acres of modeled primary habitat and 12 acres of modeled secondary habitat) of modeled suitable habitat for the burrowing owl over the permit duration, or just over one-tenth of 1 percent of the 29,980 acres of modeled suitable habitat in the action area (excluding modeled habitat in development areas). This could

be an overestimate because the Applicant is proposing various measures to avoid and minimize disturbance to burrowing owl habitat (see Table 2 of this biological opinion).

Thus, while there could be a very small loss of western burrowing owl modeled suitable habitat and minor indirect effects to the species (e.g., from recreation, noise, etc.) due to Planwide Activities, in comparison to the modeled suitable habitat conserved, we conclude that the loss would have a minimal effect on the subspecies.

Commercial and Residential Development Activities

Direct Effects

The proposed residential and commercial development would permanently remove 3,037 acres (9 percent) of modeled habitat [2,485 acres (10 percent) of primary habitat and 552 acres (7 percent) of secondary habitat] for the burrowing owl. This habitat loss includes any modeled habitat for the burrowing owl lost as a result of development activities in the Lebec/Existing Headquarters Area. Implementation of the proposed conservation measures would result in conservation of 22,406 acres (90 percent) of modeled breeding/foraging habitat and 7,521 acres (93 percent) of modeled secondary breeding/foraging habitat for this species within Covered Lands.

The Applicant proposes to survey development areas 30 days prior to scheduled construction activity in suitable habitat to determine if burrowing owls are present on site and, if present, determine their breeding status. If non-nesting burrowing owls are observed on site, construction work would proceed after owls are evacuated from the site using a CDFG-approved burrow closure procedure and after alternative burrow sites have been provided in accordance with the CDFG *Staff Report on Burrowing Owl Mitigation* (CDFG 2012a). If nesting burrowing owls are observed on site, construction work within 300 feet of active nest burrows would be delayed until fledglings have left or are independent of the nest, as determined by the Service-approved Tejon Ranch Staff Biologist. The Service-approved TRC Biologist may reduce the 300-foot setback at his or her discretion depending on the suitability of site conditions. Nests that become active within designated construction zones after initiation of construction would be avoided (i.e., active nests would not be directly disturbed, and an appropriate setback would be provided in accordance with CDFG's *Staff Report on Burrowing Owl Mitigation* (CDFG 2012a)). These measures would ensure that effects to burrowing owls are avoided during development activities.

Using the previously-described 600-acre estimated home range size of this species (Haug and Oliphant 1990), which, as discussed in the Environmental Baseline section of this biological opinion, is conservative in the context of the existing condition (i.e., primarily non-irrigated grasslands) of modeled suitable habitat on the Covered Lands, and assuming saturation of all modeled suitable habitat and a uniform distribution, the loss of 3,037 acres of modeled breeding/foraging habitat would amount to a potential loss of habitat supporting up to five pairs of burrowing owls due to development activities. However, because it is very unlikely that all modeled suitable habitat is occupied by this species, and the TUMSHCP proposes pre-

construction surveys, CDFG-approved burrow closure methods for non-nesting individuals, avoidance of active nest burrows in project disturbance zones, and setbacks from nests established in proximity to project disturbance zones, we conclude that the number of individuals that could be affected by the permanent loss of 3,037 acres of modeled suitable habitat in development areas would be significantly fewer.

Two existing above-ground powerlines in the TMV Planning Area may be relocated within 1,000 feet of their existing locations, and one existing power line would be temporarily relocated and then permanently relocated underground. Burrowing owls could be injured or killed if occupied burrows were inadvertently crushed or filled during the relocation of powerlines and support structures. If active nests are detected during surveys conducted 30 days prior to relocation of two above ground power lines and the undergrounding of one existing powerline, a 300-foot setback would be established around each active nest and grading and land-altering activities would be prohibited as long as the nest is active. The 300-foot setback may be reduced at the discretion of the Service-approved TRC biologist depending on site conditions (i.e., the presence of topographic features that would serve as buffers within 300 feet of the nest burrow). Nests that become active within designated construction zones after initiation of construction would be avoided (i.e., active nests would not be directly disturbed), and an appropriate setback would be provided in accordance with CDFG's *Staff Report on Burrowing Owl Mitigation* (CDFG 2012a). TRC would conduct surveys for burrowing owls 30 days prior to the start of construction. If inactive burrows are found in construction areas, they would be crushed after alternative burrow sites have been provided in accordance with CDFG's *Staff Report on Burrowing Owl Mitigation* (CDFG 2012a) to avoid crushing or entombing burrowing owls that may use such burrows in the future. Lastly, based on the limited use of the Covered Lands by burrowing owls, we also anticipate a low potential for collision or electrocution associated with existing or relocated powerlines. We anticipate that any impacts to burrowing owls as a result of powerline relocation would be negligible.

Grading and construction under the TUMSHCP would avoid any active burrowing owl nesting sites during the breeding season, and we do not expect direct effects on individual burrowing owls. The 3,037 acres of modeled suitable habitat that would be lost from the proposed Commercial and Residential Development Activities represents less than 10 percent of available modeled suitable habitat within the action area, and the majority of modeled suitable habitat for the species is outside the TMV Planning Area. Given that only a single burrowing owl has been documented on the Covered Lands, and the extent of available modeled suitable habitat outside the proposed development areas, we expect that any burrowing owls that could have otherwise nested or foraged in areas where habitat would be lost from development activities will readily find and utilize other suitable unoccupied habitat for breeding or foraging within the Covered Lands. Therefore, we do not expect this loss of habitat to result in injury or mortality of western burrowing owls, nor would it reduce the ability of the action area to support breeding, foraging, or migrating burrowing owls.

Indirect Effects

Development-related indirect impacts to burrowing owls and modeled suitable habitat could occur where modeled habitat is near developed areas. Developed areas would have increased lighting and noise that may disturb individual burrowing owls or increase predation risk. Under the TUMSHCP, lighting would be directed away from sensitive habitats to reduce this effect. In addition, the vast majority of modeled suitable burrowing owl habitat within the Covered Lands is outside the proposed development areas; therefore, we expect these effects to be negligible to the burrowing owl.

Recreational activities allowed within TMV Planning Area Open Space are limited to passive recreation as described above under Planwide Activities. Even so, in the SDEIS for the TUMSHCP, we estimated that the TUMSHCP would increase the human population of the TMV Planning Area by 11,441 people. We expect the recreational activities of future residents of the TMV Planning Area cause a higher level of disturbance and impacts in this area than in other parts of the action area that are more remote. If recreation occurs in occupied habitat it could potentially alter burrowing owl behavior, including feeding, breeding, or sheltering activities. To minimize impacts of recreation, TRC would provide Home Owners' Association(s) with educational information regarding acceptable activities in open space areas, including recreational activities and pet restrictions. In addition, the Applicant would require that recreation in the TMV Planning Area and throughout the open space use existing roads and trails where possible, and be conducted in a manner that would avoid adverse impacts to the Covered Species and their habitats or result in less-than-significant impacts. However, despite the environmental education and other measures proposed by the Applicant (Table 2 of this biological opinion; Sections 2.2.1 and 7.1.1.2.3 of the TUMSHCP), residents, TRC employees, and others using the action area could recreate in or near burrowing owl modeled habitat either because of apathy or unfamiliarity with sensitive species and habitats. Such use could potentially alter burrowing owl behavior, including feeding, breeding, or sheltering activities. That said, we expect these impacts to be minor and to occur infrequently, because the burrowing owl likely occurs in very low numbers in the action area, it likely occurs at very low density, the majority of burrowing owl modeled habitat occurs outside development areas, disturbance at nest and roost sites is not known to be a substantial threat to the subspecies (Klute et al. 2003), and the Applicant proposed measures to avoid impacts to the species (Table 2 of this biological opinion; TUMSHCP Section 7.1.1.2.3).

To further minimize potential effects, recreational activities would be subject to the Public Access Plan to be reviewed and approved by the Service in perpetuity and approved conservation easements or other appropriately restricted conveyances over those lands. These measures would ensure that allowed recreational activities are conducted in a manner that avoids direct injury or mortality and minimizes potential impacts to the burrowing owl.

New utilities to support development would be undergrounded, except that the two communication towers described under "Communication Towers" in the Description of the Proposed Action section above (also on page 4-52 and elsewhere in Section 4 of the TUMSHCP)

would be installed above ground. Once underground, new utilities would not cause ongoing impacts. The two proposed communication towers pose a limited collision risk for burrowing owls, as the towers would be within modeled suitable habitat for the species. However, the towers would occupy a very small fraction of the action area, and would include design restrictions identified by the Service to minimize the potential for collisions. These restrictions must be reviewed and approved by the Service and require that (1) the towers be self-supporting (i.e., no guide wires shall be included as part of the design); and (2) the tower facades will be primarily solid (e.g., through use of panels or other sidings, wider or denser lattice work, or alternative tower solutions as approved by the Service) to increase their visibility. Little information is available regarding the likelihood or incidence of burrowing owls colliding with stationary structures. In the course of compiling a 2003 range-wide status assessment and conservation plan for the burrowing owl, the authors noted that no mortality due to collisions with communication towers had been documented (Klute et al. 2003), and we are not aware of any recent information documenting collision with communication towers or other stationary objects as a threat to the subspecies. Therefore, we determined that the risk of burrowing owls colliding with the proposed communication towers is negligible.

The Applicant proposes to clear and thin vegetation within 200 feet of the proposed development, creating an up to 1,773-acre fuel modification zone. The estimated areal extent in which fuel modification may affect the burrowing owl is generally included in the 3,037 acres of modeled habitat estimated to be lost within the 8,817-acre development envelope. The expected intensity of disturbance associated with these activities alone would not preclude burrowing owls from using modeled habitat near this area; however, the ongoing maintenance of this area, whether by grazing or mechanized means, could cause burrowing owls to temporarily avoid suitable habitat. We do not expect this to cause measurable adverse effects on the burrowing owl due to the low likelihood of occurrence of the species in the proposed development areas and the extent of modeled suitable habitat that exists outside the development areas. In addition, the applicant's commitment to survey for nesting burrowing owls prior to any non-grazing fuel modification activities during the breeding season, and map and avoid any active nests (see Table 2 of this biological opinion), would prevent impacts to breeding burrowing owls. Therefore, we expect adverse effects from fuel management practices associated with the proposed development activities to be negligible.

Roads and trails receiving the most use would be located in the TMV Planning Area. Under the TUMSHCP, we expect road use in the development areas to be typical of residential/ commercial areas. In the SDEIS for the TUMSHCP, we estimated that the TUMSHCP would increase the human population of the action area by 11,441 people resulting in 79,514 additional vehicle trips per day. We expect most of these vehicle trips to occur near the commercial areas, and the number of vehicle trips would decrease with distance from Interstate 5. Nonetheless, use of roads in the development areas would increase substantially over baseline conditions and could adversely affect burrowing owls if they occur near roads in the action area. Noise and human/vehicle presence associated with frequent road use could flush burrowing owls from nests or occupied habitat exposing them to higher predation risk and increased energy expenditure. Burrowing owls may be susceptible to collisions with vehicles because burrowing owls often fly

low to the ground (Klute et al. 2003), and collisions with vehicles have been cited as a significant source of mortality by several researchers (Haug et al. 1993). Therefore, the increased prevalence and use of roads in the TMV Planning Area could, result in injury or death of burrowing owls if collisions with vehicles occur. However, access to the open space will continue to be controlled by the Public Access Plan and is not anticipated to increase significantly in the open space areas.

In general, the likelihood of impacts from roads is low, because the species likely only occupies the action area briefly during winter and at low density. However, road construction and maintenance could destroy burrowing owl habitat or disturb resident individuals if they occur in the action area. Noise and human/vehicle presence associated with frequent road use could preclude individuals from using nearby suitable habitat or flush burrowing owls from suitable habitat exposing them to higher predation risk and increased energy expenditure. Motorized vehicles could potentially injure or kill burrowing owls if collisions occur.

To minimize adverse effects of roads, the Applicant would require that surveys be conducted prior to grading; new roads/trails avoid impacts to sensitive resources and do not significantly impair the conservation value of the affected land; and vehicles, hikers, etc., remain on established roads and trails. In addition, the species likely only occupies the action area briefly during winter and at low density, and the majority of modeled habitat is outside the TMV Planning Area; therefore, collisions and other road-related impacts are expected to be rare, but recurring.

TUMSHCP Mitigation

The Applicant proposes to preserve in perpetuity virtually all of the action area outside the development envelope, including 29,927 acres of modeled suitable habitat for the burrowing owl. The Applicant would maintain the preserved land in its current condition, thus maintaining its current capacity to support burrowing owls. The proposed conservation of more than 90 percent of modeled suitable habitat for the burrowing owl is consistent with conservation biology principles calling for large, interconnected blocks of habitat that support a given species' life history requirements. The conservation of the Mitigation Lands would benefit the burrowing owl by permanently securing them from future habitat loss in the action area and maintaining a large area of burrowing owl habitat.

Summary of Effects

In determining whether a proposed action is likely to jeopardize the continued existence of a species, we consider the effects of the action with respect to the reproduction, numbers, and distribution of the species. We also consider the effects of the action on the recovery of the species. In that context, the following paragraph(s) summarize(s) the effects of the proposed TUMSHCP on the burrowing owl.

The Planwide Activities and the Commercial and Residential Development Activities could have some effect on the western burrowing owl. As stated above, TRC estimates that up to 3,037 acres of modeled suitable habitat could be lost due to development, and we have calculated that in the remainder of the action area Planwide Activities could affect an additional 46 acres of modeled suitable habitat for the burrowing owl, for a total of 3,083 acres of lost modeled suitable habitat for the subspecies. In addition, Planwide Activities and the indirect effects of development, including roads, could result in impacts to the burrowing owl. These potential impacts include flushing of individuals or otherwise altering feeding, breeding, or sheltering behavior (which could result in increased energy expenditure, avoidance of suitable habitat, and increased predation risk), and injury or death from collisions with vehicles. Burrowing owls may be more susceptible to collisions with vehicles than many other avian species, because burrowing owls typically fly low to the ground during foraging flights (Klute et al. 2003). Collisions with vehicles have been cited as a significant source of mortality by several researchers (Haug et al. 1993). Therefore, the increased prevalence and use of roads in the action area could result in injury or death of burrowing owls if collisions with vehicles occur.

As described in the effects analyses above, because the subspecies likely occurs on the Covered Lands only during winter and at a low density (an estimated up to 50 pairs post-development), and the TUMSHCP incorporates several measures to avoid direct and indirect impacts to burrowing owls from Covered Activities, we expect these impacts to occur rarely and have generally minor effects on the species in the action area. Specifically, because the burrowing owl has been detected on the Covered Lands, but is likely to occur at low densities, and because of the increased human presence leading to increased vehicular use of roads, we expect a very small number of burrowing owls could be injured or killed. However, conserved modeled suitable habitat on the Covered Lands has a large carrying capacity for burrowing owls and the potential injury or mortality of a very small number of individual burrowing owls would not appreciably reduce the reproduction, numbers, or distribution of the species.

Under the TUMSHCP, 29,927 acres, the vast majority (approximately 90 percent) of the modeled suitable habitat on the Covered Lands, would be permanently conserved (22,406 acres (90 percent) of modeled breeding/foraging habitat and 7,521 acres (93 percent) of modeled secondary breeding/foraging habitat). In addition, the TUMSHCP includes measures to avoid take and to minimize the effects of Planwide Activities and Commercial and Residential Development Activities related impacts to the burrowing owl, including lighting, noise, utilities, recreation, and road impacts (see Table 2 of this biological opinion; TUMSHCP Section 7.1.1.2.3). With the combination of avoidance and minimization proposed by TRC to reduce the effects of both Planwide Activities and Commercial and Residential Development Activities, and the conservation of almost all of the modeled suitable habitat on the Covered Lands to mitigate for unavoidable impacts, we find that the Covered Activities would not appreciably reduce the range-wide reproduction, numbers, or distribution of the burrowing owl.

Recovery

The burrowing owl is not a listed species, and the Service does not prepare recovery plans for

non-listed species. Therefore, there are no recovery criteria with which to compare the current and future status of the species. In the absence of a recovery plan, we default to the general conservation of the species, and recovery would focus on determining the species' distribution and the conservation of much of the remaining habitat that supports the species. In general terms, where suitable habitat exists, it should be conserved and, where possible, degraded habitat should be restored.

The proposed action would result in minor adverse effects and a small amount of potential injury or mortality to the species within the action area but would not appreciably affect the reproduction, numbers, or distribution of the western burrowing owl, or the burrowing owl rangewide. The proposed action would also result in the permanent conservation of over 90 percent of suitable modeled habitat for the subspecies within the action area, which would have long-term, stabilizing benefits to the western burrowing owl by securing a portion of the subspecies' range from future habitat loss, thus addressing a primary reason for the species' decline.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section, because they require separate consultation pursuant to section 7 of the Act.

Hunting

Private and commercial hunting operations occur on Tejon Ranch, including the action area; however, hunting is not an activity covered by the TUMSHCP. The Applicant proposes to continue hunting operations throughout the ranch during the proposed permit term. The Applicant proposes to manage the hunting program to avoid take of any federally protected species. Hunting in the TMV Planning Area would be limited to guided hunts. Hunting activities involve travel on existing paved and unpaved roads, overnight use of backcountry cabins, hiking, discharging hunting weapons, etc. The effects from hunting will generally be consistent with, and to a considerable extent are captured in, the descriptions of effects for Roads/Trails, Backcountry Cabins, and Recreation described above. Therefore, we expect that hunting in the action area will have negligible cumulative effects on the burrowing owl.

Mining

Two commercial mining operations occur in the action area, La Liebre and National Cement; these mining operations are not Covered Activities under the TUMSHCP. The total area used for the two operations is about 2,636 acres, and the Applicant would maintain the mining leases through the proposed permit term. The burrowing owl is not known to occur in proximity to the mines, although modeled suitable habitat for the species does exist adjacent to both mining sites. In addition, 442.9 acres of modeled suitable habitat exists in the mining areas, although much of

the modeled habitat in the mining areas is already disturbed. On occasion, earthmoving, moving vehicles, and other mining activities could disturb, injure, or kill burrowing owls, if any were to occur in suitable habitat there; however, the effects of mining on the burrowing owl would likely be localized to the periphery of the mining areas where habitat is less disturbed. Any use of chemicals in mining must be in conformance with Federal, State, and local laws. In addition, the effects of mining occur in a small area relative to the amount of modeled suitable habitat in the action area. Therefore, we expect that continued mining in the action area will have negligible cumulative effects on the burrowing owl.

Other Activities

As discussed above under project description, within the external boundaries of the action area, there are existing inholdings and, utilities. The Bakersfield National Cemetery also occurs inside the action area. These projects and activities are not Covered Activities under the TUMSHCP. We are not aware of any reasonably foreseeable activities within the 3,870 acres of inholdings that may affect the burrowing owl. Activities associated with existing utilities, transmission lines, and related structures, such as maintenance activities, would be restricted to currently established easement areas and would have minor, if any, effects on the burrowing owl. Therefore we do not anticipate any cumulative effects from the ongoing maintenance and operation of non-covered existing utilities. The Bakersfield National Cemetery is in place, and we are not aware of any activities associated with the cemetery that may have an adverse effect on the burrowing owl.

CONCLUSION

After reviewing (1) the current status of the western burrowing owl; (2) the environmental baseline for this subspecies in the action area; (3) the effects of the proposed action; and (4) the cumulative effects, it is our biological opinion that the Service's issuance of the proposed incidental take permit is not likely to jeopardize the continued existence of the burrowing owl. We reached this conclusion because:

1. Although 3,083 acres of modeled suitable habitat would be permanently lost and a small number of individuals could be injured or killed annually as a result of the Covered Activities (specifically, accidental vehicle collisions), the western burrowing owl occupies a large geographic range, of which the action area is a small fraction. The proposed Covered Activities would affect a tiny portion of the species and its range and would not appreciably reduce the range-wide reproduction, numbers, or distribution of the species.

2. The vast majority of the action area, including the vast majority of suitable burrowing owl habitat (90 percent primary and 93 percent secondary habitat) would be preserved in perpetuity, reducing the amount of western burrowing owl habitat that can be lost in the future. We expect this to have long-term, stabilizing benefits to the burrowing owl and its remaining habitat.

3. The current condition, and expected future condition, of the action area is maintained primarily by grazing livestock. Studies suggest that burrowing owls tend to prefer grasslands that are grazed (James and Seabloom 1968, Butts 1973, Wedgwood 1976, MacCracken et al. 1985, Bock et al. 1993).

4. The Applicant will implement protective measures as part of the proposed activities (e.g., surveying development areas prior to construction and establishing buffer or setback zones) that will avoid or reduce impacts to the burrowing owl.

5. Where the modeled suitable habitat overlaps with proposed activities, TRC proposes to conduct pre-activity surveys and carry out the action while avoiding any discovered breeding occurrences of the burrowing owl until such times as nesting burrows are no longer active.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The proposed TUMSHCP and its associated documents identify anticipated impacts to the western burrowing owl likely to result from the proposed taking and the measures that are necessary and appropriate to minimize those impacts. All conservation measures described in the proposed TUMSHCP, together with the terms and conditions described in the associated Implementing Agreement and any section 10(a)(1)(B) permit issued with respect to the proposed TUMSHCP, are hereby incorporated by reference as reasonable and prudent measures and terms and conditions within this Incidental Take Statement pursuant to 50 CFR §402.14(i). Such terms and conditions are non-discretionary and must be undertaken for the exemptions under section 10(a)(1)(B) and section 7(o)(2) of the Act to apply. If the permittee fails to adhere to these terms and conditions, the protective coverage of the section 10(a)(1)(B) permit and section 7(o)(2) may lapse. The amount or extent of incidental take anticipated under the proposed TUMSHCP,

associated reporting requirements, and provisions for disposition of dead or injured animals are as described in the TUMSHCP and its accompanying section 10(a)(1)(B) permit.

Amount or Extent of Take

The Service anticipates incidental take of the burrowing owl will be difficult to detect, because the action area is large, the species' occurrence is low and sporadic, finding a dead or impaired specimen is unlikely, and we expect direct effects to individuals to be rare. The Service anticipates that direct injury or mortality could result from vehicle collisions, but does not anticipate direct injury or mortality from habitat modification. Documenting take by harassment or harm will be nearly impossible. To anticipate and describe the indirect effects of habitat loss, we use available modeled habitat as a surrogate for burrowing owl presence in the action area. There is extensive foraging habitat in the action area that could support more burrowing owls than previously detected.

The Covered Activities in the action area would result in the loss of a total of 2,519 acres of modeled primary habitat (2,485 acres due to Commercial and Residential Development Activities and 34 acres due to Planwide Activities). We do not anticipate take of the burrowing owl as a result of modeled primary habitat loss, because burrowing owls are not known to breed on the Covered Lands, the Applicant has proposed survey and avoidance measures that will preclude impacts during the breeding season should any burrowing owls breed there in the future, and the Covered Lands include extensive areas of suitable modeled primary habitat that would be permanently conserved and that burrowing owls could readily find and utilize.

The Commercial and Residential Development Activities and Planwide Activities would cause the loss of 564 acres of modeled secondary habitat, approximately 7 percent of the modeled secondary habitat in the action area. While this habitat loss would limit the number of transient or migrant burrowing owls that potentially could be supported in the action area, only one migrant burrowing owl has been documented on the Covered Lands, we do not expect direct effects to individuals, the Applicant has proposed survey and avoidance measures that will preclude impacts during the breeding season should any burrowing owls breed there in the future, and a large amount of modeled secondary habitat would remain available for the species throughout the action area. With this level of preservation within a large, unfragmented open space system, adequate modeled breeding/foraging habitat would be conserved in Covered Lands to support the small (likely wintering) population of the burrowing owl that could use the site in the future. Therefore, we do not expect take of burrowing owls to result from the loss of modeled secondary habitat.

As discussed in the Effects of the Action portion of this biological opinion, we expect the Planwide Activities, including road/trail use, and the indirect effects of proposed development activities, including roads, could result in adverse effects on the burrowing owl. These potential impacts include flushing of individuals or otherwise altering feeding, breeding, or sheltering behavior (which could result in increased energy expenditure, avoidance of suitable habitat, and increased predation risk), and injury or death from collisions with vehicles. As also described in

the effects analyses above, we expect these impacts to occur rarely and have overall minor effects on the species in the action area.

As stated above, we anticipate ongoing indirect effects associated with development, and effects of Planwide Activities, during the permit term. Examples include harm, injury, or mortality from collisions with vehicles due to the fact that burrowing owls are relatively low-flying raptors, and because they often forage in open fields adjacent to roadways. Given that a migrant owl was observed on site and conserved areas are estimated to be able to support approximately 50 pairs of the species, and given that road-related mortality of this species has been documented, we expect an average of three burrowing owls (3 percent of the estimated population within modeled habitat) per year would be harassed, harmed, injured, or killed as a result of the effects associated with Planwide Activities or the indirect effects of development. Although these incidents will be extremely difficult to witness due to the remote nature of most of the Covered Lands, the irregular nature of most Planwide Activities, the species' cryptic coloration, and the seasonal nature of the species' biology, vehicle collisions with this species have been documented; therefore, two burrowing owls observed taken annually would serve as a surrogate indicator that the Service's anticipated level of take has been reached.

Effect of the Take

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the burrowing owl.

REASONABLE AND PRUDENT MEASURES / TERMS AND CONDITIONS

The measures described in the TUMSHCP, associated documents and the Section 10(a)(1)(B) permit will effectively minimize the effects of any potential take of the burrowing owl under the permit. Consequently, we are not including additional non-discretionary reasonable and prudent measures and implementing terms and conditions in this incidental take statement.

LITTLE WILLOW FLYCATCHER

STATUS OF THE SPECIES

Regulatory History

The little willow flycatcher is not federally listed under the ESA; however, the subspecies is protected under the Federal MBTA (16 U.S.C. 703–712). The full species of willow flycatcher (*Empidonax traillii*), including the little willow flycatcher, was listed as State endangered by CDFG in 1991. Because the little willow flycatcher is not federally listed, it does not have designated critical habitat.

Natural History/Habitat Requirements

The willow flycatcher is a member of the family Tyrannidae and is one of 11 flycatchers in the genus *Empidonax*. The little willow flycatcher is one of four subspecies of *Empidonax trailii*. The distinguishing features among the four subspecies of *Empidonax* are subtle and include differences in color, morphology, habitat use, and breeding range (Service 2002). Positive identification of *Empidonax* subspecies can be difficult and are largely determined by the timing of the observation. In general, the little willow flycatcher will not be observed in southwestern willow flycatcher breeding habitat between late June and late July (Sogge et al. 1997).

In California, habitat descriptions for little willow flycatchers in the central and southern Sierra Nevada region emphasize riparian, willow-dominated vegetation (Grinnell and Miller 1944; Gaines 1988). Habitat use in these regions typically includes moist meadows with perennial streams and smaller spring-fed or boggy areas with willow or alder (*Alnus* spp.) (Craig and Williams 1998). In Washington and Oregon, Craig and Williams (1998) described little willow flycatcher habitat to include deciduous growth around the borders of clearings and brushy lowlands; shrubby portions of wooded stream bottoms; willow thickets bordering streamside lakes, woodland edges, young alder forests, and tall brush at the margins of fields; riparian hawthorn thickets; the shrub strata of floodplain forests; upland prairie remnants with hawthorn, rose, or *Prunus*; and ninebark thickets at the lower edge of conifer forests. Habitat edge, in the form of openings within thickets of riparian deciduous shrubs, appears to be an important component of little willow flycatcher habitat (Sanders and Flett 1989). Immediate proximity of water is not an absolute requirement (Craig and Williams 1998). Migrant willow flycatchers may occur in a wide variety of habitats unsuitable for breeding but critical for productivity and survival (Sogge et al. 1997).

The little willow flycatcher is one of the latest spring migrants in North America and may continue to move north through mid-June (Craig and Williams 1998). Little willow flycatchers are known to return to the same territories across breeding seasons (25 percent to 31 percent return rate) (Craig and Williams 1998). Males arrive in late May to early June, and females arrive about 1 week after the males. Breeding begins around mid-June (Craig and Williams 1998). The first eggs are laid in the third week of June and the first fledglings appear from mid-

July to mid-August (Craig and Williams 1998, Sanders and Flett 1989). Willow flycatchers have a short breeding season of three months or less (Sedgwick 2000).

Two studies in California found little willow flycatcher territories varied from 0.15 to 2.2 acres (Craig and Williams 1998; Sanders and Flett 1989). Fledglings typically range into territories of adjacent pairs, often followed by parents, with little singing or chasing occurring, indicating a general decline of territory defense (Craig and Williams 1998).

Willow flycatchers primarily consume insects, and hymenopterans (ants, wasps, bees) comprise a large portion (over 40 percent) of the diet (Craig and Williams 1998). Willow flycatchers forage by either aerially gleaning (capturing an insect from a substrate while hovering) from trees, shrubs, and herbaceous vegetation, or by waiting on exposed perches for insects to fly by and capturing insects in flight (Ettinger and King 1980; Sanders and Flett 1989).

Distribution and Population Trends

The little willow flycatcher breeds in California from Tulare County north along the western side of the Sierra Nevada and Cascades, extending to the coast in Northern California. It is a rare to locally uncommon summer resident from 1,969 to 8,005 feet amsl, and a common spring (mid-May to early June) and fall (mid-August to early September) migrant at lower elevations throughout the state, exclusive of the north coast (Zeiner et al. 1990b). Most of the remaining breeding populations occur in isolated mountain meadows of the Sierra Nevada and Cascades (Sanders and Flett 1989). The willow flycatcher winters in Mexico, Guatemala, Honduras, Nicaragua, Costa Rica, Colombia, and into South America (Sedgwick 2000).

The little willow flycatcher was once common and widely distributed in California along the length of the Pacific Coast and up to 7,800 feet in the Sierra Nevada (Sedgwick 2000). The subspecies is now considered rare to locally common in mountain meadows in California (Sedgwick 2000). In 1997, 72 little willow flycatchers were noted in McCloud, Siskiyou County, and 42 little willow flycatchers were observed in Warner Creek Valley, Plumas County (Craig and Williams 1998). In 1998, the known breeding territories of the little willow flycatcher included: (1) 23 to 36 territories in Sierra County (Perazzo Meadow/Little Truckee River/Lacey Valley area; (2) five territories observed in 1997 at Red Lake, in Alpine County; and (3) a possible breeding population along the Klamath River Craig and Williams (1998).

Reasons for Decline

The decline of the little willow flycatcher is attributed primarily to the loss, degradation, and fragmentation of suitable breeding riparian habitat, due primarily to urbanization, over-grazing, and agricultural expansion. Grazing changes the abundance, foliage height, and volume of willows; and in southeast Oregon, willow flycatchers were much more abundant in occasionally grazed areas and undisturbed willows (Taylor 1986). Much of the remaining habitat in California is at the geographic and elevation extremes reported for the species (Craig and Williams 1998).

Brood parasitism by brown-headed cowbirds may have also contributed to population reductions; however, the little willow flycatcher appears to be affected less by cowbirds than other subspecies of *Empidonax*, because the subspecies' breeding season is later than that of the cowbird (Craig and Williams 1998).

ENVIRONMENTAL BASELINE

The Applicant conducted protocol-level surveys for the little willow flycatcher in the TMV Planning Area from May through July 2007 (Dudek 2009). Several individuals of the species willow flycatcher (subspecies unknown) were observed foraging adjacent to Castac Lake, near Cuddy Creek, in Beartrap Canyon, in Rising Canyon, and along Grapevine Creek (Dudek 2007b). These individuals were observed during the first two surveys and not during the third survey, and were most likely migrant southwestern or little willow flycatchers. The Applicant also conducted surveys for the little willow flycatcher (and other wildlife) in parts of the action area in 2003 (Impact Sciences, Inc. 2004), 2005 (Jones and Stokes 2006a), and 2011 (Dudek 2011). These survey efforts were not comprehensive of the action area. Individuals of the species willow flycatcher were also observed several times during surveys in 2003 and 2005 (Impact Sciences, Inc. 2004, Jones and Stokes 2006a); however, no willow flycatchers were observed during subsequent visits, and these birds were likely migrants. During surveys in 2011 (Dudek 2011), two willow flycatchers were observed foraging and calling in May and one individual was observed in June. Although this suggests possible breeding behavior, the little willow flycatcher is not known to breed as far south as the action area (Craig and Williams 1998), and these individuals, if they were the little willow flycatcher subspecies, were likely migrants.

The Applicant modeled a total of 986 acres of foraging habitat for the little willow flycatcher in the action area. Modeled suitable foraging habitats include riparian scrub, riparian woodland, oak riparian, riparian/wetland, and desert wash/riparian seeps. The modeled habitat occurs primarily in the south-facing drainages on the southern/southeastern edge of the action area east of the cement plant. There are smaller segments of modeled habitat around Castac Lake; in Bear Trap Canyon; and in the western portion of the action area in Rising Canyon, north of Grapevine Ridge, and adjacent to I-5.

Based on available modeled suitable habitat, positive survey results, and the subspecies' life history, we expect little willow flycatchers to occur regularly in modeled suitable habitat in the action area during migration. We do not expect the subspecies to breed in the action area, because the subspecies' breeding habitat is north of the action area. The little willow flycatcher occurs in the action area during migration, and we expect the number of migrant little willow flycatchers in the action area to vary from year to year. The modeled suitable habitat has been affected by historical and ongoing livestock grazing, and little willow flycatchers will find fewer resources per unit area in lower-quality habitat. Therefore, the action area likely can support fewer little willow flycatchers than undisturbed habitat. In addition, the modeled habitat is

scattered, and some patches may not be large enough to support little willow flycatchers. Therefore, we expect the subspecies to occur at low density in the action area.

It is difficult to estimate the number of little willow flycatchers in the action area, because the species occurs at low density, population numbers will vary from year to year, population numbers will change between seasons in the same year, and we do not have data on density estimates for migratory little willow flycatchers. Therefore, we are using modeled suitable habitat as an index of potential little willow flycatcher presence to anticipate effects of the proposed action.

Recovery

The little willow flycatcher is not listed under the Federal Endangered Species Act, so we have not developed a recovery plan for the species to which we can refer to assess its recovery status. In the absence of a recovery plan, we default to the general conservation of the subspecies. Recovery would focus on determining the subspecies' distribution, conserving much of the remaining habitat that supports the subspecies, and restoring suitable habitat that has been disturbed but otherwise remains undeveloped. The little willow flycatcher has been observed on the Covered Lands, and suitable habitat has been identified that could support the subspecies (986 acres of modeled suitable habitat). Therefore, the Covered Lands may serve a role in the conservation of the little willow flycatcher.

EFFECTS OF THE ACTION

Planwide Activities

Livestock

The Applicant proposes to graze livestock on the balance of the action area outside development areas, consistent with the types and level of historical grazing and ranch management practices. Livestock generally have negative effects on riparian habitat and the native species that rely on that habitat. Because little willow flycatchers do not breed in the action area, we do not expect livestock to directly impact little willow flycatchers. However, livestock could indirectly affect little willow flycatchers by damaging or suppressing vegetation in which little willow flycatchers forage during migration. Continuation of historical grazing practices under the TUMSHCP would maintain the lower-quality, baseline condition of riparian habitat in the action area during the permit term. That said, survey results indicate that, despite many decades of grazing, the action area remains suitable migration stopover habitat. Under the TUMSHCP, the Applicant must submit grazing management plans to the Service every 5 years for review and approval. Our review of such plans will allow for the implementation of additional measures or modification of grazing practices such as the selective use of fencing, which could limit direct livestock interactions with natural water sources and have ancillary benefits for riparian habitats used by the little willow flycatcher, thereby promoting the compatibility of grazing with the

conservation of the little willow flycatcher. Therefore, we do not expect livestock to cause adverse effects to the little willow flycatcher.

Range Management/Ancillary Ranch Structures

Range management activities support livestock operations and consist of construction, operation, and maintenance of watering facilities, feeding areas, fences, and corrals, consistent with the types and level of historical grazing and ranch management practices; repair, reconstruction, and relocation of roads to accommodate historical grazing and ranch management practices; and repair, maintenance, or installation of ranch management communication equipment (e.g., whip antennas) less than 20 feet high. The repair, reconstruction and relocation of roads to accommodate historical grazing and ranch management practices are evaluated below under Roads. Range management also incorporates ancillary ranch structures including squeezes, loading chutes, holding and feeding fields, corrals, branding traps, barns, sewage disposal facilities, livestock and wildlife watering facilities, and utilities serving existing ranch uses.

As described above under Planwide Activities in the Description of the Proposed Action section, *de-minimis* activities associated with ancillary ranch structures would be covered under the TUMSHCP. Non–*de minimis* activities associated with ancillary ranch structures are also allowed (1) if the activity is located in disturbed areas (e.g., undergrounding utilities in road rights-of-way), or (2) following a meet-and-confer process with the Service to ensure that the activity associated with an ancillary ranch structure avoids or adequately minimizes impacts to Covered Species and their habitats.

These activities are subject to the 200-acre disturbance limit, occur at a small scale relative to the size of the action area, and range management facilities already exist in the action area. Workers or equipment, as well as placement of ancillary ranch structures, may create enough noise or disturbance to flush little willow flycatchers from suitable habitat or cause little willow flycatchers to temporarily avoid small areas of suitable habitat. Given the small scale of these activities, the fact that the subspecies occupies the action area only during migration, the irregular nature of range management activities, and the Service's ability to review and approve/deny the Applicant's grazing management plan, which would include protections for riparian areas (TUMSHCP Section 7.2), we expect impacts to little willow flycatchers by range management activities to be rare and negligible.

Fuel Management

Fuel management practices would consist primarily of grazing, and the effects of fuel management by grazing should be largely consistent with the effects of livestock. Other fuel management activities include fuel modification zones created by existing roads, and through irrigation and/or vegetation clearing and mowing within 120 feet surrounding existing structures (i.e., backcountry cabins, ancillary ranch structures, and other existing structures). Mowing may create enough noise to cause little willow flycatchers to temporarily avoid suitable habitat. However, a need for fuel management in riparian areas is unlikely, mowing for fuel management

would occur infrequently/irregularly, and there are no backcountry cabins in little willow flycatcher modeled habitat. Therefore, we do not expect adverse effects from mowing.

Fuel modification associated with proposed development is discussed below under Commercial and Residential Development Activities.

Filming

Filming activities generally consist of temporary on-scene filming and photography-related uses, including, but not limited to the filming and staging of movies, television shows, and commercials; photo shoots; and still photography and related uses. Such activities may include the erection and dismantling of props, temporary installation of trailers and equipment for film crews, filming of on-camera action, catering, rehabilitation of disturbed areas, and the movement of film crews to and from locations.

Film shoots that include explosives or other loud noises could disturb little willow flycatchers that occur in the action area. Explosions (louder than gunshots) or other abnormally loud noises are prohibited throughout the TUMSHCP Mitigation Lands unless the Service-approved Tejon Staff Biologist, in consultation with the Service, determines that no California condors are present, and explosions (louder than gunshots) are strictly prohibited in the Condor Study Area portion of the Covered Lands (see Table 2 of this biological opinion). These restrictions on explosions in the action area would also benefit little willow flycatchers in the action area by minimizing the potential for disturbance to this subspecies from explosions.

We expect filming to cause only minimal impacts to little willow flycatcher habitat, because filming occurs over a relatively short time frame, the Applicant would require that habitat disturbed by filming activities be restored to pre-filming conditions, and the Applicant would require that temporary construction avoid sensitive resources. We do not expect filming to cause direct impacts to individual flycatchers, because the Applicant proposed surveys prior to grading and construction and to have a qualified biologist monitor filming activities. Food and trash left in or near little willow flycatcher habitat could attract predators and indirectly increase predation; however, the Applicant would require daily removal of trash to minimize this effect. In addition, the Applicant's proposal to manage open space lands to maintain the existing habitat conditions, which currently support migrating little willow flycatchers, would minimize any effects of filming. Therefore, we do not expect filming activities to cause adverse effects to the little willow flycatcher within the action area.

Recreation

Recreation associated with the Planwide Activities includes private recreation by TRC, its employees and guests and public access is governed by the Interim RWMP and managed by the Conservancy. Such recreational use is also subject to the terms of the TUMSHCP and the terms of Service-approved conservation easements. While the private recreation by TRC occurs currently throughout the Covered Lands, public recreation, which generally consists of docent

led tours by the Conservancy per the Interim RWMP, occurs in the Established Open Space portion of the Mitigation Lands. These public and private recreation uses are limited to passive activities listed in the Project Description. Recreation activities associated with Planwide Activities would occur in open space areas generally outside the TMV Planning Area at a relatively small scale, and have infrequent impacts. Recreational uses by TRC, its employees, and the public are limited by the access guidelines and best management practices in the Interim RWMP and will be further regulated in Public Access Plans, which are subject to permanent Service review and approval. We note that future development in the TMV Planning Area will likely lead to increased recreation demand by TMV Project residents and guests, but the type and nature of the use is the same. All such recreational use in the protected open space will also be regulated in the Public Access Plan, which will require monitoring and enforcement by TRC staff, the Tejon Ranch Staff Biologist, or Conservancy docents, including provision of educational materials and restrictions on the location and types of any organized events. An Interim Public Access Plan is currently in place that provides for docent-led public tours and requires pre-activity surveys prior to any ground-disturbing activities. We anticipate future levels of public access to be consistent with what occurs under the Interim Public Access Plan. The effects of recreation on the little willow flycatcher in the TMV Planning Area Open Space are discussed separately under Commercial and Residential Development Activities.

If Recreation were to occur in occupied little willow flycatcher habitat, it could potentially alter flycatcher behavior, including feeding or sheltering activities. This could lead to increased energy expenditure, avoidance of suitable habitat, and increased predation risk. To minimize the likelihood of this, under the TUMSHCP, all public and private recreation would be conducted in a manner that would avoid adverse impacts to the Covered Species and their habitats or result in less-than-significant impacts (see Table 2 of this biological opinion, and TUMSHCP Section 7.1.1.2.6). At a minimum, the activities must be planned to avoid sensitive species and known occurrences and require the use of existing roads and trails where possible; and TRC staff, the Tejon Ranch Staff Biologist, and/or Conservancy docents would monitor and regulate recreational activities, including provision of educational materials and restrictions on the location and types of any organized events. In addition, the subspecies would be present in the action area only during migration, the majority of little willow flycatcher modeled habitat occurs outside development areas, there is a relatively small amount of modeled habitat in the action area, and the Recreation associated with Planwide Activities is expected to occur infrequently; therefore, any impacts to the little willow flycatcher would be rare and negligible. As previously stated, public recreational activities will be governed by a Public Access Plan subject to the Service's review and approval, both during and following the end of the permit term into perpetuity. These measures would ensure that allowed recreational activities are conducted in a manner that is consistent with the conservation of the little willow flycatcher.

Irrigation/Water Diversion

The action area contains existing water diversions for irrigation of agriculture, and a few small agricultural areas totaling about 232 acres exist in the TMV Planning Area (e.g., small vineyards and an orchard near Castac Lake). Agricultural uses that remain in open space after TRC

identifies the final development footprint will continue subject to State and local regulations. We do not anticipate any adverse effects to the little willow flycatcher from on-going agricultural activity, because the Applicant is not proposing to expand agricultural operations, agricultural land is not suitable habitat for the subspecies, and we do not expect little willow flycatchers to occur in these areas.

Maintenance of irrigation/water diversion facilities could disturb little willow flycatchers or their habitat, and the vehicles and workers conducting the maintenance could alter flycatcher behavior and disrupt feeding or sheltering activities. However, the Applicant is not proposing to expand the current irrigation capacity/diversion capacity, the facilities cover a very small percentage of the Covered Lands, and the operation of irrigation facilities would not cause additional impacts to the little willow flycatcher. Maintenance and relocation work, if any, is subject to the survey and avoidance requirements in the TUMSHCP, and prior to TRC relocating water diversions, the Service would review and approve the proposed new locations. Given the lower-quality condition of little willow flycatcher habitat in the action area, the low population numbers of the subspecies in the action area, and the Applicant's proposed minimization measures under the RWA and the TUMSHCP, we expect impacts of irrigation/water diversion to be infrequent and negligible.

Roads/Trails

A network of generally unpaved roads exists in the action area as access for fire protection, security, ranching activities, and hunting. As described in the TUMSHCP, the roads outside the development areas would be maintained, relocated, or new roads could be constructed, in compliance with the 200-acre limit on disturbance by Planwide Activities, to facilitate the proposed Planwide Activities. In general, the likelihood of impacts is low, because the subspecies only occupies the action area during migration, does so at low density, and the majority of modeled habitat is in areas with infrequent road/trail use. Road/trail use from Planwide Activities is expected to be irregular and of low intensity, and we do not expect the presence and use of roads/trails to preclude little willow flycatchers from using nearby suitable habitat or to cause flycatchers to vacate occupied habitat. However, road construction and maintenance could destroy flycatcher habitat or disturb resident individuals. Motorized vehicles, off-highway vehicles, etc. could potentially injure or kill little willow flycatchers if collisions occur; however, given that roads and trails outside the development areas would receive infrequent use, and the low density of the subspecies in the action area, the chances of this occurring are negligible.

To minimize adverse effects, the Applicant will require that breeding bird surveys be conducted prior to grading; new roads/trails avoid impacts to sensitive resources and do not significantly impair the conservation value of the affected land; and vehicles, hikers, etc. remain on established roads and trails. Therefore, we expect the likelihood of adverse effects to be low, and that impacts to little willow flycatchers would be largely avoided. Given the low density of the subspecies in the action area, and the amount of modeled suitable habitat available, the effects would be minor. Relative to the large geographic range of the little willow flycatcher,

which include montane areas in northern California west of the Sierra Nevada and Cascades, the anticipated effects of roads and trails in the action area would be negligible.

The direct and indirect effects of roads as a result of residential and commercial development are addressed below under Commercial and Residential Development Activities.

Utilities

The action area contains, or would contain, various minor utilities to support ranch activities. As described in Section 2.2.1 of the TUMSHCP, these utilities would be *de minimis* or would be located in previously disturbed areas (e.g., undergrounding utilities in road rights-of-way). Any utilities associated with Planwide Activities that are not *de minimis* or cannot be located in previously disturbed areas would require Service review and approval prior to relocation or construction. Installation or maintenance of these utilities may affect little willow flycatchers by disturbing habitat or individuals. However, utility posts and towers have small footprints, the utilities affect a very small percentage of the action area, the subspecies occurs at low density within the action area, and the Applicant proposed measures to minimize impacts to little willow flycatcher habitat (e.g., surveys, contractor education)(see Table 2 of this biological opinion, and TUMSHCP Section 7.1.1.2.6). Therefore, we expect utilities to have a negligible impact on the little willow flycatcher.

We address potential impacts by utilities associated with the proposed development under Commercial and Residential Development Activities.

Backcountry Cabins

Eight back-country cabins occur in the action area and could be maintained, improved, repaired, replaced, or reconstructed in their existing location. However, there are no backcountry cabins in modeled suitable habitat for the little willow flycatcher. In addition, prior to TRC relocating existing cabins, the Service would review and approve the proposed new locations. This would ensure that the new cabin location is compatible with the conservation of the little willow flycatcher. Therefore, we do not expect the use of backcountry cabins to cause adverse effects to the subspecies.

Fencing

Fences currently exist throughout the action area. Fences would be maintained and new fencing could be constructed and maintained as required to support the Covered Activities, including exclusion of cattle from sensitive habitats that support the little willow flycatcher. The Applicant proposes measures to avoid fencing-related impacts to sensitive resources, and the selective use of fencing could limit direct livestock interactions with natural water sources and have ancillary benefits for the little willow flycatcher and its habitat. Under the TUMSHCP, the Applicant must submit a grazing management plan to the Service every 5 years for review and approval. Our review of such plans will allow for the implementation of additional measures, as needed, to

minimize effects of fencing and promote the conservation of the little willow flycatcher. For these reasons, we expect fencing in the action area to have no appreciable impact on the little willow flycatcher.

Lebec/Existing Headquarters Area Uses

Existing activity in the Lebec/Existing Headquarters Area (i.e., corporate headquarters buildings, an antique shop, a post office, a church, and several single-family residences for ranch employees) would continue to occur. While additional development could occur here under the TUMSHCP, TRC has not included development plans for this area in the project description. We do not expect that current activities associated with this area will affect the little willow flycatcher, because modeled suitable habitat for the subspecies does not occur in this area.

Mitigation, Monitoring, and Management

Mitigation, monitoring, and management activities to carry out identified biological goals and objectives for the California condor or other Covered Species included in the TUMSHCP or other resource agency permits for the commercial and residential Covered Activities, as well as mitigation, monitoring, and management activities imposed pursuant to any local, State, or Federal approval of development on Tejon Ranch would be carried out in accordance with the Act and would be subject to Service review. We acknowledge that other agencies may credit the Applicant for mitigation and protective measures included in the TUMSHCP for mitigation imposed by such other agencies. Any restoration, enhancement, or similar mitigation activities would not be allowed if they would result in unpermitted adverse effects to species or critical habitat under the Act. Additionally, any mitigation activities for other agencies would be subject to the protective measures included in Tables 1 and 2, in the Description of the Proposed Action section of this biological opinion. Therefore, we anticipate that any potential threats to the little willow flycatcher as a result mitigation, monitoring, and management activities would be effectively minimized.

Estimate of Disturbance by Planwide Activities

The proposed TUMSHCP would cover 200 acres of ground disturbance associated with the Planwide Activities described above. These ground disturbances would occur outside of the proposed development (discussed below) and may be permanent or temporary. The disturbance would primarily be associated with construction of roads, backcountry cabins, and ancillary structures. If the Applicant restores a portion of this disturbance, an area equal in size may then be disturbed. Thus, no more than 200 acres may exist in a developed condition because of Planwide Activities at one time.

For the purposes of this effects analysis, we assume that all parts of the action area that could be affected by Planwide Activities have an equal chance of being affected and that all habitat types would be affected in equal proportion. This assumption is based upon the Applicant's inability to predict exactly where 200 acres of habitat disturbance due to Planwide Activities would occur.

In addition, there is no indication that the distribution or location of little willow flycatcher modeled habitat would cause Planwide Activities to disproportionately occur in little willow flycatcher modeled habitat.

For the purposes of estimating species-specific habitat disturbance by Planwide Activities, we are not using the 8,817-acre development envelope used by the Applicant to estimate impacts from development (TUMSHCP Table 2-1, footnote 4), but rather we are using the 5,533-acre area that actually could be developed within the development areas. We did this, because after development of the 5,533-acre development footprint, 3,284 acres of the 8,817-acre development envelope would remain and be subject to Planwide Activities, and modeled habitat for the little willow flycatcher could occur in the 3,284 acres. Therefore, we included 3,284 acres of the development envelope in this analysis to acquire an estimate of habitat lost by Planwide Activities that is as accurate as possible. When we combine this estimate with anticipated habitat loss from commercial and residential development in a summary effects analysis (discussed below), we will have slightly double-counted and overestimated the amount of little willow flycatcher habitat that would be lost in the action area. This slight overestimation of lost habitat does not compromise our analysis, because the overlap is very small relative to the size of the action area, and this approach ensures that potential species impacts are fully considered by analyzing a larger impact than would actually occur.

Adding together the acres of commercial and residential development, National Cement and La Liebre Mines, the VA Cemetery, and Not-A-Part lands (blocks of land within the boundary of the action area but not owned by the Applicant), a total of 12,423 acres are not subject to Planwide Activities. We expect that Planwide Activities could occur on the remaining 129,463 acres of the action area (141,886 acres within the action area minus the 12,423 acres of excluded areas above). Therefore, the ratio of disturbance due to Planwide Activities (200 acres) to Covered Lands subject to Planwide Activities (129,463) equals 0.0015. We applied this ratio to little willow flycatcher habitat outside the excluded areas but in the action area and rounded the remainder up to a whole acre. Thus, 986 acres of modeled habitat minus 8 acres lost to development equals 978 acres subject to Planwide Activities. Using our ratio of 0.0015, we anticipate that Planwide Activities would disturb or remove up to approximately 2 acres of modeled suitable habitat for the little willow flycatcher over the permit duration. We acknowledge that this could be an overestimate because the Applicant is proposing measures to avoid and minimize disturbance to little willow flycatcher habitat.

Thus, while there could be a small loss of little willow flycatcher modeled suitable habitat due to Planwide Activities, in comparison to the modeled suitable habitat conserved, the loss would have a minimal effect on the subspecies. Consequently, we conclude that the effects of Planwide Activities on the little willow flycatcher and its habitat would be minimal under the TUMSHCP and would not appreciably reduce the subspecies' reproduction, numbers or distribution in the Covered Lands.

Commercial and Residential Development Activities

Direct Effects

Development proposed to be covered under the TUMSHCP would permanently remove 8 acres of little willow flycatcher modeled habitat within the TMV Planning Area. (No modeled suitable habitat for the little willow flycatcher occurs within the Lebec/Existing Headquarters Area.). The remaining modeled habitat in the TMV Planning Area would occur in a matrix of development and preserved open space. Grading and construction under the TUMSHCP would avoid any occupied little willow flycatcher habitat during the breeding season; however, the action area is not within the breeding range of the subspecies, and we do not expect the little willow flycatcher to breed in the action area. We do expect little willow flycatchers to use modeled suitable habitat to feed and shelter during migration. The eight acres that would be lost to development is less than 1 percent of available modeled suitable habitat in the action area, and the majority of modeled habitat for the subspecies is outside the TMV Planning Area. Therefore, we do not expect this loss of habitat to reduce the ability of the action area to support foraging or migrating little willow flycatchers.

Indirect Effects

Development-related indirect impacts to little willow flycatchers and modeled habitat could occur where modeled habitat is near developed areas. Most of the modeled little willow flycatcher habitat in the TMV Planning Area occurs around Castac Lake. This habitat may have increased lighting and noise that may disturb individual flycatchers or increase predation risk. Under the TUMSHCP, lighting would be directed away from sensitive habitats to reduce this effect.

Recreational activities allowed within the Open Space areas are limited to passive recreation as described above under Planwide Activities. Even so, in the EIS for the TUMSHCP, we estimated that the TUMSHCP would increase the human population of the TMV Planning Area by 11,441 people, and we expect the recreational activities of future residents of the proposed development to cause a higher level of disturbance and impacts in this area than in other parts of the action area that are more remote. If Recreation occurs in occupied little willow flycatcher habitat, it could potentially alter flycatcher behavior, including feeding or sheltering activities. This could lead to increased energy expenditure, avoidance of suitable habitat, and increased predation risk. To minimize impacts of recreation, the Applicant will provide Home Owners' Association(s) with educational information regarding acceptable activities in open space areas, including recreational activities and pet restrictions. In addition, the Applicant will require that recreation in the action area be conducted in a manner that would avoid adverse impacts to the Covered Species and their habitats or result in less-than-significant impacts. At a minimum, the recreation activities would be planned to avoid sensitive species and known occurrences, and the Applicant will require the use of existing roads and trails where possible. However, despite the environmental education and other measures proposed by the Applicant (see Table 2 of this biological opinion, and TUMSHCP Sections 2.2.1 and 7.1.1.2.6), we expect residents, TRC

employees, and others using the action area to recreate in or near little willow flycatcher modeled habitat either because of apathy or unfamiliarity with sensitive species and habitats. That said we expect these impacts to be minor and to occur infrequently, because the little willow flycatcher only occupies the action area during migration, riparian habitat around lakes is not primary little willow flycatcher habitat, the majority of modeled habitat occurs outside development areas, and the Applicant proposes measures to avoid impacts to the subspecies (see Table 2 of this biological opinion, and TUMSHCP Section 7.1.1.2.6). To further minimize potential effects, recreational activities will be subject to the Public Access Plan to be reviewed and approved by the Service in perpetuity and approved conservation easements or other appropriately restricted conveyances over those lands. These measures would ensure that allowed recreational activities are conducted in a manner that avoids or minimizes impacts to the little willow flycatcher.

The Applicant proposes to clear and thin vegetation within 200 feet of the proposed development, creating a 1,773-acre fuel modification zone. The expected intensity of disturbance associated with these activities alone would not preclude little willow flycatchers from using modeled habitat near this area; however, the ongoing maintenance of this area, whether by grazing or mechanized means, could cause flycatchers to temporarily avoid suitable habitat. The estimated areal extent in which fuel modification may affect the little willow flycatcher is included in the 8 acres of modeled habitat estimated to be lost within the 8,817-acre development envelope.

Roads and trails receiving the most use would be located in the TMV Planning Area. Under the TUMSHCP, we expect road use in the development areas to be typical of residential/ commercial areas. In the EIS for the TUMSHCP, we estimated that the TUMSHCP would increase the human population of the action area by 11,441 people resulting in 79,514 additional vehicle trips per day. We expect most of these vehicle trips to occur near the commercial areas, and the number of vehicle trips would decrease with distance from Interstate 5. Nonetheless, use of roads in the development areas would increase substantially over baseline conditions and could adversely affect the little willow flycatcher.

In general, the likelihood of impacts is low, because the majority of modeled habitat is outside the TMV Planning Area, and the little willow flycatcher occupies the action area at low density. However, road construction and maintenance could destroy flycatcher habitat or disturb resident individuals. Noise and human/vehicle presence associated with frequent road use could preclude individuals from using nearby suitable habitat or flush flycatchers from suitable habitat exposing them to higher predation risk and increased energy expenditure. Motorized vehicles could potentially, injure or kill little willow flycatchers if collisions occur. To minimize adverse effects of roads, the Applicant would require that surveys be conducted prior to grading; new roads/trails avoid impacts to sensitive resources and do not significantly impair the conservation value of the affected land; and vehicles, hikers, etc. remain on established roads and trails. In addition, the little willow flycatcher occupies the action area only during migration and occurs at low density; therefore, collisions are highly unlikely.

New utilities to support development would be undergrounded, except that the two communication towers described under "Communication Towers" in the Description of the Proposed Action section above (also on page 4-52 and elsewhere in Section 4 of the TUMSHCP) would be installed above ground. Once underground, new utilities would not cause ongoing impacts. The two communication towers pose a limited collision risk for little willow flycatchers; however, the towers are not in modeled suitable habitat for the subspecies, and the towers occupy a very small fraction of the action area. In addition, the two communication towers will include design restrictions identified by the Service to minimize the potential for collisions. These restrictions must be reviewed and approved by the Service and require that (1) the towers be self-supporting (i.e., no guide wires must be included as part of the design); and (2) the tower facades will be primarily solid (e.g., through use of panels or other sidings, wider or denser lattice work, or alternative tower solutions as approved by the Service) to increase their visibility. Therefore, the risk of collision for little willow flycatchers is negligible.

We expect loss of habitat and other indirect effects to occasionally displace little willow flycatchers in the development footprint of the action area. This would have a minor effect on little willow flycatchers and their habitat in the action area, because only a small amount of modeled suitable habitat is being removed, the subspecies occupies the action area for brief seasonal periods, the subspecies occurs in the action area at low density, and the vast majority of suitable habitat on the Covered Lands would remain available to any displaced migrant individuals. Relative to the habitat available range-wide, which includes montane areas in northern California west of the Sierra Nevada and Cascades, the loss of 8 acres (less than 1 percent of modeled suitable habitat within the action area) would have a negligible effect on the little willow flycatcher.

TUMSHCP Mitigation

The Applicant proposes to preserve in perpetuity the balance of the action area outside the development areas, including 954 of the 986 acres (97 percent) of modeled habitat for the little willow flycatcher. The proposed conservation is consistent with conservation biology principles calling for interconnected blocks of habitat that support a given species' life history requirements. The action area is south of the subspecies' current breeding range, but the little willow flycatcher is known to use the action area as stopover habitat during migration. The Applicant proposes to maintain the preserved land in its current condition and manage open space areas to preserve the conservation value of that land. The proposed preservation would contribute to the conservation of the subspecies by permanently preventing future habitat loss in the action area and securing part of a migration corridor between habitat north and south of the Tehachapi Mountains.

Summary of Effects

In determining whether a proposed action is likely to jeopardize the continued existence of a species, we consider the effects of the action with respect to the reproduction, numbers, and distribution of the species. We also consider the effects of the action on the recovery of the

species. In that context, the following paragraphs summarize the effects of the proposed TUMSHCP on the little willow flycatcher.

The action area is known to support migrating little willow flycatchers, and the Planwide Activities and the proposed development could have effects on the subspecies. As stated above, the Applicant estimates that up to 8 acres of modeled habitat could be lost due to development, and we have calculated that Planwide Activities could affect an additional 2 acres of modeled habitat for the little willow flycatcher, for a total of 10 acres of lost modeled habitat for the subspecies. The loss of habitat in the action area could result in a slight decrease in habitat and resources for little willow flycatchers returning to the action area during subsequent migrations; however, 10 acres represents a small percentage of the modeled habitat in the action area, and a negligible amount of habitat compared to the habitat available throughout the subspecies' geographic range. In addition, the Planwide Activities, including livestock and recreation, and the indirect effects of development, including recreation and roads, could result in impacts to the little willow flycatcher. These potential impacts include flushing of individuals and otherwise altering feeding or sheltering behavior. As described in the effects analyses above, we expect these impacts to occur rarely and have minor effects on the subspecies in the action area.

Under the TUMSHCP, 954 of the 986 acres (97 percent) of modeled suitable habitat for the little willow flycatcher in the action area would be permanently conserved, helping to secure connectivity between suitable habitat areas to the north and south of the action area. In addition, the TUMSHCP includes measures to avoid and minimize the effects of Planwide Activities and development related effects on the little willow flycatcher (see Table 2 of this biological opinion, and TUMSHCP Section 7.1.1.2.6). We conclude that the combination of avoidance and minimization proposed by the Applicant to reduce the effects of both Planwide Activities and development, and the conservation of almost all of the modeled suitable habitat in the action area to mitigate for unavoidable impacts, would allow the Covered Activities to proceed under the proposed ITP without appreciably reducing the rangewide reproduction, numbers, or distribution of the little willow flycatcher.

Recovery

The little willow flycatcher is not a federally listed species, and the Service does not prepare Recovery Plans for unlisted species; therefore, there are no recovery criteria with which to compare the current and future status of the little willow flycatcher. In the absence of a recovery plan, we default to the general conservation of the subspecies, and recovery would focus on determining the subspecies' distribution and the conservation of much of the remaining habitat that supports the subspecies. In general terms, where suitable habitat exists, it should be conserved and where possible, additional habitat should be created or restored. The proposed action would not cause a reduction in the reproduction, numbers, or distribution of the little willow flycatcher; and the proposed permanent preservation of habitat in the action area would secure habitat in a migration corridor. The proposed action would result in the permanent conservation of 97 percent of modeled habitat for the subspecies within the action area, which would have long-term, stabilizing benefits to the subspecies by securing a portion of the

subspecies' range from future habitat loss, thus addressing a primary reason for the subspecies' decline.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section, because they require separate consultation pursuant to section 7 of the Act.

Hunting

Private and commercial hunting operations occur on Tejon Ranch and in Covered Lands; however, hunting is not an activity covered by the TUMSHCP. The Applicant proposes to continue hunting operations throughout the ranch during the proposed permit term. Hunting activities involve travel on existing paved and unpaved roads, overnight use of backcountry cabins, hiking, discharging hunting weapons, etc. The effects from hunting will generally be consistent with, and to a considerable extent, are captured in the description of effects for Roads/Trails, Backcountry Cabins, and Recreation described above. The Applicant proposes to manage the hunting program to avoid take of any federally protected species. Hunting in the TMV Planning Area would be limited to guided hunts. Also, as feral pigs are known to cause extensive damage to riparian areas and indirectly could affect little willow flycatchers, the hunting program could benefit flycatchers by removing some disturbance pressure from feral pigs. Therefore, we expect that hunting in the action area will have negligible cumulative effects on the little willow flycatcher.

Mining

Two commercial mining operations occur in the action area, La Liebre and National Cement; these mining operations are not covered activities under the TUMSHCP. The total area used for the two operations is about 2,636 acres, and the Applicant would maintain the mining leases through the proposed permit term. The two mining operations are on the southern/southeastern edge of the action area, in the vicinity of where most of the modeled suitable habitat for the little willow flycatcher occurs, and a combined 65.3 acres of modeled habitat occurs in the mining areas. We expect that much of the modeled habitat in the mining areas is already directly or indirectly disturbed and that very little, if any, suitable habitat for the little willow flycatcher exists in the mining areas. It is possible that vehicles and earthmoving activities could cause a reduction in air quality in modeled suitable habitat adjacent to the mines. However, only a small area of modeled habitat is adjacent to the National Cement operation and any air quality reduction is likely minor. In addition, any use of chemicals in mining must be in conformance with Federal, State and local laws. For these reasons, we expect that continued mining in the action area will have negligible cumulative effects on the little willow flycatcher.

Other Activities

As discussed above under the Project Description, within the external boundaries of the action area, there are existing inholdings and utilities. The Bakersfield National Cemetery also occurs inside the action area. These projects and activities are not Covered Activities under the TUMSHCP. We are not aware of any reasonably foreseeable activities within the 3,870 acres of inholdings that may affect the little willow flycatcher. Activities associated with existing utilities, transmission lines, and related structures such as maintenance activities, would be restricted to currently established easement areas and would have minor, if any, effects on the little willow flycatcher. Therefore, we do not anticipate any cumulative effects from the ongoing maintenance and operation of non-covered existing utilities. The Bakersfield National Cemetery is in place, and we are not aware of any activities associated with the cemetery that may have an adverse effect on the little willow flycatcher.

CONCLUSION

After reviewing (1) the current status of the little willow flycatcher; (2) the environmental baseline for this subspecies in the action area; (3) the effects of the proposed action; and (4) the cumulative effects, it is our biological opinion that the Service's issuance of the proposed ITP is not likely to jeopardize the continued existence of the little willow flycatcher.

We have reached this conclusion because:

1. The little willow flycatcher occupies a large geographic range outside of the action area, and the proposed activities would affect a small portion of the subspecies' overall distribution. In addition, the little willow flycatcher does not breed in the action area but only occurs in the action area during migration. Therefore, the effects on the little willow flycatcher will not appreciably reduce the rangewide reproduction, numbers, or distribution of the subspecies.

2. The majority of the action area would be preserved in perpetuity, avoiding future loss of little willow flycatcher habitat in the action area. This would have long-term benefits to the little willow flycatcher and the stability of its remaining habitat.

3. The Applicant will implement protective measures as part of the proposed activities including surveys prior to grading and construction, environmental education for contractors and homeowners, etc. The Applicant will also avoid the little willow flycatcher and its habitat to the maximum extent practicable. This should reduce or avoid direct and indirect impacts to the subspecies.

4. The development would have few impacts on the little willow flycatcher, because a small amount of habitat would be lost, and the subspecies occurs in the action area at low density and for short periods of time.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

Amount or Extent of Take

We do not anticipate any take of the little willow flycatcher as a result of the proposed activities, because:

1. The little willow flycatcher does not breed in the action area;

2. The little willow flycatcher occupies the action area for short periods of time during migration;

3. Most of the modeled habitat for the subspecies is located away from development areas;

4. The loss of 10 acres of modeled habitat would not appreciably reduce the ability of the action area to support migrating little willow flycatchers; and

5. The likelihood of adverse effects is low, effects of the proposed actions that do occur would be infrequent and minor, and the Applicant has proposed measures to avoid or minimize any adverse effects.

Effect of the Take

Because the Service anticipates in the accompanying biological opinion that no take of little willow flycatcher will occur under the proposed TUMSHCP, no jeopardy to the species would occur as a result of take.

REASONABLE AND PRUDENT MEASURES / TERMS AND CONDITIONS

As described above, the proposed TUMSHCP and associated documents identify anticipated impacts to the little willow flycatcher as well as measures that are necessary and appropriate to minimize those impacts. These measures will effectively avoid take of little willow flycatcher from the Covered Activities. Therefore, no reasonable and prudent measures and implementing terms and conditions to minimize take are required or included in this incidental take statement.

PURPLE MARTIN

STATUS OF THE SPECIES

Regulatory History

The purple martin (*Progne subis*) has no Federal designation, but the species has been considered a California Species of Special Concern by the CDFW since 1978 (Remsen 1978). Because the purple martin is unlisted, it does not have designated critical habitat or a recovery plan. The species is protected under the MBTA.

Natural History/Habitat Requirements

The following paragraph is summarized from Gough et al. (1998). Purple martins are the largest swallow in North America and average 7 inches in length. Adult males are dark purple and often appear black, while adult females are primarily dark gray with some purple coloration. In addition, females differ from males in that their breast is whitish with a gray band and they have occasional speckling on their sides and belly. Both males and females have forked tails. Juvenile male and female purple martins look similar to mature females; however, the males may be splotched with dark purple. Their size and color, along with their comparatively tiny bill, are often used to distinguish them from other swallows.

The purple martin is a north-south migrant, following the Central American isthmus between North and South America (Brown 1997). Immediately following fledging, individuals begin to flock before the fall departure (Brown 1997). The young of the year wander great distances and relatively few return to the specific natal colony site. However, among banded birds encountered in their first breeding season, 61 percent were found within 1 mile of their natal nest. Some adults return to the previous year's nest site (Brown 1997).

The purple martin nests from April to August, with peak activity in June. Pairs nest colonially or singly, depending on nest site availability. Nest building usually does not begin until several weeks after a pair bond has formed (Brown 1997). Purple martins are usually monogamous (Brown 1997). A second clutch may be laid if the first nest fails (Brown 1997). Nest selection occurs by both sexes after a relatively long search (Brown 1997). Nests are built out of twigs and stems of herbaceous plants, leaves, and mud (Brown 1997). Individuals may reuse the same nest cavity in successive years (Brown 1997). The mean clutch size has been measured between 4.0 and 4.9 eggs per nest (Brown 1997). The typical range for the clutch size is three to six (Brown 1997). In some years, the purple martin may raise two broods. The young are tended by both parents, and leave the nest at 24 to 31 days (Harrison 1978). Yearlings can breed but have a reduced success rate and are often found defending cavities with no nests (Brown 1997). The maximum life span recorded for the purple martin is 13 years and 9 months in Texas (Brown 1997). Based on band recovery, annual survival rates have been measured at 60.9 percent for adults and 32.2 percent for yearlings (Brown 1997).

The diet of the purple martin is composed almost entirely of flying insects (Brown 1997). Types of insects taken vary across the season and probably depend on availability (Brown 1997). Individuals feed most often between 164 and 492 feet above ground (Brown 1997). They forage over riparian areas, forest, and woodland. Occasionally, the purple martin forages on the ground for ants and other insects (Bent 1942). Individuals will forage for insects above water surfaces in ponds and lakes if cold, rainy weather limits the availability of normal food sources (Brown 1997). Usually, the purple martin feeds solitarily and does not attempt to feed when air temperature is below about 50°F (Brown 1997). The purple martin drinks while in flight only, by skimming the water surface (Ehrlich et al. 1988; Brown 1997). According to Brown (1997), purple martins may forage up to 30 miles from post-breeding and winter roost sites.

Three subspecies of the purple martin are recognized: *Progne subis subis* breeding in eastern North America and eastern Mexico; *P. s. hesperia* breeding in the deserts of Arizona, western Mexico, and Baja California; and *P. s. arboricola* breeding along the Pacific coast of the United States and Canada, and in the Rocky Mountains. Purple martins occurring within the Covered Lands are members of the subspecies *P. s. arboricola*.

In the western United States, the purple martin nests in old woodpecker cavities, mostly in habitats with patches of tall sycamores, pines, and other large trees in or near oak woodlands or within open coniferous forests (Garrett and Dunn 1981). The nests may be located in tall, old, isolated trees or snags in open forest or woodland (Zeiner et al. 1990b; Dawson 1923). The western populations of the purple martin nest solitarily in natural or woodpecker-made cavities in trees or cacti (Stutchbury 1991). Cavity-containing trees that have been used as nest sites include pines, aspens, cacti, palms, oaks, sycamores, spruce, firs, and cypress. Because the purple martin uses cavities excavated by several different bird species, the cavities that are chosen for nesting differ greatly in size, depth, entrance hole diameter, height above ground, and position within the tree or cactus. The use of birdhouses is widespread among the more eastern populations of purple martins. Unlike tree swallows (*Tachycineta bicolor*), purple martins apparently have not adapted to artificial nest boxes within Southern California (Garrett and Dunn 1981).

The purple martin is found in a variety of open habitats in migration (Zeiner et al. 1990b); they may be found flying over virtually any area during migration, including grassland, wet meadow, and fresh water emergent wetland, and are usually near water (AOU 1998). The species is an uncommon to rare local summer resident in a variety of wooded habitats throughout California. The subspecies uses valley foothill and montane hardwood, valley foothill and montane hardwood-conifer, and riparian habitats. It also occurs in coniferous habitats, including closed-cone pine-cypress, ponderosa pine (*Pinus ponderosa*), Douglas-fir (*Pseudotsuga menziesii*), and coast redwood (*Sequoia sempervirens*).

Both male and female purple martins will defend a nest site averaging a 66- to 98-foot radius around the nest (Brown 1997). In Montana, the nest hole entrance was defended by the pair, and the male defended the female while she was foraging away from the nest (Allen and Nice 1952). Nesting colony size is limited by the number of potential nests; the median nearest-neighbor

distances in Arizona were between 771 and 1,066 feet. The purple martin is highly social during the non-breeding season, concentrating in enormous pre-migratory roosts. The pre-migratory roost sites are generally situated in stands of trees or underneath concrete bridges (Brown 1997). In some cases, the gregarious nature of communal roosts continues into the nesting season; however, the individuals within the communal roost appear to be non-breeding individuals. During winter roosting, individuals are spaced only 2 to 2.5 inches apart (Brown 1997).

Although purple martins often return to the same nesting site where they had lived the previous year, there is little information available on how far these birds will travel while foraging. Purple martins are known to travel from 1.7 to 412 miles to get back to their nests. This suggests that the species must have a large home range (Brown 1997).

Distribution and Population Trends

Purple martins breed locally from British Columbia disjunctly eastward to Nova Scotia, southward to Baja California, central Mexico, and the Gulf Coast. Although the species' winter range is not well known, purple martins primarily winter (presumably) in Amazonia and south-central Brazil. In any case, there are no documented winter records of purple martins for anywhere in North or Central America (American Ornithological Union (AOU) 1998). There is little clear morphological variation among the three subspecies, and the three subspecies are more easily separated on ecological grounds, with *Progne susbis subis* being a lowland, highly colonial nester, *P. s. hesperia* nesting solitarily in large desert cacti, and *P. s. arboricola* being primarily solitary (occasionally loosely colonial) nesters in montane forests as well as coastal situations in the Pacific Northwest.

In western North America, the more northerly populations occur in the Upper Sonoran (mid-elevation chaparral community, including chamise, scrub oak, California buckwheat) through the Transition (higher elevations supporting pines, firs and cedars) zones. The birds' apparent absence from many potentially suitable areas in the northern Rockies, intermountain region, California, Pacific Northwest, and Mexican highlands may mean that the species has more specific habitat requirements in these areas that are unknown (Brown 1997).

Zeiner et al. (1990b) summarize the distribution, abundance, and seasonality of the purple martin within California as follows: The purple martin is an uncommon to rare, local summer resident in a variety of wooded habitats throughout the State. It is a rare migrant in spring and fall and is absent in the winter. In the south, it is now only a rare and local breeder on the coast and in interior mountain ranges, with few breeding localities (Garrett and Dunn 1981). The purple martin is absent from the higher desert regions except as a rare migrant. In the north, it is an uncommon to rare local breeder on the coast and inland (McCaskie et al. 1979). It is absent from the higher slopes of the Sierra Nevada. The breeding range extends east to Modoc and Lassen counties (Airola 1980). It arrives from South America in late March. The numbers during migration and through the summer remain small. After the young of the year have fledged, flocking begins. Birds of all ages assemble in roosts before the fall departure. Birds in the late-

summer roosts generally disperse from the roost site before dawn to forage (Brown 1997). The purple martin departs by late September (Zeiner et al. 1990b).

Surviving on a diet consisting exclusively of flying insects, the purple martin is not well suited to the climatic regime of middle and northern North America. The species has been recorded as far north as northern Yukon, northern Alaska, and central Labrador, but the more northerly populations are small and ephemeral. Purple martins are highly vulnerable to regular spells of cold and rainy weather during spring and early summer, conditions that temporarily reduce their insect food supply. Periodically, regional martin populations as far south as the mid-Atlantic states may be eliminated or reduced by cold weather (Brown 1997).

Purple martins suffer from viral avian pox and various body parasites which may or may not affect reproduction or survivability (Brown 1997; Wagner et al. 1997). Owls and snakes are probably the most significant predators of both adults and nestlings of this species (Brown 1997).

Weather-related mortality periodically eliminates birds along the northern edge of the range, but these areas are usually reoccupied by at least a few individuals within several years. The overall northern limit of the breeding range in Canada has probably shifted southward in the recent century. Installation of birdhouses in the middle and western Great Plains may have permitted a range expansion in recent years. However, the purple martin population along the Pacific Coast is declining (Brown 1997).

Because it is a secondary-cavity nester, the purple martin has suffered from the introduction into North America of European starlings (*Sturnus vulgaris*) and house sparrows (*Passer domesticus*), two non-native bird species which compete with it for nest sites. Without human intervention and management of colony sites, starlings and sparrows can cause local extinction of martins by appropriating their nest cavities and making them permanently unsuitable for martin use (Brown 1997).

Purple martins in the West (subspecies *Progne subis arboricola* and *P. s. hesperia*) are not covered well by formal breeding bird surveys due to their limited distributions and numbers. Other information on the status of *P. s. arboricola* is available, however. Gillihan and Levad (2002) estimated only 500-1,000 birds in western Colorado where they nest primarily in cavities in quaking aspen (*Populus tremuloides*) trees. In California and the Pacific Northwest, members of the Western Purple Martin Working Group have monitored the status of certain martin populations for many years. Martin populations in much of the region declined following the 1960s to 1980s arrival of the non-native European starling, an aggressive competitor for nesting cavities (Brown 1981). The most recent estimated purple martin breeding population in the western states of California, Oregon, and Washington and British Columbia is 3,500 pairs (Western Purple Martin Working Group 2005, Airola and Williams 2008).

The existence of a purple martin pre-migratory roost containing 7,000 to 12,000 birds in the mid-1940s at Seattle, Washington (Higman 1944, Larrison 1945), where none is known currently in the entire West illustrates the magnitude of the decline. These 1940s numbers would equate to

an estimated 40 to 60 percent of the entire West Coast annual post-breeding season population today. Recently, some West Coast populations have made comebacks in response to nest box programs, notably in British Columbia and Washington (Cousens et al. 2005).

In California, in response to effects of starling competition and habitat changes, western purple martins have declined dramatically to a recent statewide population estimate of 950 to 1,350 nesting pairs (Airola and Williams 2008). The purple martin was considered a fairly common summer resident in southern California in the early 1930s and had even spread by that time into cities (Willett 1933; Garrett and Dunn 1981). Numbers of the purple martin have declined markedly in recent decades because of the loss of riparian habitat, removal of snags, and competition for nest cavities (Remsen 1978). Martins are now absent from extensive areas of formerly occupied lowland habitat in Southern California and are all but eliminated from the vast interior Central Valley (Airola and Williams 2008) where they were once apparently abundant (Ridgeway 1877). Today, the few martins that remain in the Central Valley nest precariously in concrete bridges in urbanized Sacramento, where starling competition is apparently minimized (Airola and Grantham 2003, Airola et al. 2008).

Reasons for Decline

As noted above, purple martins are highly vulnerable to regular spells of cold and rainy weather during spring and early summer, conditions that temporarily reduce their insect food supply. Periodically, regional martin populations as far south as the mid-Atlantic states may be eliminated or reduced by cold weather. Adverse weather kills more purple martins than all other sources of mortality combined (Brown 1997).

Another primary cause of regional declines of the purple martin is the introduction of European starlings and house sparrows, which compete with purple martins for nest sites. Without focused management of these non-native competing species, starlings and house sparrows can cause local extinction of martins by appropriating their nest cavities and making them permanently unsuitable for martin use (Brown 1997). Garrett and Dunn (1981) concluded that the decline of the purple martin as a breeder in southern California can be linked convincingly to the explosive increase in the regional population of European starlings.

Remaining populations in California are threatened by development and other habitat changes that increase local starling populations (Williams 2002). Use of some bridges as nest sites has been affected by changes in land uses under the bridges (e.g., parking facilities and storage sites) that reduce airspace, and construction and landscaping activities have precluded martins from using other nesting sites (Airola and Williams 2008). Other known or suspected threats include collisions with vehicles and trains and predation by feral cats (Airola and Williams 2008). While post-fire management of burned forests has reduced martin habitat value in the past (Airola and Williams 2008), recent extensive wildfires offer opportunities for altered management by Federal and State agencies to maintain the resulting enhanced habitat to encourage martin populations. A purple martin nest box program has recently been initiated in northern California (Kostka et al.

2008), but information is not readily available on its viability as a management tool to arrest declines in California.

In addition to these threats, the loss of riparian habitat and removal of snags have contributed to population declines (Remsen 1978). Loss of mid-elevation habitat, as well as European starling competition in lowland woodlands noted above, are the two main reasons for decline of purple martins in California (Airola and Williams 2008). Loss of mid-elevation forest habitat has occurred due to removal of large snags, post-fire salvage logging, shortened logging rotations, and associated lack of large trees (Airola and Williams 2008).

ENVIRONMENTAL BASELINE

The Applicant conducted a habitat assessment for the purple martin in the action area based on known habitat associations of the species. The Applicant modeled suitable habitat for the purple martin at all elevations in the action area (Figure 5-12 of the TUMSHCP). Suitable habitat is defined as the main habitat types used by purple martins and that can meet all of its life history requirements. Modeled suitable primary habitats for the purple martin on the Covered Lands are savannah, woodland, conifer, and riparian woodland vegetation communities. The action area contains 85,870 acres of modeled suitable breeding/foraging habitat for the purple martin.

Surveys for purple martin were conducted in the TMV Planning Area in conjunction with several special-status bird surveys, including raptors and riparian species. There is no established protocol survey methodology specifically for purple martin, but they use the same woodland and forest habitats used for nesting by several raptors and breed at similar times as the northern goshawk (*Accipiter gentilis*) (i.e., early spring). The purple martin also uses riparian habitat used by several federally and/or State-listed riparian birds that are also Covered Species (least Bell's vireo, willow flycatcher, and western yellow-billed cuckoo). Surveys for nesting special-status raptors were conducted in the TMV Planning Area in spring and summer of 2007, and winter-use surveys were conducted in November of 2006 (Dudek 2009). The spring and summer surveys for special-status raptors used the methods described by Fuller and Mosher (1987) (Dudek 2009). The first set of nesting surveys was conducted early in the nesting period between March 6 and March 30, 2007. The second set of nesting surveys, including approximately 18 road and walking surveys, was conducted between June 4 and July 6, 2007. A winter special-status bird survey was also conducted between November 14 and November 16, 2006 (Dudek 2009). In addition, biologists conducted dawn acoustic surveys for the northern goshawk from March through April 2007 in accordance with the U.S. Forest Service (USFS 2000) survey protocol, and surveys for federally and/or State-listed riparian birds were also conducted (Dudek 2009). See Appendix D.1 of the TUMSHCP for more detailed information on survey methods.

Surveyors observed purple martins nesting and foraging in the TMV Planning Area in 2005 and 2007. In 2005, Jones and Stokes (2006a) observed six purple martin breeding locations, which consisted of individual nests or multiple nests within the same or adjacent trees. In 2007, Dudek (2009) also observed six active breeding locations within crevices or holes in standing trees; at least two were in similar locations to those observed in 2005 and the others were in different

locations. The 2005 and 2007 nesting locations are concentrated in the northwest portion of the TMV Planning Area east and west of Monroe Canyon, with other scattered sites east of Silver Canyon, east of Squirrel Canyon, east of Rising Canyon/Stockholders Canyon, and west of Geghus Ridge (Dudek 2009). Observations of foraging purple martins were documented in those locations as well. In 2010, members of the Tejon Ranch Conservancy, Audubon California, and Western Field Ornithologists conducted surveys within the Covered Lands at several locations, including Tunis, Winters, Middle, and Cordon Ridges. At least 23 pairs of purple martins were detected during this survey, all in large valley oak (*Quercus lobata*) trees (Western Field Ornithologists 2011).

Based on survey results, the purple martin appears to be relatively widespread in the oak woodland and oak savannah communities in the Covered Lands. Old mature trees with cavities or broken tops are generally required for use by breeding purple martins, so the species' distribution within these communities may be restricted by the extent of mature or decadent oak trees, particularly valley oak trees, on the Covered Lands. All reported breeding detections of purple martins on the Covered Lands have been in valley oak trees in oak savannah or woodland habitat, and foraging observations have been made in grassland, oak savannah, and oak woodland communities (Dudek 2007b, TRC 2007).

Because the breeding locations documented during the 2005 and 2007 surveys were mostly non-overlapping, it was estimated that up to 10 purple martin breeding pairs may occur in the TMV Planning Area, with a range of 1,685 to 3,370 acres per active territory/breeding pair. Assuming a similar density and distribution of active territories/breeding pairs on the 85,870 acres of modeled breeding/foraging habitat on Covered Lands, the Covered Lands could support 25 to 50 breeding pairs. This estimate is consistent with a recent estimate of 100 to 200 pairs in the Tehachapi Mountains (Airola and Williams 2008). In 1982, the southern Tejon Ranch/Grapevine area supported between approximately 40 and 100 pairs of purple martins (Airola and Williams 2008).

The presence of purple martins in the TMV Planning Area can reasonably predict presence of purple martins within modeled suitable habitat throughout Covered Lands. Therefore, we expect the species to occur in suitable habitat at relatively low density throughout the action area. That said, accurately determining the potential number of individual purple martins within the action area is difficult, and several factors confound such an estimate. Because of the relatively coarse scale of the habitat model, some modeled habitat may not contain the specific microhabitat factors required by this species for nesting. As a result, not all modeled habitat is expected to be occupied by purple martin, and the density of western purple martins within occupied habitat is likely to vary across the Covered Lands. Finally, using home range size to calculate density is difficult for the purple martin, because little information is available on the species' home range size. Therefore, we are using modeled suitable habitat as an index of potential purple martin presence to anticipate effects of the proposed action.

Recovery

The purple martin is not listed under the ESA, so we have not developed a recovery plan for the species to which we can refer to assess its recovery status. In the absence of a recovery plan, we default to the general conservation of the species. For a species like the purple martin that has lost a large percentage of its former known occupied habitat, recovery would necessitate the conservation of much of the remaining habitat that supports the species. In addition, restoration of suitable habitat that has been disturbed but otherwise remains undeveloped would be a priority. Lastly, efforts to establish the species in unoccupied but otherwise suitable habitat would contribute to its recovery.

The purple martin has been observed on the Covered Lands, and suitable habitat has been identified that could support the species (85,870 acres total of modeled suitable habitat). Therefore, the Covered Lands, and specifically the conservation of modeled suitable habitat on the Covered Lands, may contribute to the recovery of the purple martin.

EFFECTS OF THE ACTION

Planwide Activities

Livestock

The Applicant proposes to graze livestock on the balance of the action area outside development areas, consistent with the types and level of historical grazing and ranch management practices. As noted previously, purple martins can use a variety of habitats for foraging purposes, including those with an aquatic component such as wet meadows and fresh water emergent wetland, and they are usually near water (AOU 1998). Livestock grazing in mountainous riparian areas typically leads to increased runoff, increased siltation in streams and ponds, and decreased longevity of ephemeral water sources (Kovalchik and Elmore 1992). Alterations in local water flow and retention may lead to decreased insect abundance and thus reduced reproductive success by purple martins (Wiggins 2005). In addition, if grazing livestock enter and directly degrade riparian or other aquatic habitats in the Covered Lands, the insect productivity of those areas could be reduced and purple martin foraging opportunities in those areas could be compromised.

Livestock generally have negative effects on riparian habitat and the native species that rely on that habitat, and continuation of historical grazing practices under the TUMSHCP would maintain the lower quality, baseline condition of riparian habitat in the action area during the permit term. However, the Applicant proposes the selective use of fencing, which could limit direct livestock interactions with natural water sources. This may have ancillary benefits for riparian habitats used by the purple martin for foraging and minimize the potential adverse effects described above.

The purple martin occupies a large range encompassing many riparian areas; the western

subspecies that occurs on the Covered Lands (*Progne subis arboricola*) breeds in the Rocky Mountains and along the Pacific coast of the United States and Canada, and winters in Amazonia and south-central Brazil. Given the relatively small amount of riparian habitat in the action area relative to this large geographic range, any effects on the species from grazing riparian habitat in the action area would be negligible. In addition, under the TUMSHCP, the Applicant must submit a grazing management plan, as a component of the RWMP, to the Service every 5 years for review and approval. Our review of such plans would allow for the implementation of additional measures or modification of grazing practices, such as the selective use of fencing, which could limit direct livestock interactions with natural water sources and have ancillary benefits for riparian habitats used by the purple martin, thereby promoting the compatibility of grazing in the action area with the conservation of the purple martin.

Livestock grazing is an important tool for managing and maintaining grasslands and associated habitats, including oak savannah. As noted previously, purple martins have been documented foraging in grassland and oak savannah communities in the Covered Lands (Dudek 2007b, TRC 2007). Maintaining these habitats in the Covered Lands will be key to the conservation of the purple martin in the action area. As noted above, the Applicant must submit grazing management plans to the Service every 5 years for Service review and approval. Our review of such plans would allow for the implementation of additional measures or modification of grazing practices, such as the selective use of fencing, which could limit direct livestock interactions with natural water sources and have ancillary benefits for riparian habitats as foraging areas for the purple martin, thereby promoting the compatibility of grazing in the action area with the conservation of the purple martin. Overall, we anticipate that livestock grazing would have negligible (potential impacts to riparian areas) or beneficial (maintenance of grassland/oak savannah habitats) effects on the purple martin.

Range Management/Ancillary Ranch Structures

Range management activities support livestock operations and consist of construction, operation, and maintenance of watering facilities, feeding areas, fences, and corrals, consistent with the types and level of historical grazing and ranch management practices; repair, reconstruction, and relocation of roads to accommodate historical grazing and ranch management practices; and repair, maintenance, or installation of ranch management communication equipment (e.g., whip antennas) less than 20 feet high. The repair, reconstruction, and relocation of roads to accommodate historical grazing and ranch management practices are evaluated below under Roads. Range management also incorporates ancillary ranch structures including squeezes, loading chutes, holding and feeding fields, corrals, branding traps, barns, sewage disposal facilities, livestock and wildlife watering facilities, and utilities serving existing ranch uses.

As described above under Planwide Activities in the Description of the Proposed Action section, *de-minimis* activities associated with ancillary ranch structures would be covered under the TUMSHCP. Non–*de minimis* activities associated with ancillary ranch structures are also allowed (1) if the activity is located in disturbed areas (e.g., undergrounding utilities in road rights-of-way), or (2) following a meet-and-confer process with the Service to ensure that the

activity associated with an ancillary ranch structure avoids or adequately minimizes impacts to Covered Species and their habitats.

These activities are subject to the 200-acre disturbance limit, occur at a small scale relative to the size of the action area, and range management facilities already exist in the action area. Workers or equipment, as well as placement of ancillary ranch structures, may create enough noise or disturbance to cause purple martins to temporarily avoid suitable habitat or abandon a nest. However, given the irregular nature of range management activities, the Applicant's proposal to avoid occupied breeding habitat, and the Service's ability to review and approve the Applicant's grazing management plan, we expect adverse effects on purple martins from range management activities to be rare and negligible.

Fuel Management

Fuel management practices would consist primarily of grazing, and the effects of fuel management by grazing should be largely consistent with the effects of livestock. Other fuel management activities include fuel modification zones created by existing roads, and through irrigation and/or vegetation clearing and mowing within 120 feet surrounding existing structures (i.e., backcountry cabins, ancillary ranch structures, and other existing structures). Vegetation thinning and mowing are the current practices around cabins and roads.

Purple martins have been documented to be disturbed by sudden loud noises, in some cases resulting in fledglings abandoning a nest (Dellinger 1995). Mowing in the action area may create enough noise to cause purple martins to temporarily avoid suitable habitat or abandon a nest adjacent to mowing activities. However, because fuel management activities would primarily consist of grazing outside the development area, mowing for fuel management would occur infrequently/irregularly outside the TMV Planning Area. The TUMSHP includes a specific requirement to survey for nesting purple martins prior to any non-grazing fuel modification activities during the breeding season, and any active nests would be mapped and avoided (see Table 2 of this biological opinion). Therefore, we expect adverse effects from fuel management practices to be negligible.

Fuel management associated with proposed development is discussed below under Commercial and Residential Development Activities.

Filming

Filming activities generally consist of temporary on-scene filming and photography-related uses, including, but not limited to the filming and staging of movies, television shows, and commercials; photo shoots; and still photography and related uses. Such activities may include the erection and dismantling of props, temporary installation of trailers and equipment for film crews, filming of on-camera action, catering, rehabilitation of disturbed areas, and the movement of film crews to and from locations. We do not expect filming to cause substantial impacts to purple martin habitat, because filming occurs over a relatively short time frame, the Applicant

would require habitat disturbed by filming activities to be restored to pre-filming conditions, and the Applicant would require that temporary construction avoid sensitive resources.

As noted previously, purple martins can be disturbed, and their behavior substantially altered, by sudden loud noises (Dellinger 1995). Film shoots that include explosives or other loud noises could disturb purple martins that may be roosting, foraging, or nesting in the action area. Explosions (louder than gunshots) or other abnormally loud noises are prohibited throughout the TUMSHCP Mitigation Lands unless the Service-approved Tejon Staff Biologist, in consultation with the Service, determines that no California condors are present, and explosions (louder than gunshots) are strictly prohibited in the Condor Study Area portion of the Covered Lands. These restrictions on explosions in the action area would also benefit any purple martins in the action area by minimizing the potential for disturbance to this species from explosions.

Direct adverse effects to individual western purple martins or nests from filming would be minimized because the Applicant would conduct surveys prior to filming related uses, establish buffers around any western purple martin nests observed, and have a qualified biologist monitor filming activities to ensure the terms of the TUMSHCP are implemented (see Table 2 of this biological opinion and Section 2.2.1 of the TUMSHCP).

Food and trash left in or near purple martin habitat could attract predators and indirectly increase predation; however, the Applicant would require daily removal of trash to minimize this effect. In addition, the Applicant's proposal to manage open space lands to maintain the existing habitat conditions described in the TUMSHCP would minimize adverse effects from filming. Therefore, we expect adverse effects to purple martins from filming activities in the action area to be minor and rare.

Recreation

Recreation associated with the Planwide Activities includes private recreation by TRC, its employees and guests and public access is governed by the Interim RWMP and managed by the Conservancy. Such recreational use is also subject to the terms of the TUMSHCP and the terms of Service-approved conservation easements. While the private recreation by TRC occurs currently throughout the Covered Lands, public recreation, which generally consists of docent led tours by the Conservancy per the Interim RWMP, occurs in the Established Open Space portion of the Mitigation Lands. These public and private recreation uses are limited to passive activities listed in the Project Description. Recreation activities associated with Planwide Activities would occur in open space areas generally outside the TMV Planning Area at a relatively small scale, and have infrequent impacts. Recreational uses by TRC, its employees, and the public are limited by the access guidelines and best management practices in the Interim RWMP and will be further regulated in Public Access Plans, which are subject to permanent Service review and approval. We note that future development in the TMV Planning Area will likely lead to increased recreation demand by TMV Project residents and guests, but the type and nature of the use is the same. All such recreational use in the protected open space will also be regulated in the Public Access Plan, which would require monitoring and enforcement and is

subject to permanent Service review and approval. An Interim Public Access Plan is currently in place that provides for docent-led public tours and requires pre-activity surveys prior to any ground-disturbing activities. We anticipate future levels of public access would be consistent with what occurs under the Interim Public Access Plan. The effects of recreation on the purple martin in the TMV Planning Area Open Space are discussed separately under Commercial and Residential Development Activities.

If recreation were to occur in occupied purple martin habitat, it could potentially alter the species' behavior, including feeding, breeding, or sheltering activities. This could lead to increased energy expenditure, avoidance of suitable habitat, and increased predation risk. To minimize the likelihood of this, under the TUMSHCP, all public and private recreation would be conducted in a manner that would avoid adverse impacts to the Covered Species and their habitats or result in less-than-significant impacts (see Table 2 of this biological opinion, and TUMSHCP Section 7.1.1.2.7), and recreation would be monitored and regulated by TRC staff, the Tejon Ranch Staff Biologist, or Conservancy docents, including provision of educational materials and restrictions on the location and types of any organized events. Given the low density of the species in the action area and the expected infrequent nature of recreation associated with Planwide Activities, any impacts to the purple martin would be rare. As previously stated, public recreational activities would be governed by a Public Access Plan, subject to the Service's review and approval, both during and following the permit term into perpetuity. These measures would ensure that allowed recreational activities are conducted in a manner that is consistent with the conservation of the purple martin. Therefore, we expect that any effects on purple martins of recreation associated with Planwide Activities would be rare and minor.

Irrigation/Water Diversion

The action area contains existing minor water diversions for irrigation of agriculture, and a few small agricultural areas totaling about 232 acres exist in the TMV Planning Area (e.g., small vineyards and an orchard near Castac Lake). Water use is limited to the level of use as of 2008, so no additional impacts are anticipated from groundwater use or surface alteration. The Applicant is not proposing to expand the current irrigation capacity/diversion capacity and existing uses would not cause additional impacts. Maintenance and relocation work, if any, is subject to the pre-survey and avoidance requirements in the TUMSHCP, and prior to TRC relocating water diversions, the Service would review and approve the proposed new locations. Agricultural uses that remain in open space, if any, after TRC identifies the final development footprint are not anticipated to result in any adverse effects to the purple martin within Covered Lands because the species is unlikely to be present in these areas, and such activities would continue subject to State and local regulations. Intensive agricultural activities such as crops, vineyards, and orchards usually are not compatible with maintaining suitable habitat due to the high level of human activity and regular ground disturbances. Further, these areas would be managed consistent with the integrated pest management plan requirements regarding use and storage of pesticides and would comply with Federal and State pesticide laws.

As noted previously, alterations in local water flow and retention may lead to decreased insect abundance and thus reduced reproductive success by purple martins (Wiggins 2005). Maintenance or relocation of irrigation/water diversion facilities could also disturb purple martins or their habitat, and the vehicles and workers conducting the maintenance could alter purple martin behavior and disrupt feeding, breeding, or sheltering activities. However, the Applicant is not proposing to expand the current irrigation capacity/diversion capacity, the facilities cover a very small percentage of the Covered Lands, and the operation of irrigation facilities does not cause additional impacts to the purple martin. Given the existing condition of western purple martin habitat in the action area, the low density of the species in the action area, and the Applicant's proposed minimization measures (see Table 2 of this biological opinion, and TUMSHCP Section 7.1.1.2.8), we expect impacts of irrigation/water diversion to be infrequent and negligible.

Roads/Trails

A network of generally unpaved roads exists in the action area as access for fire protection, security, ranching activities, and hunting. As described in the TUMSHCP, the roads outside the development areas would be maintained, relocated, or new roads could be constructed, in compliance with the 200-acre limit on disturbance by Planwide Activities, to facilitate the Planwide Activities. Any new or relocated roads would be sited to avoid impacts to sensitive resources, including nesting birds. BMPs for the design and installation of roads include surveys prior to grading, contractor education, staking and temporary construction fencing.

In general, the likelihood of impacts from roads to western purple martins is low, because the subspecies occupies the action area at low density, and the majority of modeled suitable habitat is in areas with infrequent road/trail use. Road/trail use from Planwide Activities is expected to be irregular and of low intensity, and we do not expect the presence and use of roads/trails to preclude western purple martins from using nearby suitable habitat or to cause them to vacate occupied habitat. Although unlikely, motorized vehicles, off-highway vehicles, etc., could, on occasion, injure or kill western purple martins if collisions occur, or if feeding, breeding, or sheltering behavior is otherwise altered. However, given the low density of purple martin occurrence in the action area and the irregular/low intensity of road use in association with Planwide Activities, the anticipated effects of road and trail use associated with Planwide Activities would be negligible.

Road construction and maintenance could destroy purple martin habitat or disturb individuals. Because purple martins often return to the same general location to breed from year to year, individuals may be adversely affected by habitat loss that occurs during the non-breeding season. To minimize adverse effects of roads, the Applicant would require that breeding bird surveys be conducted prior to grading; buffers would be established around western purple martin nests; new roads/trails avoid impacts to sensitive resources and do not significantly impair the conservation value of the affected land; and vehicles, hikers, etc., remain on established roads and trails. Therefore, we expect the likelihood of adverse effects to be low, and that impacts to nesting western purple martins would be largely avoided. Given the low density of the

subspecies in the action area, and the amount of modeled suitable habitat available, any adverse effects would be minor. Relative to the large geographic range of the western purple martin, which includes a breeding range across the Rocky Mountains and the Pacific coast of the United States and Canada, and a wintering range extending to Amazonia and south-central Brazil, the anticipated effects of maintenance, relocation, or construction of roads or trails associated with Planwide Activities would be negligible.

The direct and indirect effects of roads as a result of residential and commercial development are addressed below under Commercial and Residential Development Activities.

Utilities

The action area contains, or would contain, various small utilities to support ranch activities. As described in Section 2.2.1 of the TUMSHCP, these utilities would be *de minimis* or would be located in previously disturbed areas (e.g., undergrounding utilities in road rights-of-way). Any utilities associated with Planwide Activities that are not *de minimis* or cannot be located in previously disturbed areas would require Service review and approval prior to relocation or construction. Installation or maintenance of these utilities may affect purple martins by disturbing habitat or individuals, or damaging nests and/or nestlings. However, we do not expect utilities to have a substantial impact on the purple martin because utility posts and towers have small footprints, the utilities affect a very small percentage of the action area, the species occurs at low density within the action area, and the Applicant's proposal to survey project areas and apply avoidance buffers if western purple martins are breeding within project disturbance zones should minimize the potential for adverse impacts to purple martins by utilities.

Potential impacts by utilities associated with the proposed development are included in the discussion of effects of Commercial and Residential Development Activities below.

Backcountry Cabins

Eight backcountry cabins occur in the action area and could be maintained, improved, repaired, replaced, or reconstructed in their existing location. All of the eight cabins are within modeled suitable habitat for the purple martin. Human use of the cabins should not cause meaningful new habitat disturbance. While we expect human use of the cabins could occasionally impact purple martins, the effects of backcountry cabins would be largely subsumed within the effects identified for recreation.

The Applicant would also be permitted to relocate existing cabins subject to certain restrictions. Under the Interim RWMP, all new or relocated cabins first are subject to a site evaluation to avoid impacts to sensitive natural resources. In addition, TRC would not relocate an existing cabin unless the Service has first reviewed the proposed relocation and determined that the relocation is consistent with the TUMSHCP, the Act, and any applicable recorded conservation easement restrictions, and provided that none of the six cabins currently located outside of the Condor Study Area are relocated to the Condor Study Area. These measures would ensure that

the new cabin location is compatible with the conservation of the purple martin. The total impact area of the existing cabins (plus the fuel management buffers) within modeled habitat is approximately 8 acres and we anticipate cabins and human use associated with cabins to have a negligible impact on the purple martin in the action area and range-wide.

Fencing

Fences exist throughout the action area. Fences would be maintained and new fencing could be constructed and maintained as required to support the Covered Activities, including exclusion of cattle from sensitive habitats that support the purple martin. The Applicant proposes measures to avoid fencing-related impacts to sensitive resources, including the selective use of fencing, which could limit direct livestock interactions with natural water sources and have ancillary benefits for riparian habitats that could be used by the purple martin. Under the TUMSHCP, the Applicant must submit grazing management plans to the Service every 5 years for review and approval. Our review of such plans would allow for the implementation of additional measures or modification of fencing practices to maintain riparian habitat. For these reasons, we expect fencing in the action area to have negligible or beneficial impacts on the western purple martin.

Lebec/Existing Headquarters Area Uses

Existing activity in the Lebec/Existing Headquarters Area (i.e., corporate headquarters buildings, an antique shop, a post office, a church, and several single-family residences for ranch employees) would continue to occur. While additional development could occur here under the TUMSHCP, TRC has not included development plans for this area in the project description. The ongoing activities associated with this area may affect the purple martin, because small amounts of modeled suitable habitat for the species occur in this area. Due to the nature of the activities occurring in this area, the impacts to the purple martin would be largely subsumed within the effects identified for recreation and roads. Because the activities occur at such a small scale relative to the amount of modeled habitat in the action area, the effects on the purple martin in the action area would be minor, and the effects would be negligible rangewide. Potential development related impacts in the Lebec/Existing Headquarters Area are addressed below under Commercial and Residential Development Activities.

Mitigation, Monitoring, and Management

Mitigation, monitoring, and management activities to carry out identified biological goals and objectives for the California condor or other Covered Species included in the TUMSHCP or other resource agency permits for the commercial and residential Covered Activities, as well as mitigation, monitoring, and management activities imposed pursuant to any local, State, or Federal approval of development on Tejon Ranch would be carried out in accordance with the Act and would be subject to Service review. We acknowledge that other agencies may credit TRC for mitigation and protective measures included in the TUMSHCP for mitigation imposed by such other agencies. Any restoration, enhancement, or similar mitigation activities would not be allowed if they would result in unpermitted adverse effects to species or critical habitat under

the Act. Additionally, any mitigation activities for other agencies would be subject to the protective measures included in Tables 1 and 2, in the Description of the Proposed Action section of this biological opinion. Therefore, we anticipate that any potential threats to the purple martin as a result of mitigation, monitoring, and management activities would be effectively minimized.

Estimate of Disturbance by Planwide Activities

The Applicant proposes a maximum of 200 acres of ground disturbance associated with the Planwide Activities described above. These ground disturbances would occur outside of the proposed development (discussed below) and may be permanent or temporary. The disturbance would primarily be associated with construction of roads, backcountry cabins, and ancillary structures. If the Applicant restores a portion of this disturbance, an area equal in size may then be disturbed. Thus, no more than 200 acres may exist in a developed condition because of Planwide Activities at one time.

For the purposes of this effects analysis, we assume that all parts of the action area that could be affected by Planwide Activities have an equal chance of being affected and that all habitat types would be affected in equal proportion. This assumption is based upon the Applicant's inability to predict exactly where 200 acres of habitat disturbance due to Planwide Activities would occur. In addition, there is no indication that the distribution or location of western purple martin modeled habitat would cause Planwide Activities to disproportionately occur in purple martin modeled habitat.

For the purposes of estimating species-specific habitat disturbance by Planwide Activities, we are not using the 8,817-acre development envelope used by the Applicant to estimate impacts from development (TUMSHCP Table 2-1, footnote 4), but rather we are using the 5,533-acre area that actually could be developed within the development footprint. We did this, because after the 5,533-acre development footprint is developed, 3,284 acres of the 8,817-acre development envelope would remain and be subject to Planwide Activities, and modeled habitat for the western purple martin could occur in the 3,284 acres. Therefore, we included 3,284 acres of the development envelope in this analysis to acquire an estimate of habitat lost by Planwide Activities that is as accurate as possible. When we combine this estimate with anticipated habitat loss from Commercial and Residential Development Activities in a summary effects analysis (discussed below), we will have slightly double-counted and overestimated the amount of western purple martin habitat that would be lost in the action area. This slight overestimation of lost habitat does not compromise our analysis, because the overlap is very small relative to the size of the action area, and this approach ensures that potential species impacts are fully considered by analyzing a larger impact than would actually occur.

Adding together the acres of commercial and residential development, National Cement and La Liebre Mines, the VA Cemetery, and Not-A-Part lands (blocks of land within the boundary of the action area but not owned by the Applicant), a total of 12,423 acres are not subject to Planwide Activities. We expect that Planwide Activities could occur on the remaining 129,463

acres of the action area (141,886 acres within the action area minus the 12,423 acres of excluded areas above). Therefore, the ratio of disturbance due to Planwide Activities (200 acres) to Covered Lands subject to Planwide Activities (129,463) equals 0.0015. We applied this ratio to purple martin habitat outside the excluded areas but in the action area and rounded the remainder up to a whole acre. Thus, 85,870 acres of modeled habitat minus 4,762 acres lost to development equals 81,108 acres subject to Planwide Activities. Using our ratio of 0.0015, we anticipate that Planwide Activities would disturb or remove approximately 122 acres of modeled suitable habitat for the western purple martin over the permit duration or just over one tenth of 1 percent of the modeled habitat in the action area (excluding modeled habitat in development areas). This could be an overestimate because TRC is proposing measures to minimize disturbance to western purple martin habitat (see Table 2 of this biological opinion).

Thus, while there could be a small loss of western purple martin modeled suitable habitat due to Planwide Activities, in comparison to the modeled suitable habitat conserved, we conclude that the loss would have a minimal effect on the species. Consequently, we conclude that the effects of Planwide Activities on the purple martin and its habitat would be minimal under the TUMSHCP and would not appreciably reduce the species' reproduction, numbers or distribution in the Covered Lands or rangewide.

Commercial and Residential Development Activities

Direct Effects

The proposed residential and commercial development would permanently remove 4,762 acres (6 percent) of modeled habitat for the purple martin. This habitat loss includes any modeled habitat for the purple martin lost as a result of development activities in the Lebec/Existing Headquarters Area. The Applicant proposes to conduct surveys prior to grading or construction, establish 500-foot buffers around any purple martin nests observed, and have a qualified biologist monitor development activities to ensure the terms of the TUMSHCP are implemented (see Table 2 of this biological opinion and Section 7.1.1.2 of the TUMSHCP). As discussed in the Environmental Baseline section of this biological opinion, extrapolating survey information from the Covered Lands has produced an estimate of 25-50 breeding pairs of purple martins in the action area; however, not all modeled habitat on the Covered Lands is expected to be occupied by this species, and the Applicant proposes surveying for and avoiding any active purple martin nest sites.

Grading and construction under the TUMSHCP would avoid any active western purple martin nesting sites during the breeding season, and we do not expect direct effects on individual western purple martins. The 4,762 acres of modeled suitable habitat that would be lost from the proposed Commercial and Residential Development Activities represents less than 6 percent of available modeled suitable habitat within the action area, and the majority of modeled suitable habitat for the subspecies is outside the development areas. As a result, we expect that any purple martins that could have otherwise nested or foraged in areas where habitat would be lost from development activities will readily find and utilize other suitable unoccupied habitat for

breeding or foraging within the Covered Lands. Therefore, we do not expect this loss of habitat to result in injury or mortality of western purple martins, nor would it reduce the ability of the action area to support breeding, foraging, or migrating western purple martins.

Indirect Effects

The vast majority of modeled suitable western purple martin habitat within the Covered Lands is outside the proposed development areas; however, development-related indirect impacts to the purple martin and its modeled suitable habitat could occur where modeled habitat is near developed areas. Developed areas would have increased lighting and noise that may disturb individual western purple martins or increase predation risk. Under the TUMSHCP, lighting would be directed away from sensitive habitats to reduce this effect. Species like the European starling can be introduced with development; however the Applicant has proposed to develop a starling management program if determined necessary by the Tejon Ranch Staff Biologist. Therefore, we expect these effects to be negligible to the purple martin.

Recreational activities allowed within Open Space areas are limited to passive recreation as described above under Planwide Activities. Even so, in the SDEIS for the TUMSHCP, we estimated that the TUMSHCP would increase the human population of the TMV Planning Area by 11,441 people. We expect the recreational activities of future residents of the TMV Planning Area cause a higher level of disturbance and impacts in this area than in other parts of the action area that are more remote. Although the species is migratory and primarily occurs in the action area seasonally (March through September), that timing generally coincides with the likely peak of recreational activity and associated road use in the action area. If recreation occurs in occupied habitat it could potentially alter western purple martin behavior, including feeding, breeding, or sheltering activities. To minimize impacts of recreation, TRC would provide Home Owners' Association(s) with educational information regarding acceptable activities in open space areas, including recreational activities and pet restrictions. In addition, the Applicant would require that recreation in the TMV Planning Area Open Space and throughout the open space be conducted in a manner that would avoid adverse impacts to the Covered Species and their habitats or result in less-than-significant impacts. However, despite the environmental education and other measures proposed by the Applicant (Table 2 of this biological opinion; Sections 2.2.1 and 7.1.1.2.7 of the TUMSHCP), residents, TRC employees, and others using the action area could recreate in or near western purple martin modeled habitat either because of apathy or unfamiliarity with sensitive species and habitats. Such use could potentially alter western purple martin behavior, including feeding, breeding, or sheltering activities. Purple martins are aerial foragers and cavity nesters, typically utilizing woodpecker holes in trees in which to nest (Brown 1997). As such, individuals and nests are likely less prone to adverse effects from humans while recreating than other bird species that may forage while stationary and/or nest on the ground. However, young that have recently fledged but that are not experienced fliers are likely those individuals most susceptible to disturbance, injury, or death from recreational activities and pets, especially if nest trees are in close proximity to such activities. This could lead to increased energy expenditure, abandonment of active nests, and increased predation risk. Additionally, noise and human/vehicle presence associated with

frequent road use could flush purple martins from nests or occupied habitat exposing them to higher predation risk and increased energy expenditure or vehicle collision risk. That said, we expect these impacts to be generally minor and to occur relatively infrequently, because the western purple martin likely occurs at low density in the action area, the majority of western purple martin modeled habitat occurs outside development areas, and the Applicant proposed measures to avoid impacts to the subspecies (Table 2 of this biological opinion; TUMSHCP Section 7.1.1.2.7).

To further minimize potential effects, recreational activities would be subject to the Public Access Plan to be reviewed and approved by the Service in perpetuity and approved conservation easements or other appropriately restricted conveyances over those lands. These measures would ensure that allowed recreational activities are conducted in a manner that avoids or minimizes potential impacts to the western purple martin.

New utilities to support development would be undergrounded, except that the two communication towers described under “Communication Towers” in the Description of the Proposed Action section above (also on page 4-52 and elsewhere in Section 4 of the TUMSHCP) would be installed above ground. Once underground, new utilities would not cause ongoing impacts. The two proposed communication towers pose a limited collision risk for purple martins, as the towers would be within modeled suitable habitat for the species. However, the towers would occupy a very small fraction of the action area, and would include design restrictions identified by the Service to minimize the potential for collisions. These restrictions must be reviewed and approved by the Service and require that (1) the towers be self-supporting (i.e., no guide wires must be included as part of the design); and (2) the tower facades will be primarily solid (e.g., through use of panels or other sidings, wider or denser lattice work, or alternative tower solutions as approved by the Service) to increase their visibility. Therefore, the risk of purple martins colliding with the proposed communication towers is negligible.

The Applicant proposes to clear and thin vegetation within 200 feet of the proposed development, creating an up to 1,773-acre fuel modification zone. The estimated areal extent in which fuel modification may affect the purple martin is included in the 4,762 acres of modeled habitat estimated to be lost within the 8,817-acre development envelope. The expected intensity of disturbance associated with these activities alone would not preclude purple martins from using modeled habitat near this area; however, the ongoing maintenance of this area, whether by grazing or mechanized means, could cause purple martins to temporarily avoid suitable habitat. We do not expect this to cause measurable adverse effects on the purple martin due to the species’ low density within the action area and the predominance of the species’ modeled suitable habitat being outside the proposed development areas. In addition, the TUMSHP includes a specific requirement to survey for nesting purple martins prior to any non-grazing fuel modification activities during the breeding season, and any active nests would be mapped and avoided (see Table 2 of this biological opinion). Therefore, we expect adverse effects from fuel management practices associated with the proposed development activities to be negligible.

Roads and trails receiving the most use would be located in the TMV Planning Area. Under the TUMSHCP, we expect road use in the TMV Planning Area to be typical of residential/ commercial areas. In the SDEIS for the TUMSHCP, we estimated that the TUMSHCP would increase the human population of the action area by 11,441 people resulting in 79,514 additional vehicle trips per day. We expect most of these vehicle trips to occur near the commercial areas, and the number of vehicle trips would decrease with distance from Interstate 5. Access to the open space will continue to be controlled by the Public Access Plan and is not anticipated to increase significantly in the open space areas, so vehicular traffic in the open space would be restricted and managed. Nonetheless, use of roads in the development areas would increase substantially over baseline conditions and could adversely affect the purple martin if they occur near roads in the action area. Noise and human/vehicle presence associated with frequent road use could flush purple martins from nests or occupied habitat exposing them to higher predation risk and increased energy expenditure. As noted previously, purple martins are aerial foragers (feed on the wing) and, as such, the potential for vehicle collision is somewhat higher than for other bird species that typically feed at a perched site.

In general, the likelihood of impacts from roads is low, because the species likely only occupies the action area at low density. However, road construction and maintenance could destroy western purple martin habitat or disturb individuals. Noise and human/vehicle presence associated with frequent road use could preclude individuals from using nearby suitable habitat or flush western purple martins from suitable habitat exposing them to higher predation risk and increased energy expenditure. Motorized vehicles could potentially injure or kill purple martins if collisions occur.

To minimize adverse effects of roads, the Applicant would require that surveys be conducted prior to grading; new roads/trails avoid impacts to sensitive resources and do not significantly impair the conservation value of the affected land; and vehicles, hikers, etc., remain on established roads and trails. In addition, the species likely occupies the action area at low density, and the majority of modeled habitat is outside the TMV Planning Area; therefore, collisions and other road-related impacts are expected to be rare.

TUMSHCP Mitigation

The Applicant proposes to preserve in perpetuity virtually all of the action area outside the development envelope, including 81,015 of the 85,870 acres of modeled suitable habitat for the western purple martin within the Covered Lands. Using the upper and lower estimates of territory size calculated based on surveys of the TMV Planning Area, as described in the Environmental Baseline portion of this biological opinion (1,685 to 3,370 acres), we expect the 81,015 acres of conserved modeled suitable habitat could support 24 to 48 pairs of purple martins. The Applicant would maintain the preserved land in its current condition, thus maintaining its current capacity to support purple martins. The proposed conservation of 94 percent of modeled suitable habitat for the purple martin is consistent with conservation biology principles calling for large, interconnected blocks of habitat that support a given species' life history requirements. The conservation of the Mitigation Lands would benefit the purple martin

by permanently securing them from future habitat loss in the action area, maintaining a large area of purple martin nesting habitat, and securing migration stopover habitat for individuals passing through the region.

Summary of Effects

In determining whether a proposed action is likely to jeopardize the continued existence of a species, we consider the effects of the action with respect to the reproduction, numbers, and distribution of the species. We also consider the effects of the action on the recovery of the species. In that context, the following paragraph(s) summarize(s) the effects of the proposed TUMSHCP on the western purple martin.

The Planwide Activities and the Commercial and Residential Development Activities could have some effect on the western purple martin. As stated above, TRC estimates that up to 4,762 acres of modeled suitable habitat could be lost due to development, and we have calculated that in the remainder of the action area Planwide Activities could affect an additional 122 acres of modeled suitable habitat for the western purple martin, for a total of 4,884 acres of lost modeled suitable habitat for the subspecies. In addition, Planwide Activities and the indirect effects of development, including recreation and roads, could result in impacts to the western purple martin. These potential impacts include flushing of individuals (which could result in increased energy expenditure, avoidance of suitable habitat, and increased predation risk), disturbance of nest sites, injury or death from collisions with vehicles, or otherwise altering feeding, breeding, or sheltering behavior. In particular, young that have recently fledged are most prone to adverse impacts of recreational activities, people, and pets if active nest sites occur near such activities, as well as roads and trails. The most likely source of injury or mortality of purple martins that could be detected would be from collisions with vehicles. Because purple martins are aerial foragers (feed on the wing), the potential for vehicle collision is somewhat higher than for other bird species that typically feed at a perched site. Also, fledglings (as inexperienced fliers) may be at higher risk of vehicle collisions during their early flight attempts if nests are near roads. Given the low density of the species in the action area and the expected infrequent and irregular nature of Planwide Activities and indirect effects of development in close proximity to purple martin home ranges, such impacts to the purple martin would be expected to be rare.

As noted previously, purple martins are aerial foragers and cavity nesters, typically utilizing woodpecker holes in trees in which to nest (Brown 1997). As such, individuals and nests are less prone to theft or destruction by humans while recreating than other bird species. However, young that have recently fledged but that are not experienced fliers are likely those individuals most susceptible to disturbance, injury, or death from recreational activities and pets, especially if nest trees are in close proximity to such activities. This could lead to increased energy expenditure, abandonment of active nests, and increased predation risk. Additionally, noise and human/vehicle presence associated with frequent road use could flush purple martins from nests or occupied habitat exposing them to higher predation risk and increased energy expenditure or vehicle collision risk.

In general, the likelihood of impacts to western purple martins due to Planwide Activities and indirect effects of development is low because the subspecies occupies the action area at low density, and the majority of modeled suitable habitat is in areas with infrequent road/trail use. However, we do expect a small number of purple martins could be injured or killed as a result of Planwide Activities and the indirect effects of development activities. Given the low density of the species in the action area and the fact that the species occurs seasonally in the action area, but during times where there is likely to be recreation and vehicle use, we expect that adverse effects rising to the level of injury or mortality would be detectable despite their likely infrequency. Assuming a post-development population of 24 to 48 pairs of purple martins, and given the species' behavioral patterns and types of activities likely to cause injury or mortality, we expect that a small number of purple martins could be injured or killed as a result of the Planwide Activities or indirect effects of development.

Under the TUMSHCP, 81,015 acres, the vast majority (approximately 94 percent) of the modeled suitable habitat for the western purple martin on the Covered Lands, would be permanently conserved. In addition, the TUMSHCP includes measures to avoid take and to minimize the effects of Planwide Activities and development-related effects on the purple martin (see Table 2 of this biological opinion; TUMSHCP Section 7.1.1.2.7). We conclude that the combination of avoidance and minimization proposed by TRC to reduce the effects of both Planwide Activities and Commercial and Residential Development Activities, and the conservation of almost all of the modeled suitable habitat on the Covered Lands to mitigate for unavoidable impacts, the Covered Activities would not appreciably reduce the range-wide reproduction, numbers, or distribution of the western purple martin.

Recovery

The western purple martin is not a listed species, and the Service does not prepare recovery plans for unlisted species. Therefore, there are no recovery criteria with which to compare the current and future status of the species. In the absence of a recovery plan, we default to the general conservation of the species, and recovery would focus on determining the species' distribution and the conservation of much of the remaining habitat that supports the species. In general terms, where suitable habitat exists, it should be conserved and, where possible, degraded habitat should be restored.

The proposed action would cause minor adverse effects on the species within the action area but would not appreciably affect the reproduction, numbers, or distribution of the western purple martin, or the purple martin rangewide. The proposed action would also result in the permanent conservation of over 94 percent of suitable modeled habitat for the purple martin within the action area, which would have long-term, stabilizing benefits to the species by securing a portion of its range from future habitat loss, including nesting habitat and migration stopover habitat on Covered Lands, thus addressing a primary reason for the species' decline.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section, because they require separate consultation pursuant to section 7 of the Act.

Hunting

Private and commercial hunting operations occur on Tejon Ranch, including the action area; however, hunting is not an activity covered by the TUMSHCP. The Applicant proposes to continue hunting operations throughout the ranch during the proposed permit term. The Applicant proposes to manage the hunting program to avoid the take of any federally protected species. Hunting in the TMV Planning Area would be limited to guided hunts. Hunting activities involve travel on existing paved and unpaved roads, overnight use of backcountry cabins, hiking, discharging hunting weapons, etc. The effects from hunting will generally be consistent with, and to a considerable extent are captured in, the descriptions of effects for Roads/Trails, Backcountry Cabins, and Recreation described above. Therefore, we expect that hunting in the action area would have negligible cumulative effects on the purple martin.

As feral pigs are known to cause extensive damage to riparian areas and directly or indirectly could affect purple martin habitat, the hunting program could benefit purple martins by removing some disturbance pressure from feral pigs.

Mining

Two commercial mining operations occur in the action area, La Liebre and National Cement; these mining operations are not covered activities under the TUMSHCP. The total area used for the two operations is about 2,636 acres, and the Applicant would maintain the mining leases through the proposed permit term. The western purple martin is not known to occur in proximity to the mines, although modeled suitable habitat for the species does exist adjacent to both mining sites. In addition, 477.7 acres of modeled suitable habitat exists in the mining areas, although much of the modeled habitat in the mining areas is already disturbed. On occasion, earthmoving, moving vehicles, and other mining activities could disturb, injure, or kill purple martins, if any were to occur in suitable habitat there; however, the effects of mining on the western purple martin would likely be localized to the periphery of the mining areas where habitat is less disturbed. Any use of chemicals in mining must be in conformance with Federal, State, and local laws. In addition, the effects of mining occur in a small area relative to the amount of modeled suitable habitat in the action area. Therefore, we expect that continued mining in the action area would have negligible cumulative effects on the western purple martin.

Other Activities

As discussed above under project description, within the external boundaries of the action area, there are existing inholdings and, utilities. The Bakersfield National Cemetery also occurs inside the action area. These projects and activities are not Covered Activities under the TUMSHCP. We are not aware of any reasonably foreseeable activities within the 3,870 acres of inholdings that may affect the purple martin. Activities associated with existing utilities, transmission lines, and related structures, such as maintenance activities, would be restricted to currently established easement areas and would have minor, if any, effects on the purple martin. Therefore we do not anticipate any cumulative effects from the ongoing maintenance and operation of non-covered existing utilities. The Bakersfield National Cemetery is in place, and we are not aware of any activities associated with the cemetery that may have an adverse effect on the purple martin.

CONCLUSION

After reviewing (1) the current status of the western purple martin; (2) the environmental baseline for this subspecies in the action area; (3) the effects of the proposed action; and (4) the cumulative effects, it is our biological opinion that the Service's issuance of the proposed incidental take permit is not likely to jeopardize the continued existence of the purple martin. We reached this conclusion because:

1. The purple martin occupies a large geographic range, of which the action area is a small fraction. The permanent loss of 4,762 acres (6 percent) of modeled breeding/foraging habitat for the purple martin within Covered Lands resulting from permanent habitat loss associated with Covered Activities and the potential loss of 122 acres of habitat from the Planwide Activities would not substantially affect the future use of the action area for breeding and foraging by the species nor would it substantially affect the species within California or within the western population. The proposed Covered Activities would affect a very small number of individuals of the subspecies, and an extremely small portion of its range, and would not appreciably reduce the range-wide reproduction, numbers, or distribution of the species.

2. Although 4,884 acres of modeled suitable habitat would be permanently lost and a small number of individuals could be injured or killed per year as a result of ongoing impacts, the vast majority of the action area, including the majority of suitable purple martin habitat, would be preserved in perpetuity, avoiding future loss of purple martin habitat on the Covered Lands. We expect this to have long-term, stabilizing benefits to the purple martin and its remaining habitat.

3. The Applicant would implement protective measures as part of the proposed activities (e.g., surveying development areas prior to construction and avoiding breeding sites) that would avoid or reduce impacts to the purple martin.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The proposed TUMSHCP and its associated documents identify anticipated impacts to the purple martin, specifically the western purple martin subspecies, likely to result from the proposed taking and the measures that are necessary and appropriate to minimize those impacts. All conservation measures described in the proposed TUMSHCP, together with the terms and conditions described in the associated Implementing Agreement and any section 10(a)(1)(B) permit issued with respect to the proposed TUMSHCP, are hereby incorporated by reference as reasonable and prudent measures and terms and conditions within this Incidental Take Statement pursuant to 50 CFR §402.14(i). Such terms and conditions are non-discretionary and must be undertaken for the exemptions under section 10(a)(1)(B) and section 7(o)(2) of the Act to apply. If the permittee fails to adhere to these terms and conditions, the protective coverage of the section 10(a)(1)(B) permit and section 7(o)(2) may lapse. The amount or extent of incidental take anticipated under the proposed TUMSHCP, associated reporting requirements, and provisions for disposition of dead or injured animals are as described in the TUMSHCP and its accompanying section 10(a)(1)(B) permit.

Amount or Extent of Take

We anticipate that the incidental take of the purple martin will be difficult to detect because the action area is large and we expect direct effects to individuals to be rare. Documenting take by harassment or harm will be nearly impossible. To anticipate and describe the indirect effects of habitat loss, we use available modeled habitat as a surrogate for purple martin presence in the action area.

The proposed Commercial and Residential Development Activities and Planwide Activities in the action area would result in the loss of a total of 4,884 acres of modeled habitat (4,762 acres in the TMV Planning Area and 122 acres due to Planwide Activities). We do not anticipate any take of the purple martin as a result of modeled habitat loss, because the Applicant has proposed

survey and avoidance measures that will preclude impacts to the species during the breeding season, the species occurs at a low density in the action area, and there are extensive areas of modeled suitable habitat available outside the proposed development areas.

While the foraging habitat that would be lost under the TUMSHCP would slightly limit the number of purple martins that potentially could expand into the action area, we do not expect direct mortality of individuals, loss of breeding habitat would not occur during the breeding season while that habitat is being actively used, and a large amount of foraging habitat would remain available for the species. Therefore, we do not expect take of individual purple martins to result from the loss of foraging habitat.

We anticipate ongoing indirect effects associated with development, and effects of Planwide Activities, would contribute to harassment, injuring, or killing of a small number of purple martins in the action area during the permit term. Examples include potential harassment by pets and people during recreational activities such as hiking, camping, trail riding and equestrian use; and harm, injury, or mortality from collisions with vehicles. We expect an average of five purple martins per year (approximately 5 to 10 percent of the estimated number of breeding pairs within modeled habitat) would be harassed, harmed, injured, or killed as a result of the indirect effects associated with development or the direct or indirect effects of Planwide Activities. We expect that the most likely source of such adverse effects would be from vehicle collisions due to increased traffic and road maintenance and because purple martins are aerial foragers (feed on the wing) and, as such, the potential for vehicle collision is somewhat higher than for other bird species that typically feed at a perched site. While generally these incidents will be extremely difficult to witness due to the remote nature of most of the Covered Lands, the irregular nature of most Planwide Activities, and the species' small size, vehicle strikes are detectable. Therefore, three purple martins observed taken annually would serve as a surrogate indicator that the Service's anticipated level of take has been reached.

Effect of the Take

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the purple martin.

REASONABLE AND PRUDENT MEASURES / TERMS AND CONDITIONS

The measures described in the TUMSHCP, associated documents and the Section 10(a)(1)(B) permit will effectively minimize the effects of any potential take of the purple martin under the permit. Consequently, we are not including additional non-discretionary reasonable and prudent measures and implementing terms and conditions in this incidental take statement.

YELLOW WARBLER

STATUS OF THE SPECIES

Regulatory History

The yellow warbler is not federally listed under the ESA, and therefore does not have designated critical habitat. The species is protected under the Federal MBTA (16 U.S.C. 703–712), and the yellow warbler is designated as a California Species of Special Concern.

Natural History/Habitat Requirements

The yellow warbler is a passerine in the Parulidae family. Both male and female are yellow with brown streaks below the throat, although males are a brighter yellow and have darker streaks below. Juveniles of both sexes are duller images of their corresponding sex and have an overall green hue (Lowther et al. 1999). The yellow warbler feeds primarily on insects and other arthropods and capture food by gleaning, hovering, or taking insects on the wing.

Yellow warblers typically arrive at breeding areas from late March to May, breeding occurs from mid-April to early August, and breeding areas are vacated by mid-October. The yellow warbler breeds most commonly in damp, thick vegetation; disturbed and early successional habitats; and especially prefers habitat dominated by willows (Lowther et al. 1999). Yellow warblers in Southern California breed in lowland and foothill riparian woodlands dominated by cottonwoods, alders, willows, and other small trees and shrubs typical of low, open-canopy riparian woodland (Garrett and Dunn 1981). The yellow warbler is found at elevations from 328 to more than 8,800 feet amsl within riparian habitat (Lowther et al. 1999).

Yellow warblers tend to nest in locations of intermediate height and shrub density with a clutch of three to six (four or five is common). The nest is built in an upright fork of a large tree, or sometimes a sapling or bush, generally 6 to 8 feet above the ground. The nest is a well-formed cup of interwoven plant fibers and down, fine grasses, lichens, mosses, spider silk, hairs, etc. The eggs are incubated for 11 days, and the young are tended by both parents until fledged at 9 to 12 days (Harrison 1978).

Males are territorial and territories may include more than one breeding female. Territories are established as soon as the males arrive (Lowther et al. 1999). Territories are dynamic, including overlap in use areas and boundary shifts that continue throughout the breeding season. The species tends to have relatively small territories and home ranges, varying from 0.08 to 0.5 acre (Lowther et al. 1999). Peak densities measured in southeast Arizona reached 119 birds per acre (Lowther et al. 1999).

The yellow warbler winters from Southern California, Arizona, and the Gulf Coast southward to Central America and northern South America (AOU 1998). During migration, yellow warblers occur in lowland and foothill woodland habitats, such as desert oases, riparian woodlands, oak

woodlands, mixed deciduous–coniferous woodlands, suburban and urban gardens and parks, groves of exotic trees, farmyard windbreaks, and orchards (Small 1994).

Distribution and Population Trends

Yellow warblers occur from northern Alaska eastward to Newfoundland and southward to northern Baja California and Georgia. Rangewide in North America, the yellow warbler is still considered to be one of the most abundant warblers (Heath 2008). While no current specific population estimates are available, Breeding Bird Survey data from the mid-1990s indicate a stable population range-wide, but with regional declines in the Pacific Northwest and California (Lowther et al. 1999). In the 1940s, the yellow warbler was described as a "common" to "locally abundant" breeder throughout California, except for most of the Mojave Desert and all of the Colorado Desert (Heath 2008). Although there have been several declines in local populations of yellow warbler, the limits of the yellow warbler's breeding range is similar to its historical range except in the Central Valley where the species is close to extirpated (Heath 2008). The breeding range has also contracted locally in the Owens Valley within the Great Basin Desert. Breeding numbers of yellow warbler in parts of California have declined substantially, especially in the lowland areas west of the Cascade–Sierra Nevada axis; however, local abundance and long-term trends of this species vary widely by region (Heath 2008).

Reasons for Decline

The major causes in the decline of the yellow warbler are habitat loss and degradation associated with urbanization and other human activities (Heath 2008). For example, loss of suitable habitat due to urbanization and agricultural expansion in California's Central Valley has nearly caused the extirpation of the yellow warbler from that area. Additional threats to the species include brood-parasitism by brown-headed cowbirds (Lowther et al. 1999), fire prevention activities that clear or limit regrowth of montane chaparral (Heath 2008), and intense cattle grazing.

Brood parasitism by brown-headed cowbirds has been cited as a major cause in the decline in yellow warbler numbers in lowland localities in recent decades (Remsen 1978, Garrett and Dunn 1981, Lowther et al. 1999). For example, parasitism occurred in nine of 25 nests or family groups in the Sierra Nevada where cowbirds were common (Lowther et al. 1999). The yellow warbler frequently responds to cowbird parasitism by building over the parasitized clutch, making multi-tiered nests. The yellow warbler is more likely to desert or bury the cowbird egg if the cowbird egg appears before any warbler egg or early in the laying sequence (Lowther et al. 1999). Cowbird management programs, specifically to aid least Bell's vireo populations in Riverside County, resulted in increased yellow warbler numbers (Lowther et al. 1999). However, the assumption that brood parasitism is major cause of decline is not always supported by regional data, because successful reproduction can occur in areas with high parasitism rates (Heath 2008).

Grazing has had a major impact on yellow warbler populations in the western United States (Taylor and Littlefield 1986). Intense cattle grazing can result in habitat degradation and

fragmentation, especially where willow growth along riparian habitats is reduced or removed. Proper management of cattle grazing to maintain willow borders of riparian habitat can help to maintain yellow warbler populations (Taylor and Littlefield 1986).

ENVIRONMENTAL BASELINE

The Applicant modeled a total of 986 acres of primary breeding/foraging habitat for the yellow warbler in the action area, including riparian woodland, riparian scrub, riparian/wetlands, and wash. The Applicant also modeled 51,743 acres of secondary foraging habitat, defined as habitat that is adequate to meet some aspects of the species' life history (in this case foraging) but not all aspects of its life history (e.g., breeding). Modeled secondary foraging habitats on Covered Lands are non-riparian woodlands and conifers. The modeled primary habitat occurs mainly in the south-facing drainages on the southern/southeastern edge of the action area east of the cement plant. There are smaller segments of primary modeled habitat around Castac Lake; in Bear Trap Canyon; and in the western portion of the action area in Rising Canyon, north of Grapevine Ridge, and adjacent to I-5. Modeled secondary habitat is scattered throughout the action area.

The Applicant conducted surveys for the yellow warbler in the TMV Planning Area in 2003 (Impact Sciences, Inc. 2004), 2005 (Jones and Stokes 2006a), 2007 (Dudek 2009), and 2011 (Dudek 2011), but these surveys did not extend to the entire action area. Yellow warblers were observed during each survey. Although the surveyors did not confirm breeding, the action area is within the breeding range of the species. We expect breeding yellow warblers to occur in and adjacent to modeled primary habitat during the breeding season, and we expect migrating yellow warblers to occur in both primary and secondary habitat.

Estimating the number of yellow warblers that could occur in the action area is difficult. Using the higher end of the species' range of known territory sizes (0.5 acre), we calculated that the 986 acres of modeled breeding and foraging habitat could support up to 1,972 yellow warblers. However, most, if not all, of the modeled suitable habitat for the yellow warbler has been and will continue to be subject to livestock grazing and the associated brown-headed cowbirds, range management, off-road vehicle travel, and other ranch activities. Accordingly, we expect yellow warblers to occur at relatively low density in the action area and expect that they likely will maintain that density under the TUMSHCP. In addition, because the Applicant's model uses fairly coarse input parameters, applying known home range sizes to modeled habitat in the action area to obtain an estimate of occupancy is unreliable. Therefore, we are using modeled suitable habitat as an index of potential yellow warbler presence to anticipate effects of the proposed action.

Recovery

The yellow warbler is not listed under the Federal Endangered Species Act, so we have not developed a recovery plan for the species to which we can refer to assess its recovery status. In the absence of a recovery plan, we default to the general conservation of the species. Recovery

would focus on determining the species' distribution, conserving much of the remaining habitat that supports the species, and restoring suitable habitat that has been disturbed but otherwise remains undeveloped. The yellow warbler has been observed on the Covered Lands, and suitable habitat has been identified that could support the species (52,729 acres total of modeled suitable habitat). Therefore, the Covered Lands may have a role in the conservation of the yellow warbler.

EFFECTS OF THE ACTION

Planwide Activities

Livestock

The Applicant proposes to continue livestock grazing on the balance of the action area outside development areas, consistent with the types and level of historical grazing and ranch management practices. Livestock generally have negative effects on riparian habitat and the native species that rely on that habitat, and continuation of historical grazing practices under the TUMSHCP would maintain the lower quality, baseline condition of riparian habitat in the action area during the permit term. Livestock may directly impact yellow warblers by disturbing or destroying nests while moving through vegetation. Migrating yellow warblers are unlikely to be directly impacted by livestock, but livestock could indirectly affect yellow warblers by damaging vegetation in which yellow warblers build nests and suppressing growth of new vegetation that could support yellow warblers. In addition, brown-headed cowbird density is known to be higher in proximity to livestock and agriculture (Goguen and Mathews 2000), and yellow warblers may be indirectly impacted by livestock through cowbird nest parasitism.

Livestock likely have a localized effect on yellow warbler habitat in the action area, and the indirect effects of livestock (e.g., cowbirds) likely affect nesting success of any breeding yellow warblers that occurs in the action area. The Applicant proposes the selective use of fencing, which could limit direct livestock interactions with natural water sources and have ancillary benefits for riparian habitats used by the yellow warbler, minimizing effects of livestock on breeding yellow warblers. Relative to the range-wide population and habitat availability, which includes most of North America north of Mexico, the effects of continued livestock grazing in the action area on the yellow warbler would be negligible. In addition, under the TUMSHCP, the Applicant must submit a grazing management plan to the Service every 5 years for review and approval. Our review of such plans will allow for the implementation of additional measures, such as the selective use of fencing, which could limit direct livestock interactions with natural water sources, or modification of grazing practices to promote the compatibility of grazing with the conservation of the yellow warbler.

Range Management/Ancillary Ranch Structures

Range management activities support livestock operations and consist of construction, operation, and maintenance of watering facilities, feeding areas, fences, and corrals, consistent with the

types and level of historical grazing and ranch management practices; repair, reconstruction, and relocation of roads to accommodate historical grazing and ranch management practices; and repair, maintenance, or installation of ranch management communication equipment (e.g., whip antennas) less than 20 feet high. The repair, reconstruction and relocation of roads to accommodate historical grazing and ranch management practices are evaluated below under Roads. Range management also incorporates ancillary ranch structures including squeezes, loading chutes, holding and feeding fields, corrals, branding traps, barns, sewage disposal facilities, livestock and wildlife watering facilities, and utilities serving existing ranch uses.

As described above under Planwide Activities in the Description of the Proposed Action section, *de-minimis* activities associated with ancillary ranch structures would be covered under the TUMSHCP. Non–*de minimis* activities associated with ancillary ranch structures are also allowed (1) if the activity is located in disturbed areas (e.g., undergrounding utilities in road rights-of-way), or (2) following a meet-and-confer process with the Service to ensure that the activity associated with an ancillary ranch structure avoids or adequately minimizes impacts to Covered Species and their habitats.

These activities occur at a small scale relative to the size of the action area, and range management facilities already exist in the action area. Workers or equipment, as well as placement of ancillary ranch structures, may create enough noise or disturbance to cause yellow warblers temporarily to avoid suitable habitat or abandon a nest. To avoid or minimize this impact, the Applicant would conduct breeding bird surveys prior to grading and construction and avoid occupied breeding habitat during the breeding season (see Table 2 of this biological opinion, and TUMSHCP Section 7.1.1.2.12). In addition, given the irregular nature of range management activities, and the Service's ability to review and approve the Applicant's grazing management plan, which would include protections for riparian areas (TUMSHCP Section 7.2), we expect impacts to the yellow warbler by range management activities to be rare.

Fuel Management

Fuel management practices would consist primarily of grazing, and the effects of fuel management by grazing would be largely subsumed within the effects identified for livestock. Other fuel management activities include fuel modification zones created by existing roads and through irrigation and/or vegetation clearing and mowing within 120 feet surrounding existing structures (i.e., backcountry cabins, ancillary ranch structures, etc.). Mowing in or near modeled primary habitat may create enough noise to cause yellow warblers to avoid suitable habitat or abandon a nest. However, a need for fuel management in riparian areas is unlikely, mowing for fuel management would occur infrequently/irregularly, and there are no backcountry cabins in modeled breeding habitat for the yellow warbler. Therefore, we expect adverse effects from mowing to be rare. Relative to the available modeled habitat in the action area and the large geographic range of the yellow warbler, effects from mowing would be negligible.

We do not expect adverse effects on the yellow warbler from mowing in modeled secondary habitat, because mowing would occur on an irregular basis, would occur over short time periods,

yellow warblers in this habitat are likely migrants without established territories, and mowing would occur in a small percentage of available modeled secondary habitat.

Fuel modification associated with proposed development is discussed below under Commercial and Residential Development Activities.

Filming

Filming activities generally consist of temporary on-scene filming and photography-related uses, including, but not limited to the filming and staging of movies, television shows, and commercials; photo shoots; and still photography and related uses. Such activities may include the erection and dismantling of props, temporary installation of trailers and equipment for film crews, filming of on-camera action, catering, rehabilitation of disturbed areas, and the movement of film crews to and from locations.

Film shoots that include explosives or other loud noises could disturb yellow warblers that occur in the action area. Explosions (louder than gunshots) or other abnormally loud noises are prohibited throughout the TUMSHCP Mitigation Lands unless the Service-approved Tejon Staff Biologist, in consultation with the Service, determines that no California condors are present, and explosions (louder than gunshots) are strictly prohibited in the Condor Study Area portion of the Covered Lands. These restrictions on explosions in the action area would also benefit yellow warblers in the action area by minimizing the potential for disturbance to this species from explosions.

We expect filming to cause only minimal impacts to yellow warbler habitat, because filming occurs over a relatively short time frame, the Applicant would require that habitat disturbed by filming activities be restored to pre-filming conditions, no permanent construction would be allowed for filming, and the Applicant would require that temporary construction avoid sensitive resources. Film crews or vehicles could disturb or destroy yellow warbler nests if filming occurs in breeding habitat during the breeding season. This is unlikely, because the Applicant would ensure that management and planning of activities in open space incorporates final baseline surveys and results of annual monitoring, survey prior to filming related use and avoid occupied breeding habitat, and a qualified biologist monitor all filming activities (TUMSHCP Section 7.1.1.2.12). Food and trash left in or near yellow warbler habitat could attract predators and indirectly increase predation; however, the Applicant will require daily removal of trash to minimize this effect. The Applicant's proposal to manage open space lands to maintain the existing habitat conditions described in the TUMSHCP would further minimize adverse effects from filming.

Recreation

Recreation associated with the Planwide Activities includes private recreation by TRC, its employees and guests and public access is governed by the Interim RWMP and managed by the Conservancy. Such recreational use is also subject to the terms of the TUMSHCP and the terms

of Service-approved conservation easements. While the private recreation by TRC occurs currently throughout the Covered Lands, public recreation, which generally consists of docent led tours by the Conservancy per the Interim RWMP, occurs in the Established Open Space portion of the Mitigation Lands. These public and private recreation uses are limited to passive activities listed in the Project Description. Recreation activities associated with Planwide Activities would occur in open space areas generally outside the TMV Planning Area at a relatively small scale, and have infrequent impacts. Recreational uses by TRC, its employees, and the public are limited by the access guidelines and best management practices in the Interim RWMP and will be further regulated in Public Access Plans, which are subject to permanent Service review and approval. We note that future development in the TMV Planning Area will likely lead to increased recreation demand by TMV Project residents and guests, but the type and nature of the use is the same. All such recreational use in the protected open space will also be regulated in the Public Access Plan, which will require monitoring and enforcement and is subject to permanent Service review and approval. An Interim Public Access Plan is currently in place that provides for docent-led public tours and requires pre-activity surveys prior to any ground-disturbing activities. We anticipate future levels of public access to be consistent with what occurs under the Interim Public Access Plan. The effects of recreation on the yellow warbler in the TMV Planning Area Open Space are discussed separately under Commercial and Residential Development Activities.

If recreation were to occur in occupied yellow warbler modeled habitat, it could potentially alter warbler behavior, including feeding, breeding, or sheltering activities. This could lead to increased energy expenditure, avoidance of suitable habitat, increased predation risk, and/or failed breeding attempts. To minimize the likelihood of this, the TUMSHCP requires that all public and private recreation would be conducted in a manner that would avoid adverse impacts to the Covered Species and their habitats or result in less-than-significant impacts, and recreation would be monitored and regulated by TRC staff, the Tejon Ranch Staff Biologist, or Conservancy docents, including provision of educational materials and restrictions on the location and types of any organized events. Recreational Planwide Activities would be planned to avoid sensitive species and known occurrences and require the use of existing roads and trails where possible (see Table 2 of this biological opinion, and TUMSHCP Section 2.2.1). Therefore, given the low density of the subspecies in the action area, the relatively small amount of modeled primary habitat in the action area, and the expected infrequent nature of recreation associated with Planwide Activities, any impacts to breeding yellow warblers would be rare.

We expect that yellow warblers would occasionally be flushed from modeled secondary habitat, because it is scattered throughout 51,743 acres of the action area. However, adverse effects are unlikely, because the proposed recreation would be passive, the subspecies occurs at low density in the action area and only during the breeding season, and the recreation activities would occur infrequently. In addition, public recreational activities will be governed by a Public Access Plan, subject to the Service's review and approval, both during and following the end of the permit term into perpetuity. This will allow for implementation of additional measures or modification of recreation activities as needed to avoid or minimize impacts.

Irrigation/Water Diversion

The action area contains minor water diversions for irrigation of agriculture, and a few small agricultural areas totaling about 232 acres exist in the TMV Planning Area (e.g., small vineyards and an orchard near Castac Lake). Agricultural uses that remain in open space after TRC identifies the final development footprint will continue subject to State and local regulations. We do not anticipate any adverse effects to the yellow warbler from on-going agricultural activity, because the Applicant is not proposing to expand agricultural operations, agricultural land is not primary habitat for the species, and we do not expect yellow warblers to occur in these areas with any regularity.

Maintenance or relocation of irrigation/water diversion facilities could disturb yellow warblers or their habitat, and the vehicles and workers conducting the maintenance could alter warbler behavior and disrupt feeding, breeding, or sheltering activities, or damage yellow warbler nests causing nest abandonment or injury or death of eggs/nestlings. To avoid impacts to individuals and nests, the Applicant would survey prior to grading and avoid occupied yellow warbler habitat during the breeding season. Further, the Applicant is not proposing to expand the current irrigation capacity/diversion capacity, the facilities cover a very small percentage of the covered lands, the operation of irrigation facilities does not cause additional impact to the yellow warbler, and the Applicant would manage and plan activities in open space using final baseline surveys and results of annual monitoring. In addition, maintenance and relocation work, if any, is subject to the survey and avoidance requirements in the TUMSHCP, and prior to TRC relocating water diversions, the Service would review and approve the proposed new locations. Therefore, we expect impacts of irrigation/water diversion on the yellow warbler to be rare.

Roads/Trails

A network of generally unpaved roads exists in the action area as access for fire protection, security, ranch activities, and hunting. As described in the TUMSHCP, the roads outside the development areas would be maintained, relocated, or new roads could be constructed, in compliance with the 200-acre limit on disturbance by Planwide Activities, to facilitate the proposed Planwide Activities. In general, the likelihood of impacts to the yellow warbler is low, because the majority of modeled breeding habitat is in areas with infrequent road/trail use, and road/trail use from Planwide Activities is expected to be irregular and infrequent. Therefore, we do not expect the presence and use of roads/trails to preclude yellow warblers from using nearby suitable habitat or to cause warblers to vacate occupied habitat. However, it is possible that road construction and maintenance could destroy yellow warbler habitat or disturb resident individuals, and motorized vehicles, off-highway vehicles, etc. could, on occasion, injure or kill yellow warblers if collisions occur.

To minimize adverse effects, the Applicant would require that breeding bird surveys be conducted prior to grading and occupied yellow warbler breeding habitat is avoided during the breeding season; new roads/trails avoid impacts to sensitive resources and do not significantly impair the conservation value of the affected land; and vehicles, hikers, etc. remain on

established roads and trails. Therefore, we expect the likelihood of adverse effects to be low, and impacts to yellow warblers would be largely avoided. Also, relative to the amount of modeled suitable breeding and secondary foraging habitat available in the action area, the effects of roads and trails would disturb very little habitat and affect few yellow warblers. Relative to the rangewide population and habitat availability, which includes most of North America north of Mexico, the anticipated effects of roads and trails on the yellow warbler would be negligible.

The direct and indirect effects of roads as a result of residential and commercial development are addressed below under Commercial and Residential Development Activities.

Utilities

The action area contains, or would contain, various minor utilities to support ranch activities. As described in Section 2.2.1 of the TUMSHCP, these utilities would be *de minimis* or would be located in previously disturbed areas (e.g., undergrounding utilities in road rights-of-way). Any utilities associated with Planwide Activities that are not *de minimis* or cannot be located in previously disturbed areas would require Service review and approval prior to relocation or construction. Installation or maintenance of these utilities may affect yellow warblers by disturbing habitat or individuals, or damaging nests and/or nestlings. However, we do not expect utilities to have a measurable impact on the yellow warbler, because utility posts and towers have small footprints, the utilities affect a very small percentage of the action area, and new utilities would primarily be installed in previously disturbed areas, and the management and planning of activities in open space would incorporate final baseline surveys and results of annual monitoring.

We address potential impacts by utilities associated with the proposed development under Commercial and Residential Development Activities.

Backcountry Cabins

Eight backcountry cabins occur in the action area and could be maintained, improved, repaired, replaced, or reconstructed in their existing location. Six of the eight cabins are located in modeled secondary habitat for the yellow warbler, but no backcountry cabins are located in primary modeled habitat. Human use of the cabins should not cause meaningful new habitat disturbance, and the Applicant proposes to ensure that all cabin use be conducted in a manner that would avoid adverse impacts to the yellow warbler. However, despite the environmental education and other measures proposed by the Applicant, we expect clients, TRC employees, and others using backcountry cabins to occasionally flush yellow warblers from modeled secondary habitat. We do not expect this to cause adverse effects, because the cabins occupy such a small percentage of the available modeled secondary habitat; occasional flushing would have little, if any, effect on an individual; and the Applicant proposed measures to minimize impacts to the species (TUMSHCP Section 7.1.1.2.12).

Currently, there are no cabins in modeled primary habitat, and we do not expect use of the existing cabins to affect breeding yellow warblers. Prior to TRC relocating an existing cabin, the Service would review and approve the proposed new location. This would ensure that the new cabin location is compatible with the conservation of the yellow warbler.

Fencing

Fences exist throughout the action area. Fences would be maintained and new fencing could be constructed and maintained as required to support the Covered Activities, including exclusion of cattle from sensitive habitats that support the yellow warbler. The Applicant proposes measures to avoid fencing-related impacts to sensitive resources, and the selective use of fencing, which could limit direct livestock interactions with natural water sources and have ancillary benefits for the yellow warbler and its habitat. Under the TUMSHCP, the Applicant must submit grazing management plans to the Service every 5 years for review and approval. Our review of such plans will allow for the implementation of additional measures or modification of fencing practices to maintain riparian habitat. For these reasons, we expect fencing in the action area to have no appreciable impacts on the yellow warbler.

Lebec/Existing Headquarters Area Uses

Existing activity in the Lebec/Existing Headquarters Area (i.e., corporate headquarters buildings, an antique shop, a post office, a church, and several single-family residences for ranch employees) would continue to occur. While additional development could occur here under the TUMSHCP, TRC has not included development plans for this area in the project description. The ongoing activities associated with this area may affect the yellow warbler, because small amounts of modeled secondary habitat for the species occurs in this area. Due to the nature of the activities occurring in this area, the impacts to the yellow warbler would be largely subsumed within the effects identified for recreation and roads. Because the activities occur at such a small scale relative to the amount of modeled habitat in the action area, the effects on the yellow warbler in the action area would be minor, and the effects would be negligible rangewide.

Potential development related impacts in the Lebec/Existing Headquarters Area are addressed below under Commercial and Residential Development Activities.

Mitigation, Monitoring, and Management

Mitigation, monitoring, and management activities to carry out identified biological goals and objectives for the California condor or other Covered Species included in the TUMSHCP or other resource agency permits for the commercial and residential Covered Activities, as well as mitigation, monitoring, and management activities imposed pursuant to any local, State, or Federal approval of development on Tejon Ranch would be carried out in accordance with the Act and would be subject to Service review. We acknowledge that other agencies may credit TRC for mitigation and protective measures included in the TUMSHCP for mitigation imposed by such other agencies. Any restoration, enhancement, or similar mitigation activities would not

be allowed if they would result in unpermitted adverse effects to species or critical habitat under the Act. Additionally, any mitigation activities for other agencies would be subject to the protective measures included in Tables 1 and 2, in the Description of the Proposed Action section of this biological opinion. Therefore, we anticipate that any potential threats to the yellow warbler as a result mitigation, monitoring, and management activities would be effectively minimized.

Estimate of Disturbance by Planwide Activities

The Applicant proposes a maximum of 200 acres of ground disturbance associated with the Planwide Activities described above. These ground disturbances would occur outside of the proposed development (discussed below) and may be permanent or temporary. The disturbance would primarily be associated with construction of roads, backcountry cabins, and ancillary structures. If the Applicant restores a portion of this disturbance, an area equal in size may then be disturbed. Thus, no more than 200 acres may exist in a developed condition because of Planwide Activities at one time.

For the purposes of this effects analysis, we assume that all parts of the action area that could be affected by Planwide Activities have an equal chance of being affected and that all habitat types would be affected in equal proportion. This assumption is based upon the Applicant's inability to predict exactly where 200 acres of habitat disturbance due to Planwide Activities would occur. In addition, there is no indication that the distribution or location of yellow warbler modeled habitat would cause Planwide Activities to disproportionately occur in yellow warbler modeled habitat.

For the purposes of estimating species-specific habitat disturbance by Planwide Activities, we are not using the 8,817-acre development envelope used by the Applicant to estimate impacts from development (TUMSHCP Table 2-1, footnote 4), but rather we are using the 5,533-acre area that actually could be developed within the development envelope. We did this, because after development of the 5,533-acre development footprint, 3,284 acres of the 8,817-acre development envelope would remain and be subject to Planwide Activities, and modeled habitat for the yellow warbler could occur in the 3,284 acres. Therefore, we included 3,284 acres of the development envelope in this analysis to acquire an estimate of habitat lost by Planwide Activities that is as accurate as possible. When we combine this estimate with anticipated habitat loss from commercial and residential development in a summary effects analysis (discussed below), we will have slightly double-counted and overestimated the amount of yellow warbler habitat that would be lost in the action area. This slight overestimation of lost habitat does not compromise our analysis, because the overlap is very small relative to the size of the action area, and this approach ensures that potential species impacts are fully considered by analyzing a larger impact than would actually occur.

Adding together the acres of commercial and residential development, National Cement and La Liebre Mines, the VA Cemetery, and Not-A-Part lands (blocks of land within the boundary of the action area but not owned by the Applicant), a total of 12,423 acres are not subject to

Planwide Activities. We expect that Planwide Activities could occur on the remaining 129,463 acres of the action area (141,886 acres within the action area minus the 12,423 acres of excluded areas above). Therefore, the ratio of disturbance due to Planwide Activities (200 acres) to Covered Lands subject to Planwide Activities (129,463 acres) equals 0.0015. We applied this ratio to yellow warbler habitat outside the excluded areas but in the action area and rounded the remainder up to a whole acre. Thus, 986 acres of modeled breeding and foraging habitat minus 8 lost to development equals 978 acres of modeled breeding and foraging habitat subject to Planwide Activities. Accordingly, 51,743 acres of secondary foraging habitat minus 2,687 acres lost to development equals 49,056 acres of modeled secondary habitat subject to Planwide Activities. Using our ratio of 0.0015, we anticipate that Planwide Activities would disturb or remove up to approximately 2 acres of modeled primary habitat and 74 acres of modeled secondary habitat (76 acres total) for the yellow warbler over the permit duration. We acknowledge that this could be an overestimate, because the Applicant is proposing measures to avoid and minimize disturbance to yellow warbler habitat.

Thus, while there could be a small loss of yellow warbler modeled suitable habitat due to Planwide Activities, in comparison to the modeled suitable habitat conserved, the loss would have a minimal effect on the species. Consequently, we conclude that the effects of Planwide Activities on the yellow warbler and its habitat would be minimal under the TUMSHCP and would not appreciably reduce the species' reproduction, numbers or distribution in the Covered Lands or rangewide.

Commercial and Residential Development Activities

Direct Effects

Development proposed to be covered under the TUMSHCP would permanently remove 8 acres of yellow warbler modeled foraging and breeding habitat and 2,687 acres of modeled secondary foraging habitat. This habitat loss includes any modeled habitat for the yellow warbler lost as a result of development activities in the Lebec/Existing Headquarters Area. The remaining modeled habitat in the TMV Planning Area would occur in a matrix of development and preserved open space.

Considering the lower-quality condition of the modeled habitat in the TMV Planning Area, the fact that the yellow warbler can achieve fairly high density in breeding habitat, and using the higher end of the species' range of known territory sizes (0.5 acre), we do not expect the 8 acres of breeding habitat that would be lost to support more than 16 yellow warbler territories. The Applicant proposes to avoid grading and construction in occupied yellow warbler nesting habitat during the breeding season, and we do not expect direct effects on individuals. Eight acres is less than 1 percent of available modeled breeding and foraging habitat within the action area and a tiny fraction of the species' available breeding habitat rangewide. We do not expect this loss of habitat to reduce the ability of the action area to support breeding yellow warblers, and it would have a negligible effect on the species rangewide.

The 2,687 acres of modeled secondary foraging habitat for the yellow warbler that would be removed by development is 5 percent of modeled secondary foraging habitat in the action area. This habitat could support a large number of foraging/migrating yellow warblers, and the loss of habitat would reduce the number of migrating yellow warblers that could potentially be supported in the TMV Planning Area. However, even with the proposed development, the action area would permanently retain more than 49,000 acres of modeled secondary foraging habitat and almost all breeding habitat, and we do not expect the expected loss of habitat to appreciably reduce the ability of the action area to support yellow warblers.

Indirect Effects

Development-related indirect impacts to yellow warblers and modeled suitable habitat could occur where modeled habitat is near developed areas. Most of the modeled yellow warbler habitat in the TMV Planning Area occurs around Castac Lake. This habitat may have increased lighting and noise that may disturb individual warblers or increase predation risk. Under the TUMSHCP, lighting would be directed away from sensitive habitats to reduce this effect.

Recreational activities allowed within Open Space areas are limited to passive recreation as described above under Planwide Activities. Even so, in the EIS for the TUMSHCP, we estimated that the TUMSHCP would increase the human population of the TMV Planning Area by 11,441 people, and we expect the recreational activities of future residents of the proposed development to cause a higher level of disturbance and impacts in this area than in other parts of the action area that are more remote. If recreation occurs in occupied yellow warbler habitat, it could potentially alter warbler behavior, including feeding, breeding, or sheltering activities. This could lead to increased energy expenditure, avoidance of suitable habitat, and increased predation risk. To minimize impacts of recreation, the Applicant would provide Home Owners' Association(s) with educational information regarding acceptable activities in open space areas, including recreational activities and pet restrictions. In addition, the Applicant would require that recreation in the action area be conducted in a manner that would avoid adverse impacts to the Covered Species and their habitats or result in less-than-significant impacts. At a minimum, the recreation activities would be planned to avoid sensitive species and known occurrences, and TRC would require the use of existing roads and trails where possible.

Modeled habitat for the yellow warbler is relatively common in the TMV Planning Area, more so than most other Covered Species, and some activities (e.g., behavior of pets) will be difficult to structure and enforce such that impacts are avoided. Despite the environmental education and other measures proposed by the Applicant (see Table 2 of this biological opinion, and TUMSHCP Sections 2.2.1 and 7.1.1.2.12), we expect residents and their pets, TRC employees, and others using the action area to recreate in or near yellow warbler modeled habitat, because of either apathy or unfamiliarity with sensitive species and habitats, and potentially flush or otherwise alter yellow warbler behavior, disrupting feeding, breeding, or sheltering activities. Frequent flushing, human presence, and other behavior alteration could cause adverse effects; however, we expect these impacts to occur infrequently, because the majority of yellow warbler modeled primary habitat occurs outside the TMV Planning Area; yellow warblers in modeled

secondary habitat are more likely to be migrants; and the Applicant proposed measures to minimize impacts to the species. To further minimize potential effects, recreational activities will be subject to the Public Access Plan to be reviewed and approved by the Service in perpetuity and approved conservation easements or other appropriately restricted conveyances over those lands. These measures would ensure that allowed recreational activities are conducted in a manner that avoids or minimizes impacts to the yellow warbler.

The Applicant proposes to clear and thin vegetation within 200 feet of the proposed development, creating a 1,773-acre fuel modification zone. The expected intensity of disturbance associated with these activities alone would not preclude yellow warblers from using modeled habitat near this area; however, the ongoing maintenance of this area, whether by grazing or mechanized means, could cause warblers to temporarily avoid suitable habitat. The estimated areal extent in which fuel modification may affect the yellow warbler is included in the 8 acres of modeled primary habitat and 2,687 acres of modeled secondary habitat estimated to be lost within the 8,817-acre development envelope.

Roads and trails receiving the most use would be located in the TMV Planning Area. Under the TUMSHCP, we expect road use in the development areas to be typical of residential/ commercial areas. In the EIS for the TUMSHCP, we estimated that the TUMSHCP would increase the human population of the action area by 11,441 people resulting in 79,514 additional vehicle trips per day. We expect most of these vehicle trips to occur near the commercial areas, and the number of vehicle trips would decrease with distance from Interstate 5. Vehicular traffic to the open space would be restricted and managed; nonetheless, use of roads in the development areas would increase substantially over baseline conditions and could adversely affect the yellow warbler. Noise and human/vehicle presence associated with frequent road use could flush warblers from nests or occupied habitat exposing them to higher predation risk and increased energy expenditure. Theoretically, vehicles could injure or kill yellow warblers if collisions occur, although the distribution of modeled primary habitat (most occurring outside the TMV Planning Area), the density at which the subspecies occupies the action area, and the Applicant's proposal to avoid occupied habitat during grading and construction would make collisions unlikely.

To minimize adverse effects, the Applicant would require that breeding bird surveys be conducted prior to grading or construction; new roads/trails avoid impacts to sensitive resources and do not significantly impair the conservation value of the affected land; and vehicles, hikers, etc. remain on established roads and trails. Therefore, we expect the likelihood of adverse effects to be low, and impacts to nesting yellow warblers would be largely avoided. Relative to the amount of modeled primary and secondary habitat available in the action area, the effects of roads and trails would disturb very little habitat and affect few yellow warblers. Relative to the range-wide population and habitat availability, which includes most of North America, the anticipated effects of roads and trails on the yellow warbler would be negligible.

New utilities to support development would be undergrounded, except that the two communication towers described under "Communication Towers" in the Description of the

Proposed Action section above (also on page 4-52 and elsewhere in Section 4 of the TUMSHCP) would be installed above ground. Once underground, new utilities would not cause ongoing impacts. The two communication towers may be in modeled secondary habitat for the yellow warbler and pose a limited collision risk for warblers flying in the action area. However, the risk of collision is very low, because the towers occupy such a small fraction of the action area, and we expect the migrant yellow warblers in secondary foraging habitat to move through the action area within a few days. In addition, the two communication towers will include design restrictions identified by the Service to minimize the potential for collisions. These restrictions must be reviewed and approved by the Service and require that (1) the towers be self-supporting (i.e., no guide wires must be included as part of the design); and (2) the tower facades will be primarily solid (e.g., through use of panels or other sidings, wider or denser lattice work, or alternative tower solutions as approved by the Service) to increase their visibility. Thus, the risk to yellow warblers in the action area is minor, and the risk to the species rangewide is negligible.

We expect loss of habitat due to residential and commercial development to displace up to 16 yellow warblers in the development footprint of the action area. The other indirect effects of residential and commercial development occasionally could disturb individual yellow warblers and/or rarely cause injury or death of an individual or nest over the term of the proposed permit. These effects would have a minor, localized effect on the yellow warbler population in the action area. The yellow warbler occupies a large range that includes most of North America north of Mexico. Given the small amount of habitat in the TMV Planning Area relative to the geographic range, the anticipated effects of development in the TMV Planning Area would be negligible.

TUMSHCP Mitigation

The Applicant proposes to conserve in perpetuity the balance of the action area outside the development areas, including 954 of the 986 acres of modeled breeding and foraging habitat and 49,008 of the 51,743 acres of modeled secondary foraging habitat for the yellow warbler. Using the higher end of the species' range of known territory sizes (0.5 acre), we expect the 954 acres of conserved modeled breeding and foraging habitat to support up to 1,908 yellow warblers. The yellow warbler is regularly seen in the action area, and under the TUMSHCP the Applicant would maintain the conserved land in its current condition, maintaining the ability of the action area to support the yellow warbler. The proposed preservation would contribute to the conservation of the species by eliminating future habitat loss in the action area and securing breeding and migratory habitat in the species' occupied range.

Summary of Effects

In determining whether a proposed action is likely to jeopardize the continued existence of a species, we consider the effects of the action with respect to the reproduction, numbers, and distribution of the species. We also consider the effects of the action on the recovery of the species. In that context, the following paragraphs summarize the effects of the proposed TUMSHCP on the yellow warbler.

The Planwide Activities and the Commercial and Residential Development Activities could have some effect on the yellow warbler. As stated above, the proposed TUMSHCP would remove a total of 2,771 acres (2,695 through development and 76 through Planwide Activities) of modeled habitat for the yellow warbler. This is approximately five percent of the modeled habitat in the action area, and the loss of this habitat would cause a minor reduction in the number of yellow warblers that could potentially be supported in the action area; however, 2,771 acres is a small amount of habitat compared to the habitat available in the species' large geographic range. Occupied breeding habitat would be avoided during the breeding season, which would largely avoid impacts to breeding yellow warblers.

Planwide Activities not associated with habitat loss, and the indirect effects of development, could result in ongoing, adverse effects to the yellow warbler. Livestock, recreation, and roads are the most likely sources of ongoing adverse effects not associated with habitat loss. Livestock may directly impact yellow warblers by disturbing or destroying nests while moving through vegetation. Livestock may indirectly affect yellow warblers by damaging vegetation in which yellow warblers build nests, suppressing growth of new vegetation that could support yellow warblers, or attracting brown-headed cowbirds that cause nest parasitism. People or pets could cause repeated flushing of individuals leading to increased energy expenditure, avoidance of suitable habitat, increased predation risk, failed breeding attempts, and/or an increased likelihood of death. Pets may cause injury or death of yellow warblers, or repeated pursuit of individuals causing an increased likelihood of death. Most modeled breeding habitat is outside of the TMV Planning Area, which reduces the likelihood of yellow warblers colliding with vehicles; however, yellow warblers moving between breeding and foraging habitat could be injured or killed if collisions with vehicles do occur. Noise and human/vehicle presence associated with frequent road use could flush warblers from nests or occupied habitat, exposing them to higher predation risk and increased energy expenditure; however, we expect these effects to be rare.

We expect Planwide Activities not associated with habitat loss, and the indirect effects of development to cause ongoing adverse effects on the yellow warbler during the permit term. However, in the action area, we expect the yellow warbler to occur at lower density than what has been documented elsewhere in the species' range. In addition most breeding habitat is outside development areas, and the applicant would implement measures to avoid or minimize adverse effects. Therefore, and considering the analysis above, we anticipate that adverse effects would be uncommon but could occur on a monthly basis during the breeding season.

Under the TUMSHCP, 49,962 of the 52,729 acres (95 percent) of modeled suitable habitat for the yellow warbler in the action area would be permanently conserved, contribute to the stability of yellow warbler habitat rangewide by preserving a large block of known occupied habitat in perpetuity and preventing future habitat loss in the action area. In addition, the TUMSHCP includes measures to avoid adverse effects and to minimize the effects of Planwide Activities and Commercial and Residential Development Activities on the yellow warbler (see Table 2 of this biological opinion, and TUMSHCP Section 7.1.1.2.12). We conclude that the combination of avoidance and minimization proposed by TRC to reduce the effects of both Planwide Activities and Commercial and Residential Development Activities, and the conservation of

almost all of the modeled suitable habitat in the action area to mitigate for unavoidable impacts, would allow the Covered Activities to proceed under the proposed ITP without appreciably reducing the rangewide reproduction, numbers, or distribution of the yellow warbler.

Recovery

The yellow warbler is not a federally listed species, and the Service does not prepare Recovery Plans for unlisted species; therefore, there are no recovery criteria with which to compare the current and future status of the yellow warbler. In the absence of a recovery plan, we default to the general conservation of the species, and recovery would focus on determining the species' distribution and the conservation of much of the remaining habitat that supports the species. In general terms, where suitable habitat exists, it should be conserved and where possible, additional habitat should be created or restored. The proposed action would not cause an appreciable reduction in the rangewide reproduction, numbers, or distribution of the yellow warbler; and the proposed permanent preservation of habitat in the action area would secure habitat in a migration corridor. The proposed action would result in the permanent conservation of 95 percent of modeled habitat for the species within the action area, which would have long-term, stabilizing benefits to the species by securing a portion of the species' range from future habitat loss, thus addressing a primary reason for the decline of the yellow warbler.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section, because they require separate consultation pursuant to section 7 of the Act.

Hunting

Private and commercial hunting operations occur on Tejon Ranch including the action area; however, hunting is not an activity covered by the TUMSHCP. The Applicant proposes to continue hunting operations throughout the ranch during the proposed permit term. Hunting activities involve travel on existing paved and unpaved roads, overnight use of backcountry cabins, hiking, discharging hunting weapons, etc. The effects from hunting will generally be consistent with, and to a considerable extent, are captured in the description of effects for Roads/Trails, Backcountry Cabins, and Recreation described above. The Applicant proposes to manage the hunting program to avoid take of any federally protected species. Hunting in the TMV Planning Area would be limited to guided hunts. Also, as feral pigs are known to cause extensive damage to riparian areas and directly or indirectly could affect yellow warblers, the hunting program could benefit warblers by removing some disturbance pressure from feral pigs. Therefore, we expect that hunting in the action area will have negligible cumulative effects on the yellow warbler.

Mining

Two commercial mining operations occur in the action area, La Liebre and National Cement; these mining operations are not covered activities under the TUMSHCP. The total area used for the two operations is about 2,636 acres, and the Applicant would maintain the mining leases through the proposed permit term. The two mining operations are on the southern/southeastern edge of the action area, in the vicinity of where most of the modeled primary habitat for the yellow warbler occurs, and a combined 65.3 acres of modeled breeding/foraging habitat, and 271.8 acres of modeled secondary foraging habitat occurs in the mining areas. We expect that much of the modeled habitat in the mining areas is already disturbed and that very little, if any, suitable breeding habitat for the yellow warbler exists in the mining areas. It is likely that some modeled secondary foraging habitat exists on the periphery of one or both of the mining areas. Therefore, on occasion, earthmoving, moving vehicles, and other mining activities may disturb yellow warblers in the mining areas. Further, a small area of modeled primary habitat is adjacent to the National Cement operation, and modeled secondary habitat is adjacent to portions of both mining areas. If vehicles and earthmoving activities cause excessive noise or a reduction in air quality in modeled habitat adjacent to the mines, yellow warblers may be displaced from suitable habitat. Given the small amount of modeled habitat that could be affected, and the large amount of habitat in the action area, we expect any effects from air quality reduction and other effects of mining to be minor. In addition, any use of chemicals in mining must be in conformance with Federal, State and local laws. For these reasons, we expect that continued mining in the action area will have inconsequential cumulative effects on the yellow warbler.

Other Activities

As discussed above under the Project Description, within the external boundaries of the action area, there are existing inholdings and utilities. The Bakersfield National Cemetery also occurs inside the action area. These projects and activities are not Covered Activities under the TUMSHCP. We are not aware of any reasonably foreseeable activities within the 3,870 acres of inholdings that may affect the yellow warbler. Activities associated with existing utilities, transmission lines, and related structures, such as maintenance activities, would be restricted to currently established easement areas and would have minor, if any, effects on the yellow warbler. Therefore, we do not anticipate any cumulative effects from the ongoing maintenance and operation of non-covered existing utilities. The Bakersfield National Cemetery is in place, and we are not aware of any activities associated with the cemetery that may have an adverse effect on the yellow warbler.

CONCLUSION

After reviewing (1) the current status of the yellow warbler; (2) the environmental baseline for this species in the action area; (3) the effects of the proposed action; and (4) the cumulative effects, it is our biological opinion that the Service's issuance of the proposed ITP is not likely to jeopardize the continued existence of the yellow warbler.

We have reached this conclusion because:

1. Although 2,771 acres of modeled suitable habitat would be permanently lost to development, the yellow warbler occupies a large geographic range outside of the action area. The proposed activities would affect a small portion of that overall distribution and a small number of individuals. Therefore, the effects on the yellow warbler will not appreciably reduce the rangewide reproduction, numbers, or distribution of the species.

2. The majority of the action area would be preserved in perpetuity, eliminating future loss of yellow warbler habitat in the action area. This would have long-term benefits to the yellow warbler and maintain the stability of its remaining habitat.

3. The Applicant will implement protective measures under the TUMHSCP as part of the proposed activities, including surveying project areas prior to grading and construction, avoidance of yellow warbler nests, and avoiding and minimizing effects to the yellow warbler and its habitat to the maximum extent practicable.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The proposed TUMSHCP and its associated documents identify anticipated impacts to the yellow warbler likely to result from the proposed taking and the measures that are necessary and appropriate to minimize those impacts. All conservation measures described in the proposed TUMSHCP, together with the terms and conditions described in the associated Implementing Agreement and any section 10(a)(1)(B) permit issued with respect to the proposed TUMSHCP, are hereby incorporated by reference as reasonable and prudent measures and terms and conditions within this Incidental Take Statement pursuant to 50 CFR §402.14(i). Such terms and conditions are non-discretionary and must be undertaken for the exemptions under section 10(a)(1)(B) and section 7(o)(2) of the Act to apply. If the permittee fails to adhere to these terms

and conditions, the protective coverage of the section 10(a)(1)(B) permit and section 7(o)(2) may lapse. The amount or extent of incidental take anticipated under the proposed TUMSHCP, associated reporting requirements, and provisions for disposition of dead or injured animals are as described in the TUMSHCP and its accompanying section 10(a)(1)(B) permit.

Amount or Extent of Take

We anticipate that up to 20 yellow warblers could occur in the 10 acres of modeled primary habitat that would be removed by Covered Activities (8 acres by residential and commercial development and 2 acres by Planwide Activities), and a subset of these warblers would be subject to harm through the TUMSHCP. Because the incidental take of the yellow warbler will be difficult to detect, documenting take by harm will be nearly impossible. Therefore, the limit of take from habitat loss exempted under this biological opinion and authorized under the proposed ITP would be reached when loss of modeled primary habitat for yellow warbler reaches 8 acres in the development footprint and 2 acres from Planwide Activities. We do not anticipate any direct take of the yellow warbler as a result of modeled primary habitat loss, because the Applicant has proposed survey and avoidance measures that will preclude impacts during the breeding season.

In addition, we anticipate ongoing indirect effects associated with development and direct and indirect adverse effects of Planwide Activities not associated with habitat loss, during the permit term. Examples include harassment, wounding, or killing by livestock (either through effects to individuals or disturbance/destruction of an active nest); harassment, pursuit, wounding, or killing by pets and people during recreation; and harassment, wounding or killing if vehicles strike yellow warblers. We anticipate that an average of one yellow warbler per month during the breeding season (5 over the duration of a breeding season), could be harassed, harmed, pursued, wounded, or killed as a result of indirect effects associated with development and direct or indirect effects of Planwide Activities. Estimating the number of yellow warblers that could be taken is extremely difficult because the action area is large, modeled habitat is scattered, and even adult yellow warblers have a small body size. Most incidents of take will be very difficult to witness and documenting take by harassment or harm will be nearly impossible. Observing a few incidents of take likely indicates that additional take has occurred in similar ways; therefore, 2 yellow warblers observed wounded or killed annually because of Planwide Activities and indirect effects of development would serve as a surrogate indication that the Service's anticipated level of take not associated with habitat loss has been reached.

The proposed TUMSHCP would cause the loss of 2,761 acres of modeled secondary habitat (5.3 percent of the modeled secondary habitat in the action area). While this habitat loss would reduce the number of migrant yellow warblers that potentially could be supported in the action area, we do not expect adverse effects to individuals, because loss of occupied habitat would not occur during the breeding season and a large amount of foraging habitat would remain available for the species. Therefore, we do not expect take of yellow warblers to result from the loss of modeled secondary habitat.

Effect of the Take

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the yellow warbler.

REASONABLE AND PRUDENT MEASURES / TERMS AND CONDITIONS

The measures described in the TUMSHCP, associated documents, and the Section 10(a)(1)(B) permit will effectively minimize the effects of any potential take of yellow warbler under the permit. Consequently, we are not including additional non-discretionary reasonable and prudent measures and implementing terms and conditions in this incidental take statement.

TRICOLORED BLACKBIRD

STATUS OF THE SPECIES

Regulatory History

The tricolored blackbird is not federally listed under the ESA; however, the species is protected under the MBTA (16 U.S.C. 703–712). Because the species is not federally listed, it does not have designated critical habitat. The tricolored blackbird is designated as a Species of Special Concern by CDFW.

Natural History/Habitat Requirements

The tricolored blackbird is a passerine in the Icteridae family. Tricolored blackbirds are sexually dimorphic, medium-sized birds. Adult males are entirely black with a red and white patch on the wing shoulder. Adult females are mostly black with gray streaks throughout their body. Females also have a small red patch on the shoulder, but it is much less distinct than that of an adult male. In addition, females have a white chin and throat. Juveniles of both sexes are similar to adult females but are a paler gray, and the juvenile female lacks the red shoulder patch (Beedy and Hamilton 1999). Banding studies indicate that tricolored blackbirds can live for 12 to 13 years (Beedy and Hamilton 1999). The red-winged blackbird (*A. phoeniceus*) and tricolored blackbird are closely related species in a genus that also includes the tawny-shouldered blackbird (*A. humeralis*) and the yellow-shouldered blackbird (*A. xanthomus*).

This species feeds primarily on seeds and invertebrates, and requires nearby open water and large open foraging spaces (e.g., grassland, agriculture field) to support breeding colonies. Tricolored blackbirds are known to abandon colonies on occasion, perhaps because of insufficient food supplies to support their young (Beedy and Hamilton 1999).

The tricolored blackbird forms the largest colonies of any North American passerine (Beedy and Hamilton 1999). Tricolored blackbirds are itinerant, changing nesting locations from year to year, and often nesting at more than one location during the breeding season. These changes may be an adaptation to exploit rapidly changing environments in ephemeral habitats (Beedy and Hamilton 1999). Large flocks can appear suddenly in areas from which they have been absent for months; breed, and then quickly withdraw (Orians 1960; Beedy and Hamilton 1999). During the non-breeding season, tricolored blackbirds often form single-species, and sometimes single-sex, flocks, and they also flock with other blackbird species.

Tricolored blackbirds breed between mid-April and late July. The clutch size ranges from two to five eggs, but three or four is typical (Emlen 1941). The first egg is usually laid the day after the nest is completed, occasionally before; and one egg is laid per day for 1 to 5 days (Emlen 1941). Tricolored blackbirds may raise two broods per year (Beedy and Hamilton 1999). Incubation lasts about 11 days, and nests fledge about 13 days later (Beedy and Hamilton 1999). They generally construct their nests close together within the nesting colony, and Neff (1937) reported

nests within 1.5 feet of each other. The high nesting density makes the colonies prone to high nest failure rates from predation.

During nesting season, tricolored blackbird males spend a large majority of their day establishing a territory and defending the nest. Male tricolored blackbirds spend approximately 50 percent of their time defending their nest while it is being built and the eggs are being laid (Beedy and Hamilton 1999; Yasukawa and Searcy 1995). As the breeding season continues, the male spends less time defending its territory and more time foraging. This may be related to increasing time and energy required to provide food for nestlings and the several miles tricolored blackbirds may travel to forage and procure food for nestlings (Beedy and Hamilton 1999).

The tricolored blackbird prefers to breed in freshwater marshes with dense growths of emergent vegetation dominated by cattails (*Typha* spp.) or bulrushes (*Schoenoplectus* spp.), but have also established colonies in willows, blackberries (*Rubus* spp.), thistles (*Cirsium* and *Centaurea* spp.), and nettles (*Urtica* sp.). Other nesting substrates include giant reed (*Arundo donax*); safflower (*Carthamus tinctorius*); mustard (*Brassica nigra*); tamarisk; groves of willows, Fremont cottonwood, California ash (*Fraxinus latifolia*); mulefat; and desert olive (*Forestiera neomexicana*); and spiny field plants, such as wheat (*Triticum* spp.), barley (*Hordeum* spp.), and thistles.
More recently, breeding habitat has also included diverse upland and agricultural areas. In California's Central Valley, large colonies generally occur in the rice and pasture lands of the Sacramento and San Joaquin Valleys. Colonies outside the Central Valley occur in several different habitat types, including those surrounded by chaparral-covered hills, sagebrush grasslands, orchards, or those adjacent to salt marsh (DeHaven et al. 1975).

Distribution and Population Trends

The tricolored blackbird has a relatively restricted range, breeding from southern Oregon and the Modoc Plateau of northeastern California, south through the lowlands of California west of the Sierra Nevada to northwestern Baja California (Beedy and Hamilton 1999). The species is not migratory over most of its range but is nomadic and highly colonial; the nomadic pattern is poorly understood (Orians 1960). The species exhibits some migratory behavior in Oregon, northeastern California, Santa Barbara County, and eastern San Diego County.

The vast majority (99 percent) of tricolored blackbirds reside within California (Beedy and Hamilton 1999). Most populations have been restricted to the Central Valley and surrounding foothill, coastal, and some inland localities in Southern California. Since 1980, active breeding colonies have been observed in 26 California counties, and most of the largest colonies are in the Central Valley (Beedy and Hamilton 1999). Within California, the tricolored blackbird breeds locally west of the Cascade Range, Sierra Nevada, and southeastern deserts. It also breeds in the marshes of Klamath Basin in Siskiyou and Modoc Counties and Honey Lake Basin in Lassen County (Beedy and Hamilton 1999). It is a summer resident in northeastern California, occurring regularly only at Tule Lake, but has bred some years as far south as Honey Lake and in the marshes of the Klamath Basin in Siskiyou and Modoc Counties (Zeiner et al. 1990b). In the

southern deserts, it is found regularly only at Antelope Valley, Los Angeles County. In winter, it becomes more widespread along the central coast and San Francisco Bay area (Beedy and Hamilton 1999; Garrett and Dunn 1981).

The distributional extent of the tricolored blackbird breeding range has remained relatively stable since the 1930s; however, recent statewide censuses have shown dramatic declines in tricolored blackbird numbers in the Central Valley, where the largest colonies have been observed (Beedy 2008). Population estimates/surveys of tricolored blackbird adults in California reported 369,359 in 1994, 162,508 in 2000 (Beedy 2008), and 260,000 in 2005 (Tricolored Blackbird Working Group 2007). Surveys focused on large colonies conducted in 2004 found that only 33 of the 184 previously documented colonies supporting over 2,000 adults remained active, and only 13 colonies still supported over 2,000 adults (Beedy 2008). Other censuses showed that colonies with fewer than 1,000 adults had increased from 25 percent in the 1930s to almost 67 percent in the 1980s, and colonies with more than 10,000 adults had dropped from 12 percent to 3 percent (Beedy and Hamilton 1999).

Reasons for Decline

The main reasons for decline of the tricolored blackbird are habitat loss and degradation, primarily as a result of human activity (Beedy 2008). Reclamation and drainage have destroyed many favorable habitats, while other habitats have been destroyed by the dredging or cleaning of reservoirs, marshes, and canals (Neff 1937). DeHaven et al. (1975) found fewer colonies, smaller colonies, and an overall smaller population size in California than that documented by Neff (1937) and attributed this decline to the loss of suitable nesting habitat (DeHaven et al. 1975). Substantial portions of the Central Valley, where 90 percent of the tricolored blackbird population is located, have been converted from suitable nesting and foraging habitat for the species to unsuitable conditions by agriculture and urbanization (Beedy 2008). A principal factor implicated in the population decline and the loss of individual colonies is elimination of wetland habitat, which has reduced available nesting and foraging habitat (Beedy et al. 1991). Large-scale conversion of grasslands and pasture to vineyards has substantially reduced suitable foraging habitat (Beedy 2008).

The smaller colonies that have resulted from this reduced nesting and foraging habitat may be more vulnerable to disturbance by natural predators and less able to compete with other species for the limited wetland nesting habitat. Higher rates of nesting failures and lower reproductive success have been observed in small colonies when compared to large colonies (Orians 1960; Payne 1969). Nesting failure and abandonment of nesting colonies has occurred for a number of reasons. Localized abandonment of active nests has been observed where colonies were entered and human-related activities occurred adjacent to the colony for several hours (Beedy and Hayworth 1992). Tricolored blackbirds are susceptible to massive nest destruction and failure from predators because of their colonial nesting pattern (Beedy et al. 1991; Beedy 2008). Predators of tricolored blackbirds include a variety of birds, mammals, and reptiles, including black-crowned night-herons, common ravens, and coyotes. This problem may increase as the continued loss of wetlands and other nesting habitat forces nesting colonies into confined areas.

Poisoning, either deliberate or indirect, has also been cited as contributing to the continued population decreases (Beedy et al. 1991). Tricolored blackbirds have shown reproductive failure as a result of pesticides and other toxins. Beedy and Hayworth (1992) observed almost complete nesting failure of a large colony (about 47,000 adults) in 1986 at Kesterson Reservoir, Merced County, an area contaminated by selenium deposited from agricultural drainage water. At a Kern County colony, all eggs sprayed with mosquito abatement oil failed to hatch (Beedy 2008). The loss of at least two colonies has been attributed to aerial herbicide applications (Beedy 2008). Strychnine was used to poison 30,000 birds in the early 1930s as an agricultural experiment (Beedy 2008).

ENVIRONMENTAL BASELINE

We are not aware of any comprehensive surveys for tricolored blackbirds in the action area. The Applicant conducted focused surveys for aquatic and marsh-dwelling bird species in the TMV Planning Area and documented breeding tricolored blackbirds at Castac Lake in 2005 (Jones and Stokes 2006a) and 2007 (Dudek 2009). Tricolored blackbirds were also observed in 1999, 2000, 2001, 2003, and 2004 around Castac Lake and once in a marshy area at the upper end of Rising Canyon (Impact Sciences, Inc. 2004). The Applicant modeled 18,553 acres of foraging habitat and 289 acres of primary breeding habitat for tricolored blackbird in the action area. The modeled primary breeding habitat is exclusively in the TMV Planning Area, while the modeled foraging habitat is generally along the northern, western, and southern/southwestern boundaries of the action area (TUMSHCP Figure 5-14). Modeled habitat for the tricolored blackbird includes riparian/wetland, wetlands, grasslands, agriculture, wash, riparian woodland, and riparian scrub. Based on regular observations of nesting and foraging, we expect the tricolored blackbird to occur regularly in modeled suitable habitat in the action area. We expect breeding tricolored blackbirds to occur around and near Castac Lake. We expect foraging tricolored blackbirds to occur in the balance of modeled suitable habitat.

Although no breeding habitat was modeled outside of the Castac Lake area, tricolored blackbirds could breed near any other wetland habitat in the action area (e.g., stock ponds with emergent reeds). However, we expect that non-modeled breeding habitat would comprise artificial water sources that, by nature, are ephemeral and subject to relocation or removal in response to ranching needs. Therefore, tricolored blackbirds may opportunistically use these habitats, but we do not expect these habitats to be reliable breeding areas. In addition, these habitats cover a very small portion of the action area. For these reasons, we did not include artificial wetlands as modeled breeding habitat and did not consider them in the analysis of effects.

We cannot determine the exact number of tricolored blackbirds that could occupy the action area, because colony numbers for this species can change drastically within short periods. Approximately 15 tricolored blackbirds were observed at Castac Lake in 2007 (Dudek 2009), and CDFG recorded approximately 150 tricolored blackbirds at Castac Lake in 2012 (Linda Connolly, CDFG, *in litt.* 2012). Given that tricolored blackbirds normally nest colonially in greater numbers than those observed at Castac Lake, placing nests within feet or inches of one

another, and 289 acres of modeled breeding habitat are in the action area, it is reasonable to conclude that the Castac Lake area could support far more tricolored blackbirds than has previously been reported. Agriculture/livestock and other human activities may affect breeding habitat and cause other disturbance that suppresses tricolored blackbird numbers around Castac Lake and elsewhere in the action area. We do not have any survey results suggesting how, or to what extent, tricolored blackbirds use modeled foraging habitat outside the TMV Planning Area. For the purposes of this biological opinion, we use available modeled habitat as a surrogate for potential tricolored blackbird presence in the action area.

Recovery

The tricolored blackbird is not listed under the Federal Endangered Species Act, so we have not developed a recovery plan for the species to which we can refer to assess its recovery status. In the absence of a recovery plan, we default to the general conservation of the species. For a species like the tricolored blackbird that has lost much of its former known occupied habitat, recovery would necessitate the conservation of much of the remaining habitat that supports the species. In addition, restoration of suitable habitat that has been disturbed but otherwise remains undeveloped would be a priority. Lastly, efforts to establish the species in unoccupied but otherwise suitable habitat (either natural or man-made) would contribute to its recovery.

The tricolored blackbird has been observed on the Covered Lands, and suitable habitat has been identified that could support the species (18,842 acres total of modeled suitable habitat). Therefore, the Covered Lands may have a role in the conservation of the tricolored blackbird.

EFFECTS OF THE ACTION

Planwide Activities

Livestock

The Applicant proposes to continue to graze livestock on the balance of the action area outside development areas consistent with the types and level of historical grazing and ranch management practices. Tricolored blackbirds are known to forage in lightly grazed areas, and the Applicant proposes to manage open space lands to maintain the existing habitat conditions, which include light to moderate grazing. Therefore, we do not expect continued grazing to reduce the current level of foraging activity by tricolored blackbirds in the action area.

Livestock generally have negative effects on riparian/wetland habitat and the native species that rely on that habitat and the continuation of historical grazing practices under the TUMSHCP would maintain the lower-quality baseline condition of habitat in the action area during the permit term. However as noted above, grazed habitat is currently used by foraging tricolored blackbirds and we do not expect that to change under the TUMSHCP. Livestock could also directly affect tricolored blackbirds by stepping on nests and indirectly affect tricolored blackbirds by damaging vegetation tricolored blackbirds require for breeding. That said, the

action area is known to support breeding tricolored blackbirds despite any current effects from grazing. In addition, most, if not all modeled breeding habitat for the tricolored blackbird is in the TMV Planning Area, which we expect to receive less frequent grazing because of the proximity to residential areas. In addition, under the TUMSHCP, the Applicant must submit a grazing management plan to the Service every 5 years for review and approval. Our review of such plans will allow for the implementation of additional measures or modification of grazing practices, such as the selective use of fencing, which could limit direct livestock interactions with natural water sources and have ancillary benefits for riparian habitats used by the tricolored blackbird. Therefore, we expect grazing to have minor effects on the tricolored blackbird in the action area.

Range Management/Ancillary Ranch Structures

Range management activities support livestock operations and consist of construction, operation, and maintenance of watering facilities, feeding areas, fences, and corrals, consistent with the types and level of historical grazing and ranch management practices; repair, reconstruction, and relocation of roads to accommodate historical grazing and ranch management practices; and repair, maintenance, or installation of ranch management communication equipment (e.g., whip antennas) less than 20 feet high. The repair, reconstruction and relocation of roads to accommodate historical grazing and ranch management practices are evaluated below under Roads. Range management also incorporates ancillary ranch structures including squeezes, loading chutes, holding and feeding fields, corrals, branding traps, barns, sewage disposal facilities, livestock and wildlife watering facilities, and utilities serving existing ranch uses.

As described above under Planwide Activities in the Description of the Proposed Action section, *de-minimis* activities associated with ancillary ranch structures would be covered under the TUMSHCP. Non–*de minimis* activities associated with ancillary ranch structures are also allowed (1) if the activity is located in disturbed areas (e.g., undergrounding utilities in road rights-of-way), or (2) following a meet-and-confer process with the Service to ensure that the activity associated with an ancillary ranch structure avoids or adequately minimizes impacts to Covered Species and their habitats.

Workers or equipment, as well as placement of ancillary ranch structures, may create enough noise or disturbance to flush tricolored blackbirds or cause them temporarily to avoid suitable habitat. Range management activities occur at a small scale relative to the size of the action area and available modeled foraging habitat, and range management facilities already exist in the action area. The Applicant proposes to manage livestock operations to maintain existing modeled habitat, survey prior to grading and construction and avoid breeding tricolored blackbirds, and ensure that management and planning of activities in open space incorporates final baseline surveys and results of annual monitoring. In addition, the Service would review and approve the Applicant's grazing management plan (which would include protections for riparian areas (TUMSHCP Section 7.2)) providing opportunity to implement additional measures to promote the conservation of the tricolored blackbird. Therefore, we do not expect range management/ancillary ranch structures to have adverse effects on the tricolored blackbird.

Fuel Management

Fuel management practices would consist primarily of grazing, and the effects of fuel management by grazing would be largely subsumed within the effects identified for livestock. Other fuel management activities include fuel modification zones created by existing roads and through irrigation and/or vegetation clearing and mowing within 120 feet surrounding existing structures (i.e., backcountry cabins, ancillary ranch structures, and other existing structures). Mowing may create enough noise to flush tricolored blackbirds or cause them temporarily to avoid suitable habitat. However, a need for fuel management in wetland areas is unlikely, mowing would occur in a small area relative to the amount of modeled foraging habitat in the action area, modeled breeding habitat for the tricolored blackbird is primarily located in the TMV Planning Area, mowing for fuel management would occur infrequently/irregularly, and mowing causes habitat alterations similar to livestock. Therefore, we do not expect mowing associated with Planwide Activities to cause adverse effects to the tricolored blackbird.

Fuel modification associated with proposed development is discussed below under Commercial and Residential Development Activities.

Filming

Filming activities generally consist of temporary on-scene filming and photography-related uses, including, but not limited to the filming and staging of movies, television shows, and commercials; photo shoots; and still photography and related uses. Such activities may include the erection and dismantling of props, temporary installation of trailers and equipment for film crews, filming of on-camera action, catering, rehabilitation of disturbed areas, and the movement of film crews to and from locations.

Film shoots that include explosives or other loud noises could disturb tricolored blackbirds that occur in the action area. Explosions (louder than gunshots) or other abnormally loud noises are prohibited throughout the TUMSHCP Mitigation Lands unless the Service-approved Tejon Staff Biologist, in consultation with the Service, determines that no California condors are present, and explosions (louder than gunshots) are strictly prohibited in the Condor Study Area portion of the Covered Lands. These restrictions on explosions in the action area would also benefit tricolored blackbirds in the action area by minimizing the potential for disturbance to this species from explosions.

We expect filming to cause only minimal impacts to tricolored blackbird habitat, because filming occurs over a relatively short time frame, the Applicant would require that habitat disturbed by filming activities be restored to pre-filming conditions, the Applicant would conduct a site evaluation prior to filming related use and avoid occupied breeding habitat, no permanent construction would be allowed for filming, the Applicant will require that temporary construction avoid sensitive resources, and a qualified biologist would monitor filming activities. Food and trash left in or near tricolored blackbird habitat could attract predators and indirectly

increase predation; however, the Applicant would require daily removal of trash to minimize this effect. In addition, the Applicant's proposal to manage open space lands to maintain the existing habitat conditions described in the TUMSHCP would minimize adverse effects from filming. Therefore, we do not expect filming activities in the action area to cause adverse effects to the tricolored blackbird.

Recreation

Recreation associated with the Planwide Activities includes private recreation by TRC, its employees and guests and public access is governed by the Interim RWMP and managed by the Conservancy. Such recreational use is also subject to the terms of the TUMSHCP and the terms of Service-approved conservation easements. While the private recreation by TRC occurs currently throughout the Covered Lands, public recreation, which generally consists of docent led tours by the Conservancy per the Interim RWMP, occurs in the Established Open Space portion of the Mitigation Lands. These public and private recreation uses are limited to passive activities listed in the Project Description. Recreation activities associated with Planwide Activities would occur in open space areas generally outside the TMV Planning Area at a relatively small scale, and have infrequent impacts. Recreational uses by TRC, its employees, and the public are limited by the access guidelines and best management practices in the Interim RWMP and will be further regulated in Public Access Plans, which are subject to permanent Service review and approval. We note that future development in the TMV Planning Area will likely lead to increased recreation demand by TMV Project residents and guests, but the type and nature of the use is the same. All such recreational use in the protected open space will also be regulated in the Public Access Plan, which will require monitoring and enforcement and is subject to permanent Service review and approval. An Interim Public Access Plan is currently in place that provides for docent-led public tours and requires pre-activity surveys prior to any ground-disturbing activities. We anticipate future levels of public access to be consistent with what occurs under the Interim Public Access Plan. The effects of recreation on the tricolored blackbird in the TMV Planning Area Open Space are discussed separately under Commercial and Residential Development Activities.

We do not expect recreation associated with Planwide Activities to affect breeding tricolored blackbirds, because modeled breeding habitat exists only in the TMV Planning Area. Recreation could occur in modeled foraging habitat for the tricolored blackbird and alter blackbird behavior, including feeding or sheltering activities. This could lead to increased energy expenditure, avoidance of suitable habitat, and increased predation risk. To minimize the likelihood of this, under the TUMSHCP requires that all public and private recreation be conducted in a manner that would avoid adverse impacts to the Covered Species and their habitats or result in less-than-significant impacts (see Table 2 of this biological opinion, and TUMSHCP Section 7.1.1.2.9), and recreation would be monitored and regulated by TRC staff, the Tejon Ranch Staff Biologist, or Conservancy docents, including provision of educational materials and restrictions on the location and types of any organized events. At a minimum, the recreation activities would be planned to avoid sensitive species and known occurrences, and the Applicant will require the use of existing roads and trails where possible. In addition, recreational activities will be governed

by a Public Access Plan, subject to the Service's review and approval, both during and following the end of the permit term into perpetuity. Under this plan, TRC guests, contractors and licensees, and visitors would be provided with educational information regarding acceptable activities in open space areas, including recreational activities, pet restrictions, and wildlife restrictions. Considering these measures, the relatively large amount of modeled foraging habitat in the action area, and the expected passive and infrequent nature of recreation associated with Planwide Activities, we do not expect these activities to cause adverse effects to the tricolored blackbird.

Irrigation/Water Diversion

The action area contains existing water diversions for irrigation of agriculture, and a few small agricultural areas totaling about 232 acres exist in the TMV Planning Area (e.g., small vineyards and an orchard near Castac Lake). Agricultural uses that remain in open space after TRC identifies the final development footprint will continue subject to State and local regulations. The agricultural land in the TMV Planning area is near Castac Lake, as is nearly all modeled breeding habitat for the tricolored blackbird. Agricultural activities could cause adverse effects to the tricolored blackbird if workers, mechanical equipment, or vehicles disturb, injure, or kill tricolored blackbirds foraging or moving through agricultural areas. However, established vineyards and orchards require less intense disturbance than annual row crops, and there is no agricultural expansion allowed under the TUMSHCP. In addition, tricolored blackbirds are highly mobile, and are unlikely to injured or killed by typically slow-moving agricultural activities. Therefore, we expect any impacts from agriculture to be rare and negligible.

The operation of irrigation/diversion facilities does not cause additional impacts; however, maintenance of these facilities could disturb tricolored blackbirds or their habitat. The vehicles and workers conducting the maintenance could temporarily alter tricolored blackbird behavior and disrupt feeding or sheltering. To minimize adverse effects, the Applicant would survey prior to grading and avoid occupied breeding habitat. In addition, the Applicant is not proposing to expand the current irrigation capacity/diversion capacity, the facilities cover a very small percentage of the action area, and the Applicant proposes measures under the RWA and the TUMSHCP to minimize impacts from covered activities (see Table 2 of this biological opinion, and TUMSHCP Section 7.1.1.2.9). Maintenance and relocation work, if any, is subject to the survey and avoidance requirements in the TUMSHCP, and prior to TRC relocating water diversions, the Service would review and approve the proposed new locations. In consideration of these measures, and given the small scale of these activities and the relatively large amount of modeled foraging habitat in the action area, we expect impacts of irrigation/water diversion in the action area on the tricolored blackbird to be rare and negligible.

Roads/Trails

A network of generally unpaved roads exists in the action area as access for fire protection, security, ranching activities, and hunting. As described in the TUMSHCP, the roads outside the development areas would be maintained, relocated, or new roads could be constructed, in

compliance with the 200-acre limit on disturbance by Planwide Activities, to facilitate the proposed Planwide Activities. In general, the likelihood of impacts to the tricolored blackbird from road use associated with Planwide Activities is low, because road use outside the development areas would be irregular and of low intensity, and roads/trails would affect a very small portion of the action area. Motorized vehicles, off-highway vehicles, etc. could, conceivably, injure or kill tricolored blackbirds if collisions occur; although, given the infrequency of road use outside the development areas, and the extent of modeled foraging habitat available, the risk of collision is negligible. We do not expect the presence and use of roads/trails to preclude tricolored blackbirds from using nearby suitable habitat or to cause blackbirds to vacate occupied habitat. However, road construction and maintenance could destroy tricolored blackbird foraging habitat or disturb individuals. To minimize this impact, the Applicant proposes measures (see Table 2 of this biological opinion, and TUMSHCP Section 7.1.1.2.9) to avoid tricolored blackbird habitat to the maximum extent feasible, including surveys prior to grading. In addition, the maximum amount of habitat that could be disturbed is small relative to that available in the action area and negligible relative to habitat available rangewide.

The direct and indirect effects of roads as a result of residential and commercial development are addressed below under Commercial and Residential Development Activities.

Utilities

The action area contains, or would contain, various minor utilities to support ranch activities. As described in Section 2.2.1 of the TUMSHCP, these utilities would be *de minimis* or would be located in previously disturbed areas (e.g., undergrounding utilities in road rights-of-way). Any utilities associated with Planwide Activities that are not *de minimis* or cannot be located in previously disturbed areas would require Service review and approval prior to relocation or construction. Installation or maintenance of utilities may affect tricolored blackbirds by disturbing habitat or individuals. However, we do not expect utilities to have a substantial impact on the tricolored blackbird, because utility posts and towers have small footprints, the utilities affect a very small percentage of the action area, and the Applicant's proposal to survey project areas prior to grading and avoid tricolored blackbird habitat to the extent practicable would minimize the potential for adverse impacts to tricolored blackbirds by utilities.

We address potential impacts by utilities associated with the proposed development under Commercial and Residential Development Activities.

Backcountry Cabins

Eight back-country cabins occur in the action area; however, there are no backcountry cabins in modeled suitable habitat for the tricolored blackbird. In addition, prior to TRC relocating an existing cabin, the Service would review and approve the proposed new location. This would ensure that the new cabin location is compatible with the conservation of the tricolored blackbird. Therefore, we do not expect the use of backcountry cabins to cause adverse effects to the species.

Fencing

Fences exist throughout the action area. Fences would be maintained and new fencing could be constructed and maintained as required to support the Covered activities, including exclusion of cattle from sensitive habitats that support the tricolored blackbird. The Applicant proposes measures to avoid fencing-related impacts to sensitive resources, and the selective use of fencing, which could limit direct livestock interactions with natural water sources and have ancillary benefits for the tricolored blackbird and its habitat. Because all tricolored blackbird breeding occurs in or near the development envelope, we do not expect many fences associated with Planwide Activities to be installed near breeding habitat. In addition, fences affect a very small portion of the action area, and maintenance activities occur infrequently. Therefore, we do not expect fencing to have adverse effects on the tricolored blackbird.

Lebec/Existing Headquarters Area Uses

Existing activity in the Lebec/Existing Headquarters Area (i.e., corporate headquarters buildings, an antique shop, a post office, a church, and several single-family residences for ranch employees) would continue to occur. While additional development could occur here under the TUMSHCP, TRC has not included development plans for this area in the project description. The ongoing activities associated with this area may affect the tricolored blackbird, because a small amount of modeled suitable habitat for the species occurs in this area. Due to the nature of the activities occurring in this area, the impacts to the tricolored blackbird would be largely subsumed within the effects identified for recreation and roads. Because the activities occur at such a small scale relative to the amount of modeled habitat in the action area, the effects on the tricolored blackbird in the action area would be minor, and the effects would be negligible rangewide.

Potential development related impacts in the Lebec/Existing Headquarters Area are addressed below under Commercial and Residential Development Activities.

Mitigation, Monitoring, and Management

Mitigation, monitoring, and management activities to carry out identified biological goals and objectives for the California condor or other Covered Species included in the TUMSHCP or other resource agency permits for the commercial and residential Covered Activities, as well as mitigation, monitoring, and management activities imposed pursuant to any local, State, or Federal approval of development on Tejon Ranch would be carried out in accordance with the Act and would be subject to Service review. We acknowledge that other agencies may credit TRC for mitigation and protective measures included in the TUMSHCP for mitigation imposed by such other agencies. Any restoration, enhancement, or similar mitigation activities would not be allowed if they would result in unpermitted adverse effects to species or critical habitat under the Act. Additionally, any mitigation activities for other agencies would be subject to the protective measures included in Tables 1 and 2, in the Description of the Proposed Action

section of this biological opinion. Therefore, we anticipate that any potential threats to the tricolored blackbird as a result mitigation, monitoring, and management activities would be effectively minimized or beneficial.

Estimate of Disturbance by Planwide Activities

The Applicant proposes a maximum of 200 acres of ground disturbance associated with the Planwide Activities described above. These ground disturbances would occur outside of the proposed development (discussed below) and may be permanent or temporary. The disturbance would primarily be associated with construction of roads, backcountry cabins, and ancillary structures. If the Applicant restores a portion of this disturbance, an area equal in size may then be disturbed. Thus, no more than 200 acres may exist in a developed condition because of Planwide Activities at one time.

For the purposes of this effects analysis, we assume that all parts of the action area that could be affected by Planwide Activities have an equal chance of being affected and that all habitat types would be affected in equal proportion. This assumption is based upon the Applicant's inability to predict exactly where 200 acres of habitat disturbance due to Planwide Activities would occur. In addition, there is no indication that the distribution or location of tricolored blackbird modeled habitat would cause Planwide Activities to disproportionately occur in tricolored blackbird modeled habitat.

For the purposes of estimating species-specific habitat disturbance by Planwide Activities, we are not using the 8,817-acre development envelope used by the Applicant to estimate impacts from development (TUMSHCP Table 2-1, footnote 4), but rather we are using the 5,533-acre area that actually could be developed within the development envelope. We did this, because after development of the 5,533-acre development footprint, 3,284 acres of the 8,817-acre development envelope would remain and be subject to Planwide Activities, and modeled habitat for the tricolored blackbird could occur in the 3,284 acres. Therefore, we included 3,284 acres of the development envelope in this analysis to acquire an estimate of habitat lost by Planwide Activities that is as accurate as possible. When we combine this estimate with anticipated habitat loss from commercial and residential development in a summary effects analysis (discussed below), we will have slightly double-counted and overestimated the amount of tricolored blackbird habitat that would be lost in the action area. This slight overestimation of lost habitat does not compromise our analysis, because the overlap is very small relative to the size of the action area, and this approach ensures that potential species impacts are fully considered by analyzing a larger impact than would actually occur.

Adding together the acres of commercial and residential development, National Cement and La Liebre Mines, the VA Cemetery, and Not-A-Part lands (blocks of land within the boundary of the action area but not owned by the Applicant), a total of 12,423 acres within the action area are not subject to Planwide Activities. We expect that Planwide Activities could occur on the remaining 129,463 acres of the action area (141,886 acres within the action area minus the 12,423 acres of excluded areas above). Therefore, the ratio of disturbance due to Planwide

Activities (200 acres) to Covered Lands subject to Planwide Activities (129,463 acres) equals 0.0015. We applied this ratio to tricolored blackbird habitat outside the excluded areas but in the action area and rounded the remainder up to a whole acre. Thus, 18,842 acres (289 breeding, 18,553 foraging) of modeled habitat minus 1,130 acres (23 breeding, 1,107 foraging) lost to development equals 17,712 acres (266 breeding, 17,446 foraging) subject to Planwide Activities. Using our ratio of 0.0015, we anticipate that Planwide Activities would disturb or remove up to approximately 28 acres (1 acre of breeding habitat and 27 acres of foraging habitat) of modeled suitable habitat for the tricolored blackbird over the permit duration. We acknowledge that this could be an overestimate because the Applicant is proposing measures to avoid and minimize disturbance to tricolored blackbird habitat.

Thus, while there could be a small loss of tricolored blackbird modeled suitable habitat due to Planwide Activities, in comparison to the modeled suitable habitat conserved, the loss would have a minimal effect on the species. Consequently, we conclude that the effects of Planwide Activities on the tricolored blackbird and its habitat would be minor under the TUMSHCP and would not appreciably reduce the species' reproduction, numbers or distribution in the Covered Lands or rangewide.

Commercial and Residential Development Activities

Direct Effects

The proposed development would permanently remove 23 acres of modeled breeding habitat (8 percent of total) and 1,107 acres of modeled foraging habitat (6 percent of total) for the tricolored blackbird. This habitat loss includes any modeled habitat for the tricolored blackbird lost as a result of development activities in the Lebec/Existing Headquarters Area. We do not expect direct impacts to tricolored blackbirds from development because the Applicant would survey prior to grading and construction and either avoid breeding habitat during the breeding season or apply avoidance buffers for occupied breeding habitat (TUMSHCP section 7.1.1.2.9). The remaining modeled habitat in the TMV Planning Area would occur somewhat fragmented in a matrix of development and preserved open space. The remaining modeled breeding habitat around Castac Lake would occur in between the Lake and developed areas. Much of the modeled foraging habitat in proximity to the modeled breeding habitat would be lost. Preserved breeding habitat could be functionally lost if enough nearby foraging habitat is lost that the ability of the TMV Planning Area to support breeding is reduced. We do not anticipate that this will occur, because the TUMSHCP incorporates minimization measures including avoidance of riparian and wetland habitat, contractor/construction personnel training, etc. (TUMSHCP section 7.1.1.2.9). In addition, tricolored blackbirds are known to breed in urban open space and forage as far as 3 miles from the breeding colony. Therefore, we expect breeding by tricolored blackbirds to continue in the action area despite the proposed development; however, we expect the ability of the action area to support breeding tricolored blackbirds would be reduced by these habitat losses.

Indirect Effects

Development-related indirect impacts to tricolored blackbirds and modeled suitable habitat could occur where modeled habitat is near developed areas. All of the modeled breeding habitat remaining after development would exist close to developed areas, increasing the likelihood of indirect effects from development. Developed areas would have increased lighting that may disturb tricolored blackbirds or increase predation risk, although the Applicant proposes to direct lighting away from sensitive habitats to reduce this effect. Pets and other non-native predators (e.g., rats (*Rattus* spp.)) associated with development may disturb, injure, or kill any life stage of tricolored blackbird. Development is also likely to attract native generalist predators (coyotes, foxes, skunks, opossums, raccoons) and increase predation risk for tricolored blackbirds and especially nests.

Recreational activities allowed within proposed Open Space areas are limited to passive recreation as described above under Planwide Activities. Even so, in the EIS for the TUMSHCP, we estimated that the TUMSHCP would increase the human population of the TMV Planning Area by 11,441 people. We expect the recreational activities of future residents of the proposed development to cause a higher level of disturbance and impacts in this area than in other parts of the action area that are more remote, because the human population density and tricolored blackbird breeding activity is highest in this area.

If recreation occurs in the vicinity of occupied tricolored blackbird habitat, it could potentially alter blackbird behavior, including feeding, breeding, or sheltering activities. This could lead to increased energy expenditure, avoidance of suitable habitat, nest abandonment, and increased predation risk. The frequency with which adverse effects to the tricolored blackbird breeding colony occur in the TMV Planning Area will vary annually, because tricolored blackbird population sizes can change dramatically in short time periods. At a minimum, we expect that tricolored blackbirds will occasionally be flushed by recreation activities. This impact could occur annually, and if it occurs with regularity within a single breeding effort, the colony may abandon a nesting area, causing injury or death of eggs or nestlings. Alternatively, because of the potential for a high density of tricolored blackbird nests, one person or pet moving through a colony's nesting area could cause substantial damage including multiple destroyed nests and nest abandonment. Therefore, recreation has the potential to cause an appreciable, localized effect on the tricolored blackbird in the action area.

To minimize impacts of recreation in the action area, TRC would provide Home Owners' Association(s) with educational information regarding acceptable activities in open space areas, including recreational activities and pet restrictions. In addition, TRC would require that recreation in Open Space areas be conducted in a manner that would avoid adverse impacts to the Covered Species and their habitats or result in less-than-significant impacts. At a minimum, the recreation activities would be planned to avoid sensitive species and known occurrences, and TRC would require the use of existing roads and trails where possible. However, despite the environmental education and other measures proposed by the Applicant (see Table 2 of this biological opinion, and TUMSHCP Sections 2.2.1 and 7.1.1.2.9), we expect residents, pets, TRC

employees, and others using the action area to recreate in or near tricolored blackbird modeled habitat either because of apathy or unfamiliarity with sensitive species and habitats. The behavior of pets will be difficult to structure and enforce such that impacts would be avoided. To further minimize potential effects, recreational activities will be subject to the Public Access Plan to be reviewed and approved by the Service in perpetuity and approved conservation easements or other appropriately restricted conveyances over those lands. This will ensure that implementation of additional measures or modification of recreation activities would occur as needed to promote compatibility of recreation with conservation of the tricolored blackbird. While we expect nest abandonment and destruction from recreation to occur over the duration of the proposed permit, we expect these impacts to be uncommon, because the measures proposed by the Applicant to avoid and minimize impacts to the tricolored blackbird generally should be effective in reducing, but not completely avoiding, adverse effects.

The Applicant proposes to clear and thin vegetation within 200 feet of the proposed development, creating a 1,773-acre fuel modification zone. We do not expect mowing to damage nests or cause the loss of a colony, because tricolored blackbirds breed in habitat that is unlikely to be mowed. However, noise and presence of mowing machines could flush tricolored blackbirds and cause a temporary disturbance. We do not expect this to cause adverse effects on the tricolored blackbird, because mowing is a relatively brief activity and would occur infrequently. The estimated areal extent in which fuel modification may affect the tricolored blackbird is included in the 3,959 acres of modeled habitat estimated to be lost within the 8,817-acre development envelope.

Roads receiving the most use would be located in the TMV Planning Area and would receive relatively frequent use by automobiles, bicycles, etc. typical of residential/commercial areas. In the EIS for the TUMSHCP, we estimated that the TUMSHCP would increase the human population of the TMV Planning Area by 11,441 people resulting in 79,514 additional vehicle trips per day. We expect most of these vehicle trips to occur near the commercial areas, and the number of vehicle trips would decrease with distance from Interstate 5. Nonetheless, use of roads in the development areas would increase substantially over baseline conditions and could adversely affect the tricolored blackbird. In addition, all modeled breeding habitat for the tricolored blackbird is located within the TMV Planning Area; therefore, we anticipate that the potential for impacts from roads to tricolored blackbirds in the action area would be highest in the TMV Planning Area. The noise and human/vehicle presence associated with frequent road/trail use could adversely affect tricolored blackbirds by precluding individuals from using nearby suitable habitat or flushing individuals from occupied habitat. Collisions are possible in the TMV Planning Area because of the higher intensity of vehicle use. Motorized vehicles, on occasion, could injure or kill tricolored blackbirds if collisions occur.

To avoid or minimize impacts of roads/trails to the tricolored blackbird, the Applicant proposes to survey prior to grading and construction and avoid tricolored blackbird habitat to the extent practicable. New roads that completely avoid tricolored blackbird habitat are not likely to cause adverse effects to the species' habitat over the duration of the permit. The Applicant would also require that vehicles, hikers, etc. remain on established roads and trails. While roads could cause

occasional, minor adverse effects on the tricolored blackbird in the action area, relative to the rangewide population and habitat availability, which includes much of California west of the Sierra Nevada Mountains and south into San Diego County, the anticipated effects of roads associated with the proposed development on the tricolored blackbird would be negligible.

New utilities to support development would be undergrounded, except that the two communication towers described under "Communication Towers" in the Description of the Proposed Action section above (also on page 4-52 and elsewhere in Section 4 of the TUMSHCP) would be installed above ground. Once underground, new utilities would not cause ongoing impacts. The two communication towers may be in modeled foraging habitat for the tricolored blackbird and pose a limited collision risk for individuals flying in the action area. However, the risk of collision is very low, because the towers occupy such a small fraction of the action area. In addition, the two communication towers will include design restrictions identified by the Service to minimize the potential for collisions. These restrictions must be reviewed and approved by the Service and require that (1) the towers be self-supporting (i.e., no guide wires must be included as part of the design); and (2) the tower facades will be primarily solid (e.g., through use of panels or other sidings, wider or denser lattice work, or alternative tower solutions as approved by the Service) to increase their visibility. Thus, the risk to tricolored blackbirds in the action area is minor, and the risk to the species rangewide is negligible.

Given that all modeled breeding habitat is in the TMV Planning Area, the large flocks that can occupy suitable habitat, and the number of people and pets expected to occupy and visit the TMV Planning Area and use that area for recreation, we expect that at full build-out of the proposed development, indirect adverse effects of development on individual tricolored blackbirds could occur on a semi-regular basis, especially during the species' breeding season (April through July). Adverse effects could include repeated flushing, destroyed or abandoned nests, and collisions with vehicles. These effects would contribute to a decrease in, but not loss of, the ability of the action area to support breeding tricolored blackbirds. That said, the amount of habitat for the tricolored blackbird in the action area is tiny compared to the larger geographic range of the species, and the indirect effects of development on the tricolored blackbird would be minor relative to the species' rangewide population.

Mitigation

The Applicant proposes to preserve in perpetuity nearly the balance of the action area outside the development areas, including 198 acres (68 percent) of modeled breeding habitat and 17,373 acres (94 percent) of modeled foraging habitat for the tricolored blackbird. The Applicant would maintain the preserved land in its current condition, which is known to support small numbers of tricolored blackbirds. The proposed preservation will secure suitable habitat for the species, eliminating the future loss of tricolored blackbird habitat in the action area, thus addressing a primary reason for the species' decline.

Summary of Effects

In determining whether a proposed action is likely to jeopardize the continued existence of a species, we consider the effects of the action with respect to the reproduction, numbers, and distribution of the species. We also consider the effects of the action on the recovery of the species. In that context, the following paragraphs summarize the effects of the proposed TUMSHCP on the tricolored blackbird.

The Planwide Activities and the proposed development would have some effect on the tricolored blackbird. As stated above, TRC estimates that up to 23 acres of modeled breeding habitat and 1,107 acres of modeled foraging habitat could be lost due to Commercial and Residential Development Activities under the TUMSHCP. In addition, we estimate that an additional 1 acre of breeding habitat and 27 acres of foraging habitat could be lost due to Planwide Activities disturbance, for a total of 24 acres of breeding habitat and 1,134 acres of foraging habitat lost under the TUMSHCP.

The Planwide Activities, including recreation, and the indirect effects of development could result in additional, ongoing impacts to the tricolored blackbird. Recreation and roads are the most likely sources of ongoing adverse effects by Planwide Activities not associated with habitat loss. People or pets could cause destruction of nests, injury or death of adult tricolored blackbirds, or repeated flushing of individuals causing an increased likelihood of death. Most, if not all, modeled breeding habitat is in the TMV Planning Area, and tricolored blackbirds moving between breeding and foraging habitat could be injured or killed if collisions with vehicles occur. In addition, an increase in native and non-native generalist predators around developed areas may cause an ancillary increase predation on tricolored blackbirds, with nests being the most vulnerable. We also expect that some of the modeled breeding habitat not removed by development in the TMV Planning Area could become unsuitable for breeding, because (1) adjacent foraging habitat would be lost, (2) the adjacent roads, development, etc. could have multiple indirect adverse effects on breeding tricolored blackbirds and their habitat, and (3) other Planwide Activities in the immediate area could exacerbate impacts on tricolored blackbirds and their habitat. That said, tricolored blackbirds are known to breed in urban green space when sufficient foraging habitat is nearby, and we do not expect the proposed TUMSHCP to eliminate breeding by tricolored blackbirds in the action area.

The population of tricolored blackbirds in the action area is small relative to the large colonies formed by the species elsewhere in California. However, the breeding habitat in the action area would be adjacent to development, roads, and recreation; and the species breeds in high densities. Therefore, we anticipate that adverse effects would be uncommon but could occur on a monthly basis during the breeding season.

Under the TUMSHCP, 198 acres of modeled breeding habitat and 17,373 acres of modeled foraging habitat, the majority (approximately 68 percent of breeding habitat and 94 percent of foraging habitat) of the modeled suitable habitat in the action area, would be permanently conserved, contributing to the stability of tricolored blackbird habitat rangewide by preserving a

large block of known occupied habitat and reducing the amount of tricolored blackbird habitat that could be lost in the future. In addition, the TUMSHCP includes measures to avoid adverse effects and to minimize the effects of Planwide Activities and development related impacts to the tricolored blackbird (see Table 2 of this biological opinion, and TUMSHCP Section 7.1.1.2.9). We conclude that the combination of avoidance and minimization proposed by the Applicant to reduce the effects of both Planwide and Commercial and Residential Development Activities, and the conservation of modeled suitable habitat in the action area to mitigate for unavoidable impacts, would allow the Covered Activities to proceed under the proposed ITP without appreciably reducing the rangewide reproduction, numbers, or distribution of the tricolored blackbird.

Recovery

The tricolored blackbird is not a federally listed species, and the Service does not prepare Recovery Plans for unlisted species; therefore, there are no recovery criteria with which to compare the current and future status of the tricolored blackbird. In the absence of a recovery plan, we default to the general conservation of the species, and recovery would focus on determining the species' distribution and the conservation of much of the remaining habitat that supports the species. In general terms, where suitable habitat exists, it should be conserved and where possible, additional habitat should be created or restored. The proposed action would have a negative effect on the tricolored blackbird in the action area but would not appreciably affect the reproduction, numbers, or distribution of the tricolored blackbird rangewide. The proposed action would result in the permanent conservation of 93 percent of modeled habitat for the species in the action area, which would have long-term, stabilizing benefits to the species by securing a portion of the species' occupied range from future habitat loss, thus addressing a primary reason for the species' decline.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section, because they require separate consultation pursuant to section 7 of the Act.

Hunting

Private and commercial hunting operations occur on Tejon Ranch and in Covered Lands; however, hunting is not an activity covered by the TUMSHCP. The Applicant proposes to continue hunting operations throughout the ranch during the proposed permit term. Hunting activities involve travel on existing paved and unpaved roads, overnight use of backcountry cabins, hiking, discharging hunting weapons, etc. We expect the effects from hunting will generally be consistent with, and to a considerable extent are captured in, the description of effects for Roads/Trails, Backcountry Cabins, and Recreation described above. The Applicant proposes to manage the hunting program to avoid take of any federally protected species.

Hunting in the TMV Planning Area would be limited to guided hunts. Also, as feral pigs are known to cause extensive damage to riparian/wetland areas and directly or indirectly could affect tricolored blackbirds, the hunting program could benefit the species by removing some disturbance pressure from feral pigs. Therefore, we expect that hunting in the action area will have negligible cumulative effects on the tricolored blackbird.

Mining

Two commercial mining operations occur in the action area, La Liebre and National Cement. The total area used for the two operations is about 2,636 acres, and the Applicant would maintain the mining leases through the proposed permit term. The two mining operations are on the southern/southeastern edge of the action area. Although very little modeled habitat is adjacent to the National Cement mine boundary, modeled suitable foraging habitat nearly surrounds the La Liebre mine boundary, and a total of 160.9 acres of modeled foraging habitat occurs in the mining areas. There is no modeled breeding habitat in the mining areas. We expect that much of the modeled habitat in the mining areas is already directly and indirectly affected and that noise, vehicles, human presence, etc. associated with mining activities likely discourage tricolored blackbirds from using suitable foraging habitat in the mining areas. Vehicles and earthmoving activities may cause a reduction in air quality in modeled habitat adjacent to the mines; however, given the small size of the La Liebre mine, the very small amount of modeled habitat around La Liebre that could be affected by mining operations, and the large amount of habitat in the action area, we expect that any effects from mining would be minor. In addition, any use of chemicals in mining must be in conformance with Federal, State and local laws. Therefore, we expect that continued mining in the action area will have inconsequential cumulative effects on the tricolored blackbird.

Other Activities

As discussed above under the Project Description, within the external boundaries of the action area, there are existing inholdings and utilities. The Bakersfield National Cemetery also occurs inside the action area. These projects and activities are not Covered Activities under the TUMSHCP. We are not aware of any reasonably foreseeable activities within the 3,870 acres of inholdings that may affect the tricolored blackbird. Activities associated with existing utilities, transmission lines, and related structures, such as maintenance activities, would be restricted to currently established easement areas and would have minor, if any, effects on the tricolored blackbird. Therefore, we do not anticipate any cumulative effects from the ongoing maintenance and operation of non-covered existing utilities. The Bakersfield National Cemetery is in place, and we are not aware of any activities associated with the cemetery that may have an adverse effect on the tricolored blackbird.

CONCLUSION

After reviewing (1) the current status of the tricolored blackbird; (2) the environmental baseline for this species in the action area; (3) the effects of the proposed action; and (4) the cumulative

effects, it is our biological opinion that the Service's issuance of the proposed ITP is not likely to jeopardize the continued existence of the tricolored blackbird.

We have reached this conclusion because:

1. Although 24 acres of breeding habitat and 1,134 acres of foraging habitat would be permanently lost to development, the tricolored blackbird occupies a large geographic range outside of the action area. The proposed activities would affect a small portion of that overall distribution and would affect a small number of tricolored blackbirds relative to the typical colony size (hundreds or thousands of individuals) and the population rangewide. The effects on the tricolored blackbird will not appreciably reduce the rangewide reproduction, numbers, or distribution of the species.

2. The majority of the action area would be preserved in perpetuity, eliminating the future loss of tricolored blackbird habitat in the action area. This would have long-term benefits to the tricolored blackbird and the stability of its remaining habitat.

3. The Applicant will implement protective measures as part of the proposed activities including surveying project areas prior to grading and construction, providing buffers or other complete avoidance measures around occupied breeding habitat, and avoiding the tricolored blackbird and its habitat to the maximum extent practicable. This should reduce or avoid impacts to the species.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The proposed TUMSHCP and its associated documents identify anticipated impacts to the tricolored blackbird likely to result from the proposed taking and the measures that are necessary and appropriate to minimize those impacts. All conservation measures described in the proposed TUMSHCP, together with the terms and conditions described in the associated Implementing

Agreement and any section 10(a)(1)(B) permit issued with respect to the proposed TUMSHCP, are hereby incorporated by reference as reasonable and prudent measures and terms and conditions within this Incidental Take Statement pursuant to 50 CFR §402.14(i). Such terms and conditions are non-discretionary and must be undertaken for the exemptions under section 10(a)(1)(B) and section 7(o)(2) of the Act to apply. If the permittee fails to adhere to these terms and conditions, the protective coverage of the section 10(a)(1)(B) permit and section 7(o)(2) may lapse. The amount or extent of incidental take anticipated under the proposed TUMSHCP, associated reporting requirements, and provisions for disposition of dead or injured animals are as described in the TUMSHCP and its accompanying section 10(a)(1)(B) permit.

Amount or Extent of Take

The Service anticipates incidental take of the tricolored blackbird will be difficult to detect, because the action area is large, and we expect direct effects to individuals to be uncommon. Documenting take by harassment or harm will be nearly impossible. Therefore, to anticipate and describe the effects of the TUMSHCP, we use available modeled habitat as a surrogate for tricolored blackbird presence in the action area.

The proposed Commercial and Residential Development Activities in the development areas would cause the loss of 23 acres of modeled breeding habitat and 1,107 acres of modeled foraging habitat. Additionally, we anticipate that 1 acre of modeled breeding habitat and 27 acres of modeled foraging habitat for the tricolored blackbird would be lost or otherwise made unsuitable because of disturbance associated with Planwide Activities. We anticipate that this loss of breeding habitat, plus functional loss of a small amount of additional breeding habitat would cause harm to a small number of tricolored blackbirds in the action area over the permit term as they are forced to expend additional time and energy resources finding alternate habitat or competing for remaining habitat. The loss of foraging habitat may also cause adverse effects to tricolored blackbirds; however, because of the large amount of modeled foraging habitat that would remain and be preserved in the action area, we do not expect the loss of foraging habitat to cause take of the tricolored blackbird.

The limit of take from habitat loss exempted under this biological opinion and authorized under the proposed ITP would be reached when habitat loss from Commercial and Residential Development Activities reaches 23 acres of tricolored blackbird modeled breeding habitat, and 1 acre of modeled breeding habitat for the tricolored blackbird is disturbed by Planwide Activities.

In addition, we anticipate ongoing, indirect effects associated with development and direct and indirect adverse effects of Planwide Activities not associated with loss of habitat, during the permit term. Examples include harassment, wounding, or killing by livestock (either through effects to individuals or disturbance/destruction of an active nest); harassment, pursuit, wounding, or killing by native or non-native predators; harassment, pursuit, wounding, or killing by pets and people during recreation (either through effects to individuals or disturbance/destruction of an active nest); and harassment, wounding or killing when vehicles strike tricolored blackbirds on roads/trails. We expect an average of two tricolored blackbirds

per month during the breeding season (7 over the duration of a breeding season), would be harassed, harmed, pursued, wounded, or killed as a result of indirect effects associated with development and direct or indirect effects of Planwide Activities. Most of these incidents will be difficult to witness; therefore, three tricolored blackbirds or nests observed wounded, killed, or destroyed annually because of Planwide Activities and indirect effects of development would serve as a surrogate indicator that the Service's anticipated level of take not associated with habitat loss has been reached.

Effect of the Take

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the tricolored blackbird.

REASONABLE AND PRUDENT MEASURES / TERMS AND CONDITIONS

The measures described in the TUMSHCP, associated documents, and the Section 10(a)(1)(B) permit will effectively minimize the effects of any potential take of the tricolored blackbird under the permit. Consequently, we are not including additional non-discretionary reasonable and prudent measures and implementing terms and conditions in this incidental take statement.

TEHACHAPI POCKET MOUSE

STATUS OF THE SPECIES

Regulatory History

The Tehachapi pocket mouse is not federally listed under the ESA; however, the species is designated as a Species of Concern by CDFW. Because the Tehachapi pocket mouse is not federally listed, it does not have designated critical habitat.

Natural History/Habitat Requirements

The Tehachapi pocket mouse is one of two recognized subspecies of *Perognathus alticola* (Hall 1981), and *P. alticola* is closely related to *P. parvus* (Williams et al. 1993). The two subspecies occupy geographically distinct ranges and they may be distinct species (Williams et al. 1993). The Tehachapi pocket mouse can be distinguished from the other subspecies *P. a. alticola* (white-eared pocket mouse) by its larger size; darker, more pointed ears; and square pentagonal interparietal bone (Best 1994; Laabs 2001; Williams et al. 1993). Individuals average 5.9 and 6.5 inches in length for females and males, respectively, with a 2.4 to 3.8 inch tail, and weight of 0.56 to 0.85 ounces (Hall 1981; Best 1994). The pelage is yellow-brown overlaid with blackish hairs dorsally and white ventrally. The tail is bicolored with a black or dusky tip that extends dorsally for at least half the length of the tail (Best 1994).

The Tehachapi pocket mouse is known to occur in grasslands (both native and non-native), Joshua tree woodland, pinyon-juniper woodland, yellow pine woodland, oak savannah, chaparral, and sage scrub (Williams et al. 1993, Best 1994) between 3,500 and 6,000 feet amsl. It has also been detected in fallow fields dominated by Russian thistle (Zeiner et al. 1990c). In 2010, individuals captured southeast of the action area were all found in arid shrub communities on slopes (Cypher et al. 2010). The subspecies is not found in areas with substantial surface disturbance.

There is little information available on the life history of the Tehachapi pocket mouse, and published descriptions (including this account) of the subspecies' ecology generally assume similarities to the ecology of the Great Basin pocket mouse (*Perognathus parvus*), the white-eared pocket mouse (*P. alticola alticola*), and the yellow-eared pocket mouse (*P. xanthonotus*) (CDFG 2005; Laabs 2001). Other members of genus *Perognathus* are nocturnal granivores that may also feed on leafy plant material and insects when available (Verts and Kirkland 1988; CDFG 2005). Tehachapi pocket mice likely aestivate during very hot weather and hibernate in cold weather. They construct burrows in loose, sandy soils (CDFG 2005; Laabs 2001). The reproductive period, if similar to *P. parvus*, is from March to August. Gestation likely lasts 21 to 28 days, litter size ranges from 3 to 8 pups, and the young are likely weaned within 3 weeks (CDFG 2005). Predators include foxes, coyotes, weasels, owls, and snakes (CDFG 2005).

Home range sizes of the Tehachapi pocket mouse are unknown, but could approximate the 0.78-acre or smaller home ranges observed for *P. parvus* in Washington and British Columbia by Howard (1996).

Distribution and Population Trends

The Tehachapi pocket mouse is considered very rare (Jameson and Peeters 2004, CDFG 2005), although no rigorous, long-term study has examined population trends. There are occurrence records for the subspecies scattered over the last century, and the subspecies' current known range is much smaller than its known historical range.

The Tehachapi pocket mouse is historically known from elevations between 3,500 and 6,000 feet in the Tehachapi Mountains from Tehachapi Pass southwest towards Gorman, as far west as Mount Pinos, and east along the lower slopes of the San Gabriel Mountains to Elizabeth Lake (Williams et al., 1993). However, surveys of a number of historical Tehachapi pocket mouse locations in the 1980s failed to record any Tehachapi pocket mouse individuals (Laabs 2001). More recently, surveys on Tejon Ranch in 2001, 2003, and 2008 to 2010 captured Tehachapi pocket mice on the southern and southeastern slopes of the Tehachapi Mountains. These are currently the only known occurrences of the subspecies; however, the eastern slope of the San Gabriel Mountains have not been surveyed recently and may still support Tehachapi pocket mouse populations.

Reasons for Decline

The primary threats to the Tehachapi pocket mouse appear to be habitat loss and fragmentation caused by urbanization and agricultural expansion. As the subspecies occurs in isolated, scattered populations, any natural or human-related event that exacerbates the isolation of these populations is a threat to this subspecies, making it vulnerable to local extirpation. Any type of surface disturbance could be a threat to the Tehachapi pocket mouse, and complete disturbance (e.g., urbanization, surface mining, row-crop agriculture) is incompatible with the subspecies' persistence. Over-grazing by livestock could be a threat to the subspecies if it substantially alters preferred habitat by reducing plant diversity and abundance, causing surface disturbance, etc.

Other threat factors that are associated with urban development include roads; an increase in the abundance of urban-related predators such as pets; stray and feral cats and dogs; nighttime lighting that could make Tehachapi pocket mouse more vulnerable to predators; increased habitat degradation (e.g., trampling of vegetation, introduction of exotic species, and off-road vehicles); and the use of rodenticides.

ENVIRONMENTAL BASELINE

Although we are not aware of any comprehensive surveys of the action area for the Tehachapi pocket mouse, there are eight records of the subspecies in the action area (Table 5). The CNDDB reports at least two occurrences of Tehachapi pocket mouse in the TMV Planning Area,

both along the southern edge of the area, south and southeast of Castac Lake in the Oso Canyon area (Figure 2). The CNDDB occurrences are found in grasslands, desert wash/riparian/seeps, and open woodlands (CDFG 2011a). The CNDDB mapped a third occurrence reported in 1974, close to the action area south/southeast of Castac Lake; however, based on the written description record of the occurrences' location, it is unlikely that this occurrence is in the action area.

Compliance Biology (2003) conducted focused small mammal trapping in 2003 over an approximately 4,500-acre portion of the TMV Planning Area and at additional locations in 2007 (Jones and Stokes 2008). Two occurrences of the Tehachapi pocket mouse were identified in the Oso Canyon portion of the TMV Planning Area between Oso and Dark Canyons near the southern border of the TMV Planning Area. The occurrences were in non-native grasslands and open oak woodlands adjacent to scrub communities and coniferous/oak communities, specifically those with a California juniper component. In 2010, Cypher et al. (2010) reported the capture of 5 Tehachapi pocket mouse individuals at four sites located within the action area in the Existing Conservation Easement Areas (also known under the RWA as Bi-Centennial and Tri-Centennial Acquisition Areas).

Table 5. Known occurrences of the Tehachapi pocket mouse in the action area. All occurrences are found near the southern boundary of the action area.

Source	Year Reported	General Location	Considered Extant?
CNDDB	2001	Approx. 8 miles east of Castac Lake	Yes
CNDDB	2003	In/adjacent to National Cement mine	Yes
TRC	2003/2007	Oso Canyon area	Yes
TRC	2003/2007	Oso Canyon area	Yes
Cypher et al. 2010	2010	Bi-Centennial Acquisition area	Yes
Cypher et al. 2010	2010	Bi-Centennial Acquisition area	Yes
Cypher et al. 2010	2010	Tri-Centennial Acquisition area	Yes
Cypher et al. 2010	2010	Tri-Centennial Acquisition area	Yes

The Applicant modeled a total of 1,931 acres of suitable habitat for the Tehachapi pocket mouse in the action area (Figure 5-20 of the TUMSHCP). We expect Tehachapi pocket mice to occur in modeled habitat in the action area, because the modeled habitat in the TMV Planning Area is occupied (Compliance Biology 2003, Jones and Stokes 2008), and the subspecies has been confirmed in portions of the modeled habitat outside the TMV Planning Area (Cypher et al. 2010, CDFG 2011a). We do not have an estimate for the number of Tehachapi pocket mice that exist in the action area. The subspecies is rare and its presence reflects existing conditions in the action area including direct and indirect impacts of livestock, and road construction and use. In addition, the only estimate of home range size for the Tehachapi pocket mouse is based on another pocket mouse species in a different ecosystem and may not reliably translate to conditions in the action area. For the purposes of this biological opinion, we use modeled habitat and known occurrences as indicators of the subspecies' presence in the action area.

Recovery

The Tehachapi pocket mouse is not listed under the Federal Endangered Species Act, so we have not developed a recovery plan for the subspecies to which we can refer to assess its recovery status. In the absence of a recovery plan, we default to the general conservation of the subspecies. For a subspecies like the Tehachapi pocket mouse with a narrow distribution, recovery would focus on determining the species' distribution, conserving much of the remaining habitat that supports the subspecies, and creating or restoring additional habitat. The Tehachapi pocket mouse has been observed on the Covered Lands, and suitable habitat has been identified that could support the species (1,931 acres of modeled suitable habitat). Therefore, the Covered Lands may have a role in the conservation of the Tehachapi pocket mouse.

EFFECTS OF THE ACTION

Planwide Activities

Livestock

The Applicant proposes to graze livestock on the balance of the action area outside development areas, consistent with the types and level of historical grazing and ranch management practices. We are not aware of any studies examining the effects of livestock on *Perognathus* species. Generally, livestock can have negative effects on habitat for native species, and the Tehachapi pocket mouse is not found in areas with substantial surface disturbance. Therefore, overgrazing of an area would likely preclude the presence of Tehachapi pocket mice, especially in areas where livestock congregate and severely trample, compact, or otherwise damage soils (e.g., around water troughs and stock ponds). Livestock may also directly affect Tehachapi pocket mice by trampling them and causing injury or death. We do not expect this to happen, because pocket mice are nocturnal and are usually underground in burrows during typical daytime activity periods for livestock. Livestock could indirectly affect Tehachapi pocket mice by damaging, eliminating, or precluding vegetation that Tehachapi pocket mice use to forage and shelter. Livestock disturbance could also compromise the invertebrate prey used by Tehachapi pocket mice as supplemental food.

These impacts would be reduced where grazing is light or moderate. The Applicant proposes to manage open space lands to maintain the existing habitat conditions described in the TUMSHCP, and the grazing proposed in the TUMSHCP would maintain the lightly- to moderately-grazed, baseline condition of Tehachapi pocket mouse habitat in the action area during the permit term. In addition, effects of cattle-related impacts in modeled habitat for Tehachapi pocket mouse will be avoided to the extent practicable. Under the TUMSHCP, the Applicant must submit a grazing management plan to the Service every 5 years for review and approval. Our review of such plans will allow for the implementation of additional measures or modification of grazing practices to promote the compatibility of grazing with the conservation of the Tehachapi pocket mouse. Therefore, we expect livestock to have minor effects on the Tehachapi pocket mouse in the action area.

Range Management/Ancillary Ranch Structures

Range management activities support livestock operations and consist of construction, operation, and maintenance of watering facilities, feeding areas, fences, and corrals, consistent with the types and level of historical grazing and ranch management practices; repair, reconstruction, and relocation of roads to accommodate historical grazing and ranch management practices; and repair, maintenance, or installation of ranch management communication equipment (e.g., whip antennas) less than 20 feet high. The repair, reconstruction and relocation of roads to accommodate historical grazing and ranch management practices are evaluated below under Roads. Range management also incorporates ancillary ranch structures including squeezes, loading chutes, holding and feeding fields, corrals, branding traps, barns, sewage disposal facilities, livestock and wildlife watering facilities, and utilities serving existing ranch uses.

As described above under Planwide Activities in the Description of the Proposed Action section, *de-minimis* activities associated with ancillary ranch structures would be covered under the TUMSHCP. Non–*de minimis* activities associated with ancillary ranch structures are also allowed (1) if the activity is located in disturbed areas (e.g., undergrounding utilities in road rights-of-way), or (2) following a meet-and-confer process with the Service to ensure that the activity associated with an ancillary ranch structure avoids or adequately minimizes impacts to Covered Species and their habitats.

These activities occur at a small scale relative to the size of the action area, and range management facilities already exist in the action area. We expect range management activities to occur infrequently in suitable habitat for the Tehachapi pocket mouse, because modeled habitat for the subspecies covers only 1.4 percent of the action area. However, the workers or equipment, as well as placement of roads and ancillary ranch structures, may create enough disturbance to fragment or otherwise render habitat unsuitable for the Tehachapi pocket mouse. Range management activities may also cause individuals to vacate occupied habitat, which may subject Tehachapi pocket mice to exposure, increased predation risk, inter- and intra-specific competition, and other stressors.

To avoid or minimize these risks, effects of cattle-related impacts, including fencing and ancillary ranch structures, in modeled suitable habitat for Tehachapi pocket mouse will be avoided to the extent practicable. Under the TUMSHCP, the Applicant must submit a grazing management plan to the Service every 5 years for review and approval. These plans will regulate livestock grazing and range management activities to continue to maintain the habitats that are defined by the parameters in the suitable habitat model for Tehachapi pocket mouse, while continuing to provide for commercial ranching and fire protection. Our review of such plans will allow for the implementation of additional measures or modification of grazing practices to promote the conservation of the Tehachapi pocket mouse. This would avoid or minimize effects of range management/ancillary ranch structures on the Tehachapi pocket mouse in the action area.

Fuel Management

Fuel management practices would consist primarily of grazing, and the effects of fuel management by grazing would be largely subsumed within the effects identified for livestock. Other fuel management activities include fuel modification zones created by existing roads, and through irrigation and/or vegetation clearing and mowing within 120 feet surrounding existing structures (i.e., backcountry cabins, ancillary ranch structures, and other existing structures). Mowing and other fuel management activities may create enough noise and vibration to flush Tehachapi pocket mice from suitable habitat and expose them to increased predation risk and energy expenditure. However, the chance of this occurring is very small, because mowing occurs irregularly, mowing is a relatively brief activity, and only one backcountry cabin occurs in modeled habitat for the Tehachapi pocket mouse. We do not expect mowing machines to run over and injure Tehachapi pocket mice, because the subspecies is nocturnal and mowing would occur during daylight hours. In addition, as described under Range Management/Ancillary Ranch Structures, the Applicant would avoid impacts to modeled habitat for the Tehachapi pocket mouse to the extent practicable. Therefore, we expect the effects of fuel management on the Tehachapi pocket mouse would be negligible.

Fuel management associated with proposed development is discussed below under Commercial and Residential Development Activities.

Filming

Filming activities generally consist of temporary on-scene filming and photography-related uses, including, but not limited to the filming and staging of movies, television shows, and commercials; photo shoots; and still photography and related uses. Such activities may include the erection and dismantling of props, temporary installation of trailers and equipment for film crews, filming of on-camera action, catering, rehabilitation of disturbed areas, and the movement of film crews to and from locations.

Filming activities may create enough noise, vibration, and other disturbance to flush Tehachapi pocket mice from suitable habitat and expose them to increased predation risk and energy expenditure. Food and trash left in or near Tehachapi pocket mouse habitat could attract predators and indirectly increase predation; however, the Applicant would require daily removal of trash to minimize this effect. We do not expect direct impacts to individual Tehachapi pocket mice from filming, because management and planning of activities in open space would incorporate final baseline surveys and results of annual monitoring, which would facilitate avoidance of known occurrences; the Applicant proposes to conduct a site evaluation prior to filming related uses and monitoring of filming activities by a qualified biologist; and we expect filming to occur primarily during daylight hours avoiding the primary activity periods for the Tehachapi pocket mouse. Although the Applicant would require habitat restoration to pre-filming conditions, filming could temporarily render modeled habitat unsuitable for the Tehachapi pocket mouse. However, the Applicant would avoid impacts to modeled habitat for the Tehachapi pocket to the extent practicable, modeled suitable habitat for the subspecies covers

only 1.4 percent of the action area making it unlikely that filming would occur in suitable habitat, filming occurs over a relatively short time frame, no permanent construction would be allowed for filming, and the Applicant would require that temporary construction avoid sensitive resources. Therefore, any effects of filming on the Tehachapi pocket mouse would be rare and effectively minimized.

Recreation

Recreation associated with the Planwide Activities includes private recreation by TRC, its employees and guests and public access is governed by the Interim RWMP and managed by the Conservancy. Such recreational use is also subject to the terms of the TUMSHCP and the terms of Service-approved conservation easements. While the private recreation by TRC occurs currently throughout the Covered Lands, public recreation, which generally consists of docent led tours by the Conservancy per the Interim RWMP, occurs in the Established Open Space portion of the Mitigation Lands. These public and private recreation uses are limited to passive activities listed in the Project Description. Recreation activities associated with Planwide Activities would occur in open space areas generally outside the TMV Planning Area at a relatively small scale, and have infrequent impacts. Recreational uses by TRC, its employees, and the public are limited by the access guidelines and best management practices in the Interim RWMP and will be further regulated in Public Access Plans, which are subject to permanent Service review and approval. We note that future development in the TMV Planning Area will likely lead to increased recreation demand by TMV Project residents and guests, but the type and nature of the use is the same. All such recreational use in the protected open space will also be regulated in the Public Access Plan, which will require monitoring and enforcement by TRC staff, the Tejon Ranch Staff Biologist, or Conservancy docents. An Interim Public Access Plan is currently in place that provides for docent-led public tours and requires pre-activity surveys prior to any ground-disturbing activities. We anticipate future levels of public access to be consistent with what occurs under the Interim Public Access Plan. The effects of recreation on the Tehachapi pocket mouse in the TMV Planning Area Open Space are discussed separately under Commercial and Residential Development Activities.

The vast majority of modeled habitat for the Tehachapi pocket mouse occurs outside of the TMV Planning Area, and modeled suitable habitat for the subspecies covers only 1.4 percent of the action area, making it unlikely that recreation would occur in modeled habitat. Thus, we generally expect a low level of disturbance and impacts from recreation associated with Planwide Activities. Further, most recreation would occur during daylight hours, avoiding the primary activity periods for the Tehachapi pocket mouse, and management and planning of activities in open space would incorporate final baseline surveys and results of annual monitoring, which would facilitate avoidance of known occurrences. Through the Public Access Plan, subject to the Service's review and approval both during and following the end of the permit term into perpetuity, those recreating will be provided with educational information regarding acceptable activities in open space areas, including pet and wildlife restrictions. Therefore, we do not expect recreation associated with Planwide Activities to cause adverse effects to the subspecies.

Irrigation/Water Diversion

The action area contains existing water diversions for irrigation of agriculture, and a few small agricultural areas totaling about 232 acres exist in the TMV Planning Area (e.g., small vineyards and an orchard near Castac Lake). Agricultural uses that remain in open space after TRC identifies the final development footprint will continue subject to State and local regulations. We do not anticipate any adverse impacts to the Tehachapi pocket mouse from on-going agricultural activity, because agricultural areas are not suitable habitat for the subspecies, the Applicant is not proposing to expand the current irrigation capacity/diversion capacity, and the subspecies' modeled suitable habitat is not adjacent to on-going agriculture.

We do not expect the operation of irrigation/water diversion facilities to cause impacts to the Tehachapi pocket mouse. However, if these facilities are nearby Tehachapi pocket mouse habitat, vehicles and workers conducting maintenance of these facilities could disturb Tehachapi pocket mice and disrupt feeding, breeding, or sheltering. That said, Tehachapi pocket mouse modeled habitat covers a very small part of the action area, and maintenance would likely occur during daylight hours and avoid active periods for the Tehachapi pocket mouse. Maintenance and relocation work, if any, is subject to the survey and avoidance requirements in the TUMSHCP, and prior to TRC relocating water diversions, the Service would review and approve the proposed new locations. These facts in combination with the Applicant not proposing to expand the current irrigation capacity/diversion capacity, and the Applicant proposing to avoid impacts to Tehachapi pocket mouse modeled habitat to the extent practicable, would effectively prevent irrigation/water diversion activities from causing adverse effects to the Tehachapi pocket mouse.

Roads/Trails

A network of generally unpaved roads exists in the action area as access for fire protection, security, ranch activities, and hunting. As described in the TUMSHCP, the roads outside the development areas could be maintained, relocated, or new roads could be constructed, in compliance with the 200-acre limit on disturbance by Planwide Activities, to facilitate the Planwide Activities. If roads or trails are placed in modeled habitat for the subspecies, it could create enough disturbance to fragment or otherwise render habitat unsuitable for the Tehachapi pocket mouse. However, modeled suitable habitat for the Tehachapi pocket mouse covers only 1.4 percent of the action area, making it unlikely that roads would be installed in suitable habitat. To avoid or minimize effects from road construction and maintenance associated with Planwide Activities, the Applicant proposes surveys prior to grading, contractor education, staking, and temporary construction fencing (TUMSHCP Section 7.1.1.4.2). The Applicant will also consult with the Service to identify and implement design features (e.g., culverts beneath the road) to minimize effects of any new roads. Therefore, we expect road/trail construction and maintenance for Planwide Activities to have limited adverse effects on the Tehachapi pocket mouse.

Motorized vehicles, horses, off-highway vehicles, bicycles, etc. could injure or kill Tehachapi pocket mice using roads/trails. However, road/trail use associated with Planwide Activities would occur infrequently, would be of low intensity, and would occur primarily during daylight hours, avoiding the active period of the Tehachapi pocket mouse. In addition, because roads/trails have no vegetative cover, Tehachapi pocket mice using roads/trails would expose themselves to higher predation risk, and we expect Tehachapi pocket mice to generally avoid roads/trails except for brief periods. Therefore, we expect the chance of adverse effects from roads/trails associated with Planwide Activities to be negligible.

The direct and indirect effects of roads as a result of residential and commercial development are addressed below under Commercial and Residential Development Activities.

Utilities

The action area contains, or would contain, various minor utilities to support ranch activities. As described in Section 2.2.1 of the TUMSHCP, these utilities would be *de minimis* or would be located in previously disturbed areas (e.g., undergrounding utilities in road rights-of-way). Any utilities associated with Planwide Activities that are not *de minimis* or cannot be located in previously disturbed areas would require Service review and approval prior to relocation or construction. Installation or maintenance of these utilities may affect Tehachapi pocket mice by disturbing habitat or individuals. Also, utility poles/lines may provide supplemental perches for bird species that prey on Tehachapi pocket mice. However, we expect impacts from utilities to the Tehachapi pocket mouse to be negligible, because Tehachapi pocket mouse modeled habitat covers a very small part of the action area, utility posts and towers have small footprints, the utilities affect a very small percentage of the action area, management and planning of activities in open space would incorporate final baseline surveys and results of annual monitoring (which would facilitate avoidance of known occurrences), and the Applicant would avoid impacts to the Tehachapi pocket mouse and its habitat to the extent practicable.

We address potential impacts by utilities associated with the proposed development under Commercial and Residential Development Activities.

Backcountry Cabins

Eight backcountry cabins occur in the action area and could be maintained, improved, repaired, replaced, or reconstructed in their existing location. There is one backcountry cabin in modeled suitable habitat for the Tehachapi pocket mouse, and the effects of backcountry cabins would be largely subsumed within the effects identified for recreation. Under the TUMSHCP, the Applicant may relocate backcountry cabins, and the construction activities associated with relocating cabins could destroy suitable habitat for the Tehachapi pocket mouse. However, the Applicant proposes to avoid effects to modeled habitat for the species to the extent feasible. In addition, under the RWMP all new or relocated cabins first are subject to a site evaluation to avoid impacts to sensitive natural resources, and prior to TRC relocating an existing cabin, the Service would review and approve the proposed new location. These measures would ensure

that the new cabin location is compatible with the conservation of the Tehachapi pocket mouse. We expect backcountry cabins to have a negligible effect on the subspecies.

Fencing

Fences exist throughout the action area. Fences would be maintained and new fencing could be constructed and maintained as required to support the Covered Activities. Although fences affect a very small portion of the action area, new fencing could disturb Tehachapi pocket mouse habitat and create supplemental perches for raptors that prey on the subspecies. The Applicant proposes to minimize these impacts by designing and locating new fencing to avoid modeled habitat for the subspecies to the extent practicable. Under the TUMSHCP, the Applicant must submit a grazing management plan to the Service every 5 years for review and approval. Our review of such plans will allow for the implementation of additional measures or modification of fencing practices to maintain modeled suitable habitat for the Tehachapi pocket mouse. For these reasons, we expect fencing in the action area to have no appreciable impact on the Tehachapi pocket mouse.

Lebec/Existing Headquarters Area Uses

Existing activity in the Lebec/Existing Headquarters Area (i.e., corporate headquarters buildings, an antique shop, a post office, a church, and several single-family residences for ranch employees) would continue to occur. While additional development could occur here under the TUMSHCP, TRC has not included development plans for this area in the project description. We do not expect the activities in the Lebec/Existing Headquarters Area to affect the Tehachapi pocket mouse, because no modeled habitat for the subspecies exists in this area.

Mitigation, Monitoring, and Management

Mitigation, monitoring, and management activities to carry out identified biological goals and objectives for the California condor or other Covered Species included in the TUMSHCP or other resource agency permits for the commercial and residential Covered Activities, as well as mitigation, monitoring, and management activities imposed pursuant to any local, State, or Federal approval of development on Tejon Ranch would be carried out in accordance with the Act and would be subject to Service review. We acknowledge that other agencies may credit TRC for mitigation and protective measures included in the TUMSHCP for mitigation imposed by such other agencies. Any restoration, enhancement, or similar mitigation activities would not be allowed if they would result in unpermitted adverse effects to species or critical habitat under the Act. Additionally, any mitigation activities for other agencies would be subject to the protective measures included in Tables 1 and 2, in the Description of the Proposed Action section of this biological opinion. Therefore, we anticipate that any potential threats to the Tehachapi pocket mouse as a result mitigation, monitoring, and management activities would be effectively minimized.

Estimate of Disturbance by Planwide Activities

The Applicant proposes a maximum of 200 acres of ground disturbance associated with the Planwide Activities described above. These ground disturbances would occur outside of the proposed development (discussed below) and may be permanent or temporary. The disturbance would primarily be associated with construction of roads, backcountry cabins, and ancillary structures. The Applicant is currently unable to predict exactly where the 200 acres of habitat disturbance due to Planwide Activities would occur over the permit term. However, the Applicant proposes to avoid all Tehachapi pocket mouse modeled habitat and occurrences during grading or construction associated with any Planwide Activity as defined in the TUMSHCP. Therefore, while we expect Planwide Activities to cause some adverse effects to individual Tehachapi pocket mice as described above, we do not expect Planwide Activities to result in grading, construction, or other habitat disturbance that renders previously suitable habitat unsuitable for the Tehachapi pocket mouse. Consequently, we conclude that the effects of Planwide Activities on the Tehachapi pocket mouse and its habitat would be minimal under the TUMSHCP and would not appreciably reduce the subspecies' reproduction, numbers or distribution in the Covered Lands or rangewide.

Commercial and Residential Development Activities

Direct Effects

Within the proposed development envelope, modeled habitat for the Tehachapi pocket mouse only occurs in the Oso Canyon portion of the TMV Planning Area (the majority of modeled habitat for the subspecies occurs outside the development envelope). Two occurrences of the subspecies are extant in this area. Although portions of the Oso Canyon area are included in the development envelope, the Applicant is not currently proposing development in this area. It is possible that no Commercial and Residential Development Activities would occur in this area over the permit term. Under this scenario, direct impacts to the Tehachapi pocket mouse and its habitat from residential and commercial development would be avoided.

We did not estimate the number of Tehachapi pocket mice that occur in the action area but are using modeled habitat as a surrogate for species presence. As stated above, the Applicant is not currently proposing development in the Oso Canyon Area and proposes to avoid Tehachapi pocket mouse modeled habitat and preserve both known occurrences of the Tehachapi pocket mouse in the TMV Planning Area. If, during the permit term, the Applicant intends to conduct residential and commercial development in Oso Canyon, and avoidance of modeled habitat is not possible, the Applicant estimates that development could permanently remove up to 57 acres of modeled habitat for the Tehachapi pocket mouse. Under this scenario, prior to development that would affect modeled suitable habitat or known occurrences, the Applicant would conduct research in suitable habitat to better determine the subspecies' distribution and habitat preferences. No development would be allowed to proceed unless the Applicant can demonstrate that the subspecies is more widely distributed than is currently known by showing that additional occurrences (as many as 6) of the subspecies exist in conserved lands on the Ranch (Section

7.1.1.4.2 of the TUMSHCP). There are currently eight known occurrences of the Tehachapi pocket mouse in the action area. If future development removes the two known occurrences in the Oso Canyon area, six would remain. Therefore, the additional mitigation required of the Applicant prior to development in the Oso Canyon area would double the number of known occurrences in the action area, demonstrating that the subspecies occurs at higher numbers than are currently known, and essentially reducing the magnitude of the effects of development on the Tehachapi pocket mouse. By implementing these measures, in combination with the permanent conservation of 1,874 acres (97 percent) of modeled habitat for the subspecies in the action area, the TUMSHCP would effectively mitigate adverse effects to modeled habitat and the two Tehachapi pocket mouse occurrences in the Oso Canyon area.

To minimize effects of development, prior to ground disturbance in modeled habitat for the Tehachapi pocket mouse, the Applicant would conduct capture and relocation efforts to minimize effects on Tehachapi pocket mice in harm's way. Tehachapi pocket mice that avoid capture and relocation likely would be injured, killed, or otherwise adversely affected by development activities. To further minimize the potential for adverse effects, the Applicant would require fencing/flagging of disturbance/grading perimeters, contractor/construction personnel meetings prior to grading, and biological monitoring. These measures would minimize impacts to the Tehachapi pocket mouse.

New utilities to support development would be undergrounded, except that the two communication towers described under "Communication Towers" in the Description of the Proposed Action section above (also on page 4-52 and elsewhere in Section 4 of the TUMSHCP) would be installed above ground. Once installed, the undergrounded utilities would not cause ongoing impacts. The two above ground towers are not in or adjacent to Tehachapi pocket mouse modeled habitat and would not affect the subspecies.

Indirect Effects

Development-related indirect impacts to the Tehachapi pocket mouse could occur where modeled habitat is near developed areas in Oso Canyon. Even if development does not occur in Oso Canyon, development in other parts of the TMV Planning Area may cause some indirect effects similar, although less frequent and less intense, to those described below. Relatively small areas of preserved modeled habitat (likely similar in area to the proposed vegetation thinning/mowing) adjacent to development could be functionally lost if the indirect effects of development described below, in combination with Planwide Activities described above, make modeled habitat unsuitable for Tehachapi pocket mice. Developed areas would have increased lighting and noise that may disturb individual Tehachapi pocket mice or increase predation risk. Under the TUMSHCP, lighting would be directed away from sensitive habitats to reduce this effect. Development is likely to attract native generalist predators (coyotes, foxes, skunks, opossums, raccoons), which may increase predation risk for the Tehachapi pocket mouse. Development is also likely to attract or introduce non-native rodents that could either displace Tehachapi pocket mice or compete for resources.

The Applicant proposes to clear and thin vegetation within 200 feet of the proposed development, creating a 1,773-acre fuel modification zone. The estimated areal extent in which fuel modification may affect the Tehachapi pocket mouse is included in the 57 acres of modeled habitat estimated to be lost within the 8,817-acre development envelope. The expected intensity of disturbance associated with these activities alone should not preclude Tehachapi pocket mice from using the fuel modification zone; however, the ongoing maintenance of this area, whether by grazing or mechanized means, likely will cause habitat disturbance and contribute to the exclusion of Tehachapi pocket mice around developed areas.

Recreational activities allowed within Open Space areas are limited to passive recreation as described above under Planwide Activities. Even so, in the EIS for the TUMSHCP, we estimated that the TUMSHCP would increase the human population of the TMV Planning Area by 11,441 people, and we expect the recreational activities of future residents of the proposed development to cause a higher level of disturbance and impacts in this area than in other parts of the action area that are more remote. If recreation occurs in occupied Tehachapi pocket mouse habitat, it could potentially alter Tehachapi pocket mouse behavior, including feeding, breeding, or sheltering activities. This could lead to increased energy expenditure, avoidance of suitable habitat, and increased predation risk. Recreation also could cause direct effects including injury or death if hikers, bikers, horses, etc. collapse Tehachapi pocket mouse burrows.

In general, the impacts of recreation should be minor because most recreation would occur during daylight hours and avoid the primary nocturnal activity periods of the Tehachapi pocket mouse. To minimize impacts of recreation in the action area, TRC would provide Home Owners' Association(s) with educational information regarding acceptable activities in open space areas, including recreational activities and pet restrictions. In addition, TRC would require that recreation in Open Space areas be conducted in a manner that would avoid adverse impacts to the Covered Species and their habitats or result in less-than-significant impacts. These proposals would reduce impacts to the Tehachapi pocket mouse; however, the behavior of pets will be difficult to structure and enforce such that impacts would be avoided. Therefore, we expect that pets, on occasion, would cause adverse effects to Tehachapi pocket mice including injury, death, or habitat disturbance. However, we only expect this impact from pets to occur if development occurs in Oso Canyon, where pets would live in proximity to modeled habitat for the subspecies. To further minimize potential effects, recreational activities will be subject to the Public Access Plan to be reviewed and approved by the Service in perpetuity and approved conservation easements or other appropriately restricted conveyances over those lands, allowing for implementation of additional minimization measures, as needed, to promote the conservation of the Tehachapi pocket mouse. Therefore, if development does not occur in Oso Canyon, we do not expect recreation to cause adverse effects to the Tehachapi pocket mouse. If development does occur in Oso Canyon, we expect recreation to have minor, infrequent impacts on the Tehachapi pocket mouse, but recreation and pets may contribute to the exclusion of Tehachapi pocket mice in habitat proximal to development.

Roads receiving the most use would be located in the TMV Planning Area and would receive relatively frequent use by automobiles, bicycles, etc. typical of residential/commercial areas. In

the EIS for the TUMSHCP, we estimated that the TUMSHCP would increase the human population of the TMV Planning Area by 11,441 people resulting in 79,514 additional vehicle trips per day. We expect most of these vehicle trips to occur near the commercial areas, and the number of vehicle trips would decrease with distance from Interstate 5. Nonetheless, use of roads in the development areas would increase substantially over baseline conditions and could adversely affect the Tehachapi pocket mouse if the Oso Canyon Area was developed. Use of roads in modeled habitat for the Tehachapi pocket mouse would not increase substantially over baseline conditions if development does not occur in Oso Canyon.

Because roads/trails have no vegetative cover, Tehachapi pocket mice using roads/trails would expose themselves to higher predation risk, and we expect Tehachapi pocket mice to generally avoid roads/trails except for brief periods. Roads/trails in Oso Canyon would receive relatively frequent use, and motorized vehicles, horses, bicycles, etc. could injure or kill Tehachapi pocket mice using roads/trails if collisions occur. However, roads/trails would be used primarily during daylight hours when Tehachapi pocket mice are inactive, minimizing the chance of collisions. In addition, the subspecies is uncommon in the action area. Therefore, if development does occur in Oso Canyon, we expect vehicles to injure or kill Tehachapi pocket mice on very rare occasions. If development does not occur in Oso Canyon, we do not expect roads/trails use to cause adverse effects to the Tehachapi pocket mouse.

If development occurs in Oso Canyon, we expect the Tehachapi pocket mouse to persist in the Oso Canyon development area, although we expect the population in that area to be compromised by the direct and indirect effects of development. The proposed development would not appreciably fragment modeled suitable habitat in the action area, and, as described above under Commercial and Residential Development Activities—Direct Effects, the Applicant proposes to either avoid the subspecies' modeled habitat or implement additional mitigation and minimization measures.

TUMSHCP Mitigation

The Applicant proposes to preserve in perpetuity the balance of the action area outside the development envelope, including 1,874 acres (97 percent) of modeled habitat for the Tehachapi pocket mouse. The Applicant would maintain the preserved land in its current condition, which is known to support the subspecies. The proposed preservation would secure a large portion of the known range of the subspecies, maintain connectivity with occupied habitat in the Bi-Centennial/Tri-Centennial acquisition areas south/southeast of the action area (see Cypher et al. 2010), and eliminate future loss of Tehachapi pocket mouse habitat in the action area. In addition, prior to development in Oso Canyon that would affect either of the two known Tehachapi pocket mouse occurrences in that area, the Applicant would first conduct research in suitable habitat to better determine the subspecies' distribution and habitat preferences, and must demonstrate that additional occurrences of the subspecies exist in permanently preserved habitat on Tejon Ranch. Further, if development occurs in Oso Canyon, the Applicant would survey project areas prior to ground disturbance, and relocate Tehachapi pocket mice in harm's way.

Summary of Effects

In determining whether a proposed action is likely to jeopardize the continued existence of a species, we consider the effects of the action with respect to the reproduction, numbers, and distribution of the species. We also consider the effects of the action on the recovery of the species. In that context, the following paragraphs summarize the effects of the proposed TUMSHCP on the Tehachapi pocket mouse.

The Planwide Activities and the Commercial and Residential Development Activities could have some effect on the Tehachapi pocket mouse. As stated above, development is not currently planned for the Oso Canyon portion of the TMV Planning Area. If such development were to occur, TRC estimates that up to 57 acres of modeled habitat could be lost due to development. We do not expect Planwide Activities to cause the loss of modeled habitat for the Tehachapi pocket mouse, because the Applicant would avoid grading and construction for Planwide Activities in Tehachapi pocket mouse modeled habitat.

Planwide Activities not associated with habitat loss, and the indirect effects of development, could result in ongoing, adverse effects to the Tehachapi pocket mouse. Recreation is the most likely source of ongoing adverse effects by Planwide Activities. People or pets (including horses) could cause temporary habitat disturbance including damaging vegetation, crushing or excavating burrows, and altering pocket mouse surface activity patterns, potentially increasing energy expenditure and increasing predation risk. Pets may cause injury or death of Tehachapi pocket mice, or repeated pursuit of individuals causing an increased likelihood of death. In addition, an increase in native and non-native generalist predators around developed areas may cause an ancillary increase predation on Tehachapi pocket mice. We also anticipate a small likelihood of injury or death of Tehachapi pocket mice due to collisions by vehicles.

Assuming development in Oso Canyon, modeled habitat known to be occupied by the Tehachapi pocket mouse would occur in proximity to developed areas, roads, and recreation; and adverse effects on the subspecies would be likely from threats associated with these Covered Activities. However, the Tehachapi pocket mouse is not abundant in the action area, Planwide Activities would occur irregularly, the amount of modeled habitat in the development envelope is small relative to the amount of modeled habitat in conserved open space, and the applicant proposed measures to avoid or minimize adverse effects. Therefore, we anticipate that adverse effects would be rare but could occur on an annual basis.

The Tehachapi pocket mouse occupies a range limited primarily to the Tehachapi Mountains, and the action area contains much of the subspecies' current known range. If the Applicant decides to develop in the Oso Canyon Area, the TUMSHCP requires additional mitigation and minimization measures prior to ground disturbance (see description under Commercial and Residential Development Activities—Direct Effects). Development in the Oso Canyon area, if it occurs, would affect a very small percentage of the Tehachapi pocket mouse modeled habitat available in the action area, and 1,874 acres, the vast majority (approximately 97 percent) of the modeled suitable habitat in the action area, would be permanently conserved. This proposed

preservation would maintain connectivity between the action area and occupied habitat in the Existing Conservation Easement Areas (i.e., Bi-Centennial/Tri-Centennial acquisition areas under the RWA). In addition, the TUMSHCP includes measures to avoid and minimize the effects of Planwide Activities irrespective of the restrictions on residential and commercial development. We conclude that the combination of avoidance and minimization proposed by TRC to reduce the effects of both Planwide Activities and Commercial and Residential Development Activities, and the conservation of almost all of the modeled suitable habitat on the Covered Lands to mitigate for unavoidable impacts, would allow the Covered Activities to proceed under the proposed ITP without appreciably reducing the rangewide reproduction, numbers, or distribution of the Tehachapi pocket mouse.

Recovery

The Tehachapi pocket mouse is not listed, and the Service does not prepare recovery plans for non-listed species; therefore, there are no recovery criteria with which to compare the current and future status of the subspecies. In the absence of a recovery plan, we default to the general conservation of the species, and recovery would focus on determining the species' distribution and the conservation of much of the remaining habitat that supports the species. In general terms, where suitable habitat exists, it should be conserved and where possible, additional habitat should be created or restored.

If development occurs in Oso Canyon, it would cause adverse effects to the Tehachapi pocket mouse but would maintain the rangewide reproduction, numbers, and distribution of the subspecies. If development does not occur in Oso Canyon, the TUMSHCP may cause minor adverse effects that do not appreciably affect the reproduction, numbers, and distribution of the Tehachapi pocket mouse. Under both scenarios, the proposed permanent preservation of habitat in the action area would secure habitat and connectivity in the species' geographic range. This would have long-term, stabilizing benefits to the Tehachapi pocket mouse by securing a portion of the subspecies' range from future habitat loss, thus addressing a primary reason for the species' decline.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section, because they require separate consultation pursuant to section 7 of the Act.

Hunting

Private and commercial hunting operations occur on Tejon Ranch, including the action area; however, hunting is not an activity covered by the TUMSHCP. The Applicant proposes to continue hunting operations throughout the ranch during the proposed permit term. The Applicant proposes to manage the hunting program to avoid take of any federally protected

species. Hunting in the TMV Planning Area would be limited to guided hunts. Hunting activities involve travel on existing paved and unpaved roads, overnight use of backcountry cabins, hiking, discharging hunting weapons, etc. The effects from hunting will generally be consistent with, and to a considerable extent, are captured in the description of effects for Roads/Trails, Backcountry Cabins, and Recreation described above. It is possible that hunting activities could occur in modeled habitat for the Tehachapi pocket mouse. However, only one backcountry cabin is in modeled habitat for the Tehachapi pocket mouse, modeled habitat covers a small portion of the action area, hunting is a relatively low-impact activity, and hunting would largely occur during daylight hours and avoid the primary active period of the Tehachapi pocket mouse. Therefore, we do not expect hunting to cause adverse effects on the Tehachapi pocket mouse.

Mining

Two commercial mining operations occur in the action area, La Liebre and National Cement; these mining operations are not covered activities under the TUMSHCP. The total area used for the two operations is about 2,636 acres, and the Applicant would maintain the mining leases through the proposed permit term. The two mining operations are on the southern/southeastern edge of the action area. We are not aware if any suitable habitat for the Tehachapi pocket mouse occurs in the mining areas. Modeled suitable habitat for the subspecies is scattered near the eastern and western boundaries of National Cement, so it is possible that suitable habitat exists within the mine boundary as well. Mining operations may have direct impacts on the Tehachapi pocket mouse if individuals are struck by vehicles or crushed or buried during mining activities. Indirect effects may occur if noise, vehicles, human presence, etc. associated with mining activities disturb Tehachapi pocket mice and force them to vacate suitable habitat. We are not aware if measures are taken to minimize these effects; however, any use of chemicals in mining must be in conformance with Federal, State and local laws. Given the relatively small size of the mining areas relative to the action area, and the scattered nature of modeled habitat around the mine, we expect that continued mining in the action area will have minor cumulative effects on the Tehachapi pocket mouse.

Other Activities

As discussed above under the Project Description, within the external boundaries of the action area, there are existing inholdings and utilities. The Bakersfield National Cemetery also occurs inside the action area. These projects and activities are not Covered Activities under the TUMSHCP. We are not aware of any reasonably foreseeable activities within the 3,870 acres of inholdings that may affect the Tehachapi pocket mouse. Activities associated with existing utilities, transmission lines, and related structures, such as maintenance activities, would be restricted to currently established easement areas and would have minor, if any, effects on the Tehachapi pocket mouse. Therefore, we do not anticipate any cumulative effects from the ongoing maintenance and operation of non-covered existing utilities. The Bakersfield National Cemetery is in place, and we are not aware of any activities associated with the cemetery that may have an adverse effect on the Tehachapi pocket mouse.

CONCLUSION

After reviewing (1) the current status of the Tehachapi pocket mouse; (2) the environmental baseline for this subspecies in the action area; (3) the effects of the proposed action; and (4) the cumulative effects, it is our biological opinion that the Service's issuance of the proposed ITP is not likely to jeopardize the continued existence of the Tehachapi pocket mouse. We reached this conclusion because:

1. Although up to 57 acres of modeled habitat could be lost, the proposed activities would remove a very small portion (3 percent) of the modeled suitable habitat for the Tehachapi pocket mouse.

2. The effects of the proposed TUMSHCP on the Tehachapi pocket mouse would not appreciably reduce the rangewide reproduction, numbers, or distribution of the subspecies.

3. The vast majority of modeled suitable habitat for the Tehachapi pocket mouse (1,874 acres, or 97 percent), in the action area, would be preserved in perpetuity, eliminating future loss of Tehachapi pocket mouse habitat in the action area.

4. The Applicant will conserve known occurrences of the Tehachapi pocket mouse and implement protective avoidance and minimization measures, including avoiding grading and construction for Planwide Activities in modeled habitat, as part of the proposed activities.

5. Prior to development in Oso Canyon that would affect either of the two known Tehachapi pocket mouse occurrences in that area, the Applicant must first conduct research in suitable habitat on Tejon Ranch to better determine the subspecies' distribution and habitat preferences, and must demonstrate that additional occurrences of the subspecies exist in conserved open space on Tejon Ranch. In addition, if development occurs in Oso Canyon, the Applicant would survey project areas prior to ground disturbance, and relocate Tehachapi pocket mice out of harm's way. These measures will ensure that Tehachapi pocket mouse's reproduction, numbers, and distribution in the action area are assured prior to any impacts and will minimize and mitigate any impacts to the subspecies that do occur.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly

impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The proposed TUMSHCP and its associated documents identify anticipated impacts to the Tehachapi pocket mouse likely to result from the proposed taking and the measures that are necessary and appropriate to minimize those impacts. All conservation measures described in the proposed TUMSHCP, together with the terms and conditions described in the associated Implementing Agreement and any section 10(a)(1)(B) permit issued with respect to the proposed TUMSHCP, are hereby incorporated by reference as reasonable and prudent measures and terms and conditions within this Incidental Take Statement pursuant to 50 CFR §402.14(i). Such terms and conditions are non-discretionary and must be undertaken for the exemptions under section 10(a)(1)(B) and section 7(o)(2) of the Act to apply. If the permittee fails to adhere to these measures and terms and conditions, the protective coverage of the section 10(a)(1)(B) permit and section 7(o)(2) will lapse. The amount or extent of incidental take, if any, anticipated under the proposed TUMSHCP, associated reporting requirements, and provisions for disposition of dead or injured animals are as described in the TUMSHCP and its accompanying section 10(a)(1)(B) permit.

Amount or Extent of Take

We anticipate that all Tehachapi pocket mice within the 57 acres of modeled habitat in the development envelope would be subject to take by capture and relocation to reduce the likelihood of take by harm, injury, or death. While capture and relocation of Tehachapi pocket mice should reduce the likelihood of injury or death as a result of project activities, some individuals may experience harassment as a result of capture and being moved to potentially unfamiliar habitat. A Tehachapi pocket mouse in unfamiliar habitat may be subject to higher predation levels, intraspecific competition, and may find it difficult to locate food, shelter, or mates. Individuals that attempt to return to the point of capture may be subject to multiple captures, and increased likelihood of injury or predation while attempting to return. Tehachapi pocket mice may be difficult to capture; sheltering in burrows, under rocks, etc.; or may otherwise be overlooked during such efforts. Any Tehachapi pocket mice that evade detection, capture, and relocation, and remain in a development area, at a minimum, would be adversely affected to the point of harassment or harm, and would likely be crushed by construction equipment, vehicles, or foot traffic, or may be otherwise wounded or killed. Finding a wounded or killed Tehachapi pocket mouse is unlikely because of their small body size and fossorial nature, and scavengers tend to quickly remove small carcasses. The loss of 57 acres of modeled

habitat for the Tehachapi pocket mouse by the proposed development would indicate that the Service's anticipated level of take because of development has been reached.

In addition, assuming development in Oso Canyon, we anticipate ongoing, indirect effects associated with development and direct and indirect adverse effects of Planwide Activities not associated with habitat loss, during the permit term. Examples include habitat disturbance from recreation leading to harassment or harm, and harassment, pursuit, wounding, or killing by pets and people during recreation. Further, we expect an increase in populations of native and non-native predators because of development and a subsequent increase in harassment, wounding, and killing of Tehachapi pocket mice by these predators. We expect an average of two Tehachapi pocket mice annually would be harassed, harmed, pursued, wounded, or killed as a result of indirect effects associated with development and direct or indirect effects of Planwide Activities. These incidents will be extremely difficult to witness due to the remote nature of most of the Covered Lands, the irregular nature of most Planwide Activities, the subspecies' small body size, and the fossorial and nocturnal nature of the species' biology. Therefore, one Tehachapi pocket mouse observed wounded or killed annually because of Planwide Activities or the indirect effects of development would serve as a surrogate indicator that the Service's anticipated level of non-development-related take has been reached.

Effect of the Take

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the Tehachapi pocket mouse.

REASONABLE AND PRUDENT MEASURES / TERMS AND CONDITIONS

The measures described in the TUMSHCP, associated documents, and the Section 10(a)(1)(B) permit will effectively minimize the effects of any potential take of the Tehachapi pocket mouse under the permit. Consequently, we are not including additional non-discretionary reasonable and prudent measures and implementing terms and conditions in this incidental take statement.

FORT TEJON WOOLLY SUNFLOWER

STATUS OF THE SPECIES

Regulatory History

The Fort Tejon woolly sunflower (*Eriophyllum lanatum* var. *hallii*) has no Federal or State designation, but is a CNPS List 1B.1 taxon (i.e., considered seriously endangered in California). In addition, it has a California Heritage Element Ranking of S1, meaning it is known from less than six occurrences or less than 1,000 individuals or occupies less than 2,000 acres (CDFG 2013b).

Natural History/Habitat Requirements

The Fort Tejon woolly sunflower is a perennial herb in the sunflower family (Asteraceae) that grows to between 4 inches and 3 feet in height (Smith 1998). The species blooms between May and July. The flowers of other varieties of *Eriophyllum lanatum* are visited by beetles, several species of bees, syrphid flies, and lepidopterans, all of which may be potential pollinators. Bagging studies of *Eriophyllum lanatum* in a garden situation indicated self-incompatibility approaching 99 percent (Mooring 1975), indicating that cross pollination is crucial.

General habitat for the Fort Tejon woolly sunflower is in openings of chaparral and cismontane woodland vegetation, often on slopes in loamy soils. It occurs at elevations from 3,500 to 5,000 feet amsl (CNPS 2008). The largest reported population was observed growing in a colony on a north-facing slope with Tucker oak chaparral and pinyon-juniper woodland nearby. The plants were growing on friable soil in a roadside bank (Smith 1998) and on the silt loam soil of the road itself. Fort Tejon woolly sunflower also occurs in other microhabitats, such as a rocky canyon, openings in chaparral, and a steep slope with sandy-clay loam soils (CDFG 2013b).

Plant species associated with the Fort Tejon woolly sunflower are blue oak, valley oak, shrub live oak (*Quercus turbinella*), scrub oak (*Quercus berberidifolia*), singleleaf pinyon pine (*Pinus monophylla*), silk tassle bush (*Garrya flavenscens* ssp. *pallida*), short-leaved cliff aster (*Malacothrix saxatilis*), California coffeeberry (*Rhamnus californica*), rubber rabbitbrush (*Chrysothamnus nauseosus*), and silver lupine (*Lupinus albifrons*) (CDFG 2013b).

Distribution and Population Trends

The range of the Fort Tejon woolly sunflower is considered to be the southern Tehachapi Mountains (near Fort Tejon), and the Sierra Madre Mountains in the South Coast Ranges (Jepson Flora Project 2011). It occurs in Kern, Ventura, and Santa Barbara counties.

The largest population of Fort Tejon woolly sunflower was recorded on 18.9 acres in Santa Barbara County and had 850 individuals when last observed in 1994. Another occurrence in the Los Padres National Forest had 37 plants when last observed in 1994. No number of individuals

was provided for one population reported in Johnson Canyon west of Fort Tejon. The occurrence east of Johnson Canyon and north of O'Neil Canyon had an estimated 530 plants in 1987.

Road construction and maintenance, erosion, and development are considered threats to specific populations of Fort Tejon woolly sunflowers (CNPS 2008; CDFG 2013b). In addition, the Fort Tejon woolly sunflower may be damaged by grazing and trampling by cattle and livestock (CNPS 2008).

ENVIRONMENTAL BASELINE

The CNDDB does not report any other Fort Tejon woolly sunflower occurrences in the Covered Lands; however, there are occurrences west of Interstate 5 near Fort Tejon State Historic Park (CDFG 2011a). Despite the lack of occurrences in the CNDDB, presence/absence surveys for the Fort Tejon woolly sunflower were conducted within the TMV Planning Area between 2003 and 2007 (TRC 2007), and the Applicant's consultants recorded 36 occurrences of the plant in the area surveyed, including the central portion of the TMV Planning Area in Bear Trap Canyon; in the far western portion in Rising Canyon near Interstate 5; and in the south-central portion near Poleline Ridge, Skinner Canyon, and Johnson Canyon. The 36 occurrences were observed in April, May, and June 2007 and represent approximately 3,000 to 8,500 individuals (Dudek 2007a).

The Fort Tejon woolly sunflower was observed on the Covered Lands in a variety of geological settings and primarily on young alluvium terraces and debris flows and granite to quartz monzonite and within soils that primarily included gravelly loam, with a small number of individuals occurring in sandy loam and rock outcrops. Most of the on-site observations occurred on north- or south-facing slopes ranging from 5 degrees to 45 degrees (Dudek 2009). Based upon these observations, the Applicant's consultants modeled suitable habitat for this species on all Covered Lands. Modeled suitable habitats included chaparral, conifer, riparian woodland, scrub, oak woodland, and oak savannah at elevations between 3,400 and 5,000 feet and on all soils. The estimated area of suitable habitat on the Covered Land for Fort Tejon woolly sunflower is 57,430 acres.

Recovery

Because the species is not federally listed, we have not developed a recovery plan for the Fort Tejon woolly sunflower. To address the potential recovery of the species, we consider general concepts for the conservation of rare plants. These include the preservation of existing populations, ensuring adequate space for the species to fluctuate its distribution in response to edaphic factors, continuation of dispersal mechanisms, control of exotic invasive plants, and maintenance of natural pollinator communities. The principal way of achieving these goals is preservation of suitable habitat with adequate buffers from human alterations. In addition, restoration of formerly suitable habitat areas can contribute to the species' recovery. Once

enough space has been preserved and restored, rare plant species should be able to persist and perhaps increase to historical levels.

EFFECTS OF THE ACTION

Planwide Activities

Livestock

The Applicant proposes to continue livestock grazing at historical levels on the balance of the action area outside the development areas, consistent with the types and level of historical grazing and ranch management practices. Plants are susceptible to the presence of livestock primarily due to direct grazing or browsing. We do not know if the Fort Tejon woolly sunflower is palatable to livestock, but we cannot rule out the possibility that cattle will graze or browse on the species during normal feeding. Cattle can also affect plants directly through trampling. Again, we have no measure of the effects of trampling by livestock on the Fort Tejon woolly sunflower, but the recent surveys on the Covered Lands indicate that the plant persists in areas subject to historical and current grazing. We conclude that the Fort Tejon woolly sunflower may be affected by livestock activities, but that the effects are consistent with the continued persistence of the species on the Covered Lands. We do not know if the species' distribution would be broader or whether the number of individual plants would be higher in the absence of livestock.

Cattle and other livestock may also be vectors of non-native plants and can spread invasive species into habitat occupied by the Fort Tejon woolly sunflower. While this spread is difficult to control, given the history of livestock on the Covered Lands, the probability that livestock will not be grazing in new areas, and the fact that many invasive plant species have already been established on the Covered Lands, we do not expect that continued livestock grazing will exacerbate the problem. In addition, under the TUMSHCP, the Applicant must submit a grazing management plan, as a component of the RWMP, to the Service every 5 years for our review, which regulates livestock grazing to maintain the habitats that are defined by the parameters in the suitable habitat model for the Fort Tejon woolly sunflower. Additional measures or modification of grazing practices may be added to ensure the compatibility of grazing with the conservation of the Fort Tejon woolly sunflower. Consequently, we conclude that the effects of grazing on the Fort Tejon woolly sunflower would be negligible.

Range Management/Ancillary Ranch Structures

Range management activities support livestock operations and consist of construction, operation, and maintenance of watering facilities, feeding areas, fences, and corrals, consistent with the types and level of historical grazing and ranch management practices; repair, reconstruction, and relocation of roads to accommodate historical grazing and ranch management practices; and repair, maintenance, or installation of ranch management communication equipment (e.g., whip antennas) that are less than 20 feet high. The repair, reconstruction and relocation of roads to

accommodate historical grazing and ranch management practices are evaluated below under Roads. Range management also incorporates ancillary ranch structures including squeezes, loading chutes, holding and feeding fields, corrals, branding traps, barns, sewage disposal facilities, livestock and wildlife watering facilities, and utilities serving existing ranch uses.

As described above under Planwide Activities in the Description of the Proposed Action section, *de-minimis* activities associated with ancillary ranch structures would be covered under the TUMSHCP. Non–*de minimis* activities associated with ancillary ranch structures are also allowed (1) if the activity is located in disturbed areas (e.g., undergrounding utilities in road rights-of-way), or (2) following a meet-and-confer process with the Service to ensure that the activity associated with an ancillary ranch structure avoids or adequately minimizes impacts to Covered Species and their habitats.

If range management activities (especially new facilities) were to take place in areas where the Fort Tejon woolly sunflower grows, the individual plants could be removed. The Applicant has proposed to conduct surveys prior to such disturbance and avoid affecting the 36 currently known occurrences, and also to avoid to extent practicable areas where the plants currently grow but have not yet been observed (see Table 2 of this biological opinion). This measure should be sufficient to avoid removal of Fort Tejon woolly sunflower plants as a result of ranch construction and modification activities. Therefore, we conclude that range management activities will have little to no effect on the Fort Tejon woolly sunflower.

Fuel Management

Fuel management practices will consist primarily of grazing to keep grasses and weeds at bay and the effects of fuel management should be largely consistent with the effects of livestock. Other fuel management activities include fuel modification zones created (1) by existing roads, and (2) through irrigation and/or vegetation clearing and mowing within 120 feet surrounding existing structures (i.e., backcountry cabins, ancillary ranch structures, and other existing structures). We expect that fuel management will affect Fort Tejon woolly sunflowers if any plants fall within the zone designated for fuel clearance; individual plants could be lost, and the repeated clearance could prevent them from re-establishing. TRC has proposed to survey for the plant and avoid, as much as possible, areas where the Fort Tejon woolly sunflower occurs (Section 7.1.2.1 of the TUMSHCP). This should minimize the impact of fuel clearance to the extent it is considered feasible to avoid occupied areas. We expect fuel management to have a minor impact on the Fort Tejon woolly sunflower.

Fuel management associated with Commercial and Residential Development Activities is discussed below under Commercial and Residential Development Activities.

Filming

Filming activities generally consist of temporary on-scene filming and photography-related uses, including, but not limited to the filming and staging of movies, television shows, and commercials; photo shoots; and still photography and related uses. Such activities may include

the erection and dismantling of props, temporary installation of trailers and equipment for film crews, filming of on-camera action, catering, rehabilitation of disturbed areas, and the movement of film crews to and from locations.

The primary effect of filming on the Fort Tejon woolly sunflower would be from habitat disturbance during the staging of production. The Applicant proposes to minimize such disturbances by requiring pre-production surveys and implementation of practices that would avoid the plants to the extent practicable. We expect the effects of filming on the Fort Tejon woolly sunflower to be negligible as a result of the Applicant's proposed avoidance and minimization measures (see Table 2 of this biological opinion, and TUMSHCP Sections 2.2.1 and 7.1.2.1).

Recreation

Recreation associated with the Planwide Activities includes private recreation by TRC, its employees and guests and public access governed by the Interim RWMP and managed by the Conservancy. Such recreational use is also subject to the terms of the TUMSHCP and the terms of Service-approved conservation easements. While the private recreation by TRC occurs currently throughout the Covered Lands, public recreation, which consists of docent led tours by the Conservancy per the Interim RWMP, only occurs in the Established Open Space portion of the Mitigation Lands.

These public and private recreation uses are limited to passive activities listed in the Project Description. Recreation activities associated with Planwide Activities would occur in open space areas generally outside the TMV Planning Area, at a relatively small scale, and have infrequent impacts. Recreational uses by the Applicant, its employees, and guests and the public are limited by the access guidelines and best management practices in the Interim RWMP, and will be further regulated in Public Access Plans, which are subject to permanent Service review and approval.

Some recreational activities could affect Fort Tejon woolly sunflower individual plants, but we expect such effects to be minimal, in part due to the proposed effort to document locations of the plant and direct such activities away from sensitive areas through the Service's approval of all Public Access Plans (see Table 2 of this biological opinion, and Section 7.1.2.1 of the TUMSHCP). While some trampling and other recreation-related effects may occur, these should be negligible because there is a low likelihood that such activities would overlap with the Fort Tejon woolly sunflower occurrences due to the plant's rarity and scattered distribution (i.e., the Fort Tejon woolly sunflower is not likely to be present where recreational activities are occurring).

The indirect effects of increased demand for recreation associated with proposed development are discussed under Commercial and Residential Development Activities below.

Irrigation/Water Diversion

The action area contains existing water diversions for irrigation of agriculture inside and outside the action area, and a few small agricultural areas totaling about 232 acres exist in the TMV Planning Area (e.g., small vineyards and an orchard near Castac Lake). Agricultural uses that remain in open space after TRC identifies the final development footprint will continue subject to State and local regulations. The action area contains existing water diversions for irrigation of agriculture inside and outside of the action area. Maintenance and relocation work, if any, is subject to the survey and avoidance requirements in the TUMSHCP, and prior to TRC relocating water diversions, the Service would review and approve the proposed new locations. Therefore no effects to the Fort Tejon woolly sunflower from water diversions or irrigation should occur.

A few small agricultural areas totaling about 232 acres exist within the Covered Lands (e.g., small vineyards and an orchard near Castac Lake). Agricultural uses that remain in open space after TRC identifies the final development footprint will continue. We do not anticipate any adverse impacts to the Fort Tejon woolly sunflower from ongoing agricultural activity. Due to repeated disturbance for tilling and preparation for planting, irrigation of agricultural areas by these facilities is unlikely to have an effect on the Fort Tejon woolly sunflower because the species would not be present (i.e., irrigated lands do not support suitable habitat for Fort Tejon woolly sunflower). Agriculture is a very small percentage of the land use in the action area and will remain so throughout the life of the proposed ITP due to the Applicant's commitment to conserve areas within the Covered Lands outside of development. Future development does not include expansion of existing agricultural fields. As a result, we do not anticipate any effects to the Fort Tejon woolly sunflower as a result of the irrigation and water diversion projects in the action area.

Roads/Trails

A network of generally unpaved roads exists in the action area. As described in the TUMSHCP, the roads outside the development areas would be maintained, relocated, or new roads could be constructed, in compliance with the 200-acre limit on disturbance by Planwide Activities, to facilitate the Planwide Activities. If new roads are constructed in areas where the Fort Tejon woolly sunflower occurs, the plants could be destroyed and the habitat lost. However, TRC has proposed to survey for covered species prior to such activities and avoid locations of these species to the extent practicable (Sections 2.2.1 and 7.1.2.1 of the TUMSHCP). This should avoid or effectively minimize the effects of road and trail construction on the Fort Tejon woolly sunflower.

The direct and indirect effects of roads in the development areas as a result of residential and commercial development are addressed below under Commercial and Residential Development Activities.

Utilities

The action area contains, or would contain, various small utilities to support ranch activities. As described in Section 2.2.1 of the TUMSHCP, these utilities would be *de minimis* or would be located in previously disturbed areas (e.g., undergrounding utilities in road rights-of-way). Any utilities associated with Planwide Activities that are not *de minimis* or cannot be located in previously disturbed areas would require Service review and approval prior to relocation or construction.

Installation or maintenance of utilities to support ranch activities may affect the Fort Tejon woolly sunflower by disturbing habitat or killing individual plants. We do not expect utilities to have a substantial impact on the Fort Tejon woolly sunflower, because utility posts and towers have small footprints, the utilities affect a very small percentage of the action area. Also, TRC has proposed to survey project areas and avoid Fort Tejon woolly sunflower to the extent possible, which should minimize the potential for adverse impacts to the species during utility installation/maintenance (see Table 2 of this biological opinion).

Potential impacts by utilities associated with the proposed development are included in the discussion of effects of Commercial and Residential Development Activities below.

Backcountry Cabins

Eight backcountry cabins occur in the action area and could be maintained, improved, repaired, replaced, or reconstructed in their existing location or relocated outside of the Condor Study Area. Continued human use of the cabins should not cause meaningful new habitat disturbance, and the Applicant proposes to ensure that all cabin use be conducted in a manner that would avoid adverse impacts to the Covered Species. Currently, the Interim RWMP requires that new or relocated cabins be first subject to a site evaluation to avoid impacts to sensitive natural resources, such as Fort Tejon woolly sunflower. In addition, prior to relocating an existing cabin, TRC would allow the Service to review and approve (if appropriate) the proposed new location. These measures would should avoid or effectively minimize the impacts of cabins and their use on the species.

Fencing

Fences exist throughout the action area. Fences would be maintained and new fencing could be constructed and maintained as required to support the proposed activities, including exclusion of cattle from sensitive habitats that support Covered Species. The Applicant proposes to conserve all known locations of the Fort Tejon woolly sunflower and to design and locate new fencing to minimize effects on the species' modeled suitable habitat (see Table 2 of this biological opinion, and Sections 2.2.1 and 7.1.2.1 of the TUMSHCP). This should minimize the direct impacts of fences on the Fort Tejon woolly sunflower.

Lebec/Existing Headquarters Area Uses

Existing activity in the Lebec/Existing Headquarters Area (i.e., corporate headquarters buildings, an antique shop, a post office, a church, and several single-family residences for ranch employees) would continue to occur. While additional development could occur here under the TUMSHCP, the Applicant has not included development plans for this area in the project description. No occurrences of Fort Tejon woolly sunflower are known from the Lebec/Existing Headquarters Area, but the area supports modeled suitable habitat. The TUMSHCP requires pre-grading surveys for the species and avoidance of individuals, or minimization to the extent practicable, if full avoidance is not practicable (TUMSHCP, Section 7.1.2.1). We therefore expect that activities associated with use of this area would have negligible effects on the Fort Tejon woolly sunflower.

Mitigation, Monitoring, and Management

Mitigation, monitoring, and management activities to carry out identified biological goals and objectives for the California condor or other Covered Species included in the TUMSHCP or other resource agency permits for the commercial and residential Covered Activities, as well as mitigation, monitoring, and management activities imposed pursuant to any local, State, or Federal approval of development on Tejon Ranch would be carried out in accordance with the Act and would be subject to Service review. We acknowledge that other agencies may credit the Applicant for mitigation and protective measures included in the TUMSHCP for mitigation imposed by such other agencies. Any restoration, enhancement, or similar mitigation activities would not be allowed if they would result in unpermitted adverse effects to species or critical habitat under the Act. Additionally, any mitigation activities for other agencies would be subject to the protective measures included in Tables 1 and 2, in the Description of the Proposed Action section of this biological opinion. Therefore, we anticipate that any potential threats to the Fort Tejon woolly sunflower as a result mitigation, monitoring, and management activities would be effectively avoided.

Estimate of Disturbance Due to Planwide Activities

The Applicant proposes a maximum of 200 acres of ground disturbance associated with the Planwide Activities described above. These ground disturbances would occur outside of the Commercial and Residential Development Activities (discussed below) and may be permanent or temporary. The disturbance would primarily be associated with construction of roads, backcountry cabins, and ancillary structures. If the Applicant restores a portion of this disturbance, an area equal in size may then be disturbed. Thus, no more than 200 acres may exist in a developed condition because of Planwide Activities at one time.

For the purposes of this effects analysis, we assume that all parts of the action area that could be affected by Planwide Activities have an equal chance of being affected and that all habitat types would be affected in equal proportion. This assumption is based upon the Applicant's inability to predict exactly where 200 acres of habitat disturbance due to Planwide Activities would occur.

In addition, there is no indication that the distribution or location of Fort Tejon woolly sunflower modeled habitat would cause Planwide Activities to disproportionately occur in Fort Tejon woolly sunflower modeled habitat.

Also, for the purposes of estimating species-specific habitat disturbance by Planwide Activities, we are not using the 8,817-acre development envelope used by the Applicant to estimate impacts from development (TUMSHCP Table 2-1, footnote 4), but rather we are using the 5,533-acre area that actually could be developed within the development envelope. We did this, because after the 5,533-acre development footprint is developed, 3,284 acres of the 8,817-acre development envelope would remain and be subject to Planwide Activities, and modeled habitat for the Fort Tejon woolly sunflower could occur in the 3,284 acres. Therefore, we included 3,284 acres of the development envelope in this analysis to acquire an estimate of habitat lost by Planwide Activities that is as accurate as possible. When we combine this estimate with anticipated habitat loss from commercial and residential development in a summary effects analysis (discussed below), we will have slightly double-counted and overestimated the amount of Fort Tejon woolly sunflower habitat that would be lost in the action area. We conclude that this does not compromise our analysis because the overlap is very small relative to the size of the action area, and this approach errs on the side of the species by analyzing a larger impact than would actually occur.

Excluding commercial and residential development areas, the National Cement and La Liebre Mines, the VA Cemetery, and Not-A-Part lands (blocks of land within the boundary of the action area but not owned by the Applicant), a total of 12,423 acres within the exterior boundaries of Covered Lands are not subject to Planwide Activities. We expect that Planwide Activities could occur on the remaining 129,463 acres of the action area (141,886 acres within the action area minus the 12,423 acres of excluded areas above). Therefore, the ratio of disturbance due to Planwide Activities (200 acres) to Covered Lands subject to Planwide Activities (129,463) equals 0.0015. We applied this ratio to Fort Tejon woolly sunflower habitat outside the excluded areas but in the action area and rounded the remainder up to a whole acre. Thus, 57,430 acres of modeled habitat minus 5,368 acres lost to development equals 52,062 acres subject to Planwide Activities. Using our ratio of 0.0015, we anticipate that Planwide Activities would disturb or remove up to approximately 78 acres of modeled suitable habitat for the Fort Tejon woolly sunflower over the permit duration or approximately one tenth of 1 percent of the modeled suitable habitat.

This could be an overestimate because the Applicant is proposing measures to minimize disturbance to Fort Tejon woolly sunflower habitat, including surveying modeled suitable habitat prior to Planwide Activities involving construction, delineating the plant population, and avoiding any occurrences to the extent practicable (see Table 2 of this biological opinion). Consequently, we expect the effects to Fort Tejon woolly sunflower habitat from Planwide Activities to be minimal, especially in comparison to the large area of modeled suitable habitat available, and the measures the Applicant has proposed to avoid affecting Fort Tejon woolly sunflower habitat. While there could be some loss of Fort Tejon woolly sunflower modeled suitable habitat due to Planwide Activities, in comparison to the modeled suitable habitat

conserved, we conclude that the loss would not appreciably reduce the numbers, reproduction, or distribution of the species on the Covered Lands or rangewide.

Commercial and Residential Development Activities

As indicated above, recent surveys identified 36 occurrences of Fort Tejon woolly sunflower within the TMV Planning Area. The Applicant proposes to conserve all of these 36 occurrences within the TMV Planning Area Open Space (TUMSHCP, Section 7.1.2.1). The effects we discuss below are those that could occur to those Fort Tejon woolly sunflower plants not detected but possibly present in modeled suitable habitat.

Direct Effects

The Commercial and Residential Development Activities could result in the temporary loss of modeled suitable habitat for the Fort Tejon woolly sunflower. We do not have an exact acreage for these temporary effects. The total area of permanent loss of modeled suitable habitat is expected to be 5,368 acres, so the temporary effects should be less, in part because TRC has proposed to minimize the footprint of work areas and mark the limits within which Covered Activities that result in habitat loss may occur. Also, because the effects are temporary, we would expect the modeled suitable habitat for the Foot Tejon woolly sunflower to be able to support the species in the future as the disturbed habitat recovers.

The principal permanent effect of the Commercial and Residential Development Activities on the Fort Tejon woolly sunflower would be from habitat loss. The Applicant has calculated that development would result in the permanent loss of 5,368 acres of modeled suitable habitat for Fort Tejon woolly sunflower within Covered Lands (approximately 9 percent of the total modeled Fort Tejon woolly sunflower habitat in the Covered Lands). This habitat loss includes any modeled habitat for the Fort Tejon woolly sunflower lost as a result of development activities in the Lebec/Existing Headquarters Area. As stated above, however, recent surveys did not identify any Fort Tejon populations within the development envelope. We do not include an estimate of the number of individual Fort Tejon woolly sunflower plants that could be lost within the 5,368 acres of modeled suitable habitat lost to development, primarily because for most plant species, except large individuals of perennial plants such as trees or large shrubs, the number of individuals affected tells little about the effects to the species. The affected habitat acreage is more revealing because that figure provides an indication of how the seedbank (the natural repository for the seeds to lie dormant until conditions are right for germination) has been affected and whether the plants' distribution has been disturbed, which may be more important for its survival.

To address these effects, the Applicant has proposed to conserve approximately 91 percent of modeled habitat for the Fort Tejon woolly sunflower. The Applicant has further proposed to preserve all 36 recorded occurrences within the TMV Planning Area Open Space. Due to these extensive conservation efforts, we conclude that the proposed impacts to this species as a result of development activities would not appreciably affect the species within the Covered Lands, nor

within its broader range within California. We conclude that the permanent loss of only 9 percent of modeled suitable habitat within Covered Lands resulting from permanent habitat loss associated with development prior to implementation of avoidance and minimization measures would not appreciably reduce the species' reproduction, numbers or distribution range-wide, especially considering that all currently known locations would be preserved.

Indirect Effects

The indirect effects of development on the Fort Tejon woolly sunflower could include: introduction of invasive, nonnative plants; irrigation and runoff that affects adjacent habitat; loss of pollinator habitat; impacts due to fuel modification; and overspray or drift of pesticides into Fort Tejon woolly sunflower habitat. These indirect effects could result in loss of individual plants and could alter occupied habitat to where the Fort Tejon woolly sunflower cannot persist.

The increased population of the development areas is likely to increase the pressure for recreational activities, particularly in the TMV Planning Area. Recreational activities allowed within the TMV Planning Area Open Space are limited to passive recreation as described above under Planwide Activities and in the Project Description. Even so, in the SDEIS for the TUMSHCP, we estimated that the TUMSHCP would increase the human population of the TMV Planning Area by 11,441 people and we expect the recreational activities of future residents of the TMV Planning Area to cause a higher level of disturbance and impacts in this area than in other parts of the action area that are more remote.

If recreation occurs in occupied Fort Tejon woolly sunflower habitat, it could cause a higher level of disturbance and impacts in the TMV Planning Area Open Space than in other parts of the action area that are more remote. To minimize impacts of recreation, TRC would provide Home Owners' Association(s) with educational information regarding acceptable activities in open space areas, including recreational activities and pet restrictions. In addition, the TUMSHCP would require that recreation in the TMV Planning Area Open Space, be conducted in a manner that would avoid adverse impacts to the Covered Species and their habitats or result in less-than-significant impacts. At a minimum, the recreation activities would be planned to avoid sensitive species and known occurrences, and the TUMSHCP would require the use of existing roads and trails where possible. We expect the effects of recreation in the TMV Planning Area Open Space on the Fort Tejon woolly sunflower to be minimal.

Because the development footprint has not been determined, we cannot specifically identify which known populations of Fort Tejon woolly sunflower within the TMV Planning Area Open Space could be subject to these indirect effects; however, we can conclude that such indirect effects will be minor given the avoidance and minimization measures TRC has proposed. These measures include pre-activity surveys to avoid known locations where the Fort Tejon woolly sunflower occurs, BMPs to control runoff and pesticide use, and measures to control the escape of nonnative plants into adjacent open space where the Fort Tejon woolly sunflower would be conserved (see Table 2 of this biological opinion).

The Applicant proposes to clear and thin vegetation within 200 feet of the proposed development, creating an up to 1,773-acre fuel modification zone. The ongoing maintenance of this area, whether by grazing or mechanized means, could affect the Fort Tejon woolly sunflower's occupation or colonization of otherwise suitable habitat. The estimated areal extent in which fuel modification may affect the sunflower is included in the 5,368 acres of modeled suitable habitat estimated to be lost within the 8,817-acre development envelope.

Because the development footprint has not been determined, we cannot specifically identify which known populations of Fort Tejon woolly sunflower within the TMV Planning Area Open Space could be subject to these indirect effects; however, the Applicant proposes to conduct pre-activity surveys to avoid known locations where the Fort Tejon woolly sunflower occurs, BMPs to control runoff and pesticide use, and measures to control the escape of nonnative plants into adjacent open space (see Table 2 of this biological opinion). These measures should effectively minimize the indirect effects of development on the Fort Tejon woolly sunflower.

TUMSHCP Mitigation

The Applicant proposes to preserve in perpetuity virtually all of the action area outside the development envelope, including 52,046 acres of the 57,430 acres of modeled suitable habitat for the Fort Tejon woolly sunflower, and all 36 known occurrences of the plant on the Covered Lands. The proposed conservation of 91 percent of modeled suitable habitat for the Fort Tejon woolly sunflower is consistent with conservation biology principles calling for large, interconnected blocks of habitat that support a given species' life history requirements. The conservation of the Mitigation Lands would benefit the Fort Tejon woolly sunflower by permanently securing them from future habitat loss in the action area and maintaining a large area of Fort Tejon woolly sunflower habitat.

Summary of Effects Analysis

In determining whether a proposed action is likely to jeopardize the continued existence of a species, we consider the effects of the action with respect to the reproduction, numbers, and distribution of the species. We also consider the effects of the action on the recovery of the species. In that context, the following paragraphs summarize the effects of the proposed TUMSHCP on the Fort Tejon woolly sunflower.

The Planwide Activities and the Commercial and Residential Development Activities would likely have a minor effect on the Fort Tejon woolly sunflower. As stated above, the Applicant estimates that up to 5,368 acres of modeled suitable habitat could be lost due to development, and we have calculated that in the remainder of the action area that Planwide Activities could affect up to 78 additional acres of modeled suitable habitat for the Fort Tejon woolly sunflower, for a total of 5,446 acres of lost modeled suitable habitat for the species. Considering that the Applicant proposes to conserve 52,046 acres, the vast majority (91 percent) of the modeled suitable habitat on the Covered Lands would be conserved. Within this conserved area, the

TUMSHCP would require avoidance of all 36 known occurrences of the Fort Tejon woolly sunflower on the Covered Lands.

We conclude that the combination of avoidance and minimization proposed by TRC in addition to the conservation of all known occurrences as well as the vast majority of modeled suitable habitat on the Covered Lands would allow the proposed activities to proceed without appreciably reducing the rangewide reproduction, numbers, and distribution of the Fort Tejon woolly sunflower.

Recovery

The Fort Tejon woolly sunflower is not a listed species, and there are no recovery criteria with which to compare the current and future status of the species. The proposed action would cause a small reduction in the species numbers, reproduction, and distribution within the action area but would not appreciably affect the reproduction, numbers, or distribution of the Fort Tejon woolly sunflower rangewide. The proposed action would also result in the permanent conservation of 52,046 acres or 91 percent of suitable modeled habitat for the species within the action area, which would have long-term, stabilizing benefits to the species by securing a portion of the species' range from future habitat loss, thus addressing a primary reason for the species' decline.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section, because they require separate consultation pursuant to section 7 of the Act.

Hunting

Private and commercial hunting operations occur on Tejon Ranch, including the action area; however, hunting is not an activity covered by the TUMSHCP. The Applicant proposes to continue hunting operations throughout the ranch during the proposed permit term. Hunting activities involve travel on existing paved and unpaved roads, overnight use of backcountry cabins, hiking, discharging hunting weapons, etc. Hunting in the TMV Planning Area would be limited to guided hunts. The effects from hunting will generally be consistent with, and to a considerable extent are captured in, the descriptions of effects for Roads/Trails, Backcountry Cabins, and Recreation described above. Therefore, we expect that hunting in the action area will have negligible cumulative effects on the Fort Tejon woolly sunflower.

Mining

Two commercial mining operations occur in the action area, La Liebre and National Cement; these mining operations are not covered activities under the TUMSHCP. The total area used for

the two operations is about 2,636 acres, and the Applicant would maintain the mining leases through the proposed permit term. The Fort Tejon woolly sunflower is not known to occur in proximity to the mines, and much of the mining areas is already disturbed; however, the Applicant estimates that the mining areas may support up to 1,054 acres of modeled suitable habitat for the Fort Tejon woolly sunflower. Because the effects of mining occur in a small area relative to the amount of modeled suitable habitat in the action area, and because much of the mining areas is already disturbed, we expect that continued mining in the action area will have negligible cumulative effects on the Fort Tejon woolly sunflower.

Other Activities

As discussed above under project description, within the external boundaries of the Plan Area, there are existing inholdings and utilities. The Bakersfield National Cemetery also occurs inside the Covered Lands. These projects and activities are not Covered Activities under the TUMSHCP. We are not aware of any reasonably foreseeable activities within the 3,870 acres of inholdings that may affect the Fort Tejon woolly sunflower. Activities associated with utilities, transmission lines and related structures, such as maintenance activities, would be restricted to currently established easement areas and would have only minor, if any, effects on Fort Tejon woolly sunflower habitat. Therefore we do not anticipate any cumulative effects from the ongoing maintenance and operation of non-covered existing utilities. The Bakersfield National Cemetery is in place, and we are not aware of any activities associated with the cemetery that may have an adverse effect on the Fort Tejon woolly sunflower.

CONCLUSION

After reviewing the current status of the Fort Tejon woolly sunflower, the environmental baseline for the action area, the effects of the proposed TUMSHCP and the cumulative effects, it is the Service's biological opinion that the implementation of the TUMSHCP, as proposed, is not likely to jeopardize the continued existence of the Fort Tejon woolly sunflower. We have reached this conclusion for the following reasons:

1. All of the currently 36 known occurrences of the species on the Covered Lands would be conserved under TRC’s proposed plan.

2. For other potential areas occupied by the species but not yet surveyed (the modeled suitable habitat), TRC proposes to conserve more than 91 percent of that habitat in perpetuity, based on our estimate of modeled suitable habitat potentially lost due to Covered Activities.

3. Where the modeled suitable habitat overlaps with proposed activities, TRC proposes to conduct pre-activity surveys and carry out the action while avoiding newly discovered populations of the Fort Tejon woolly sunflower.

4. The large area of conservation that includes the Fort Tejon woolly sunflower should ensure the species persists and thus the TUMSHCP would contribute to the species' recovery and survival.

We conclude that the likelihood of the survival of the Fort Tejon woolly sunflower would not be diminished by the proposed action principally because of the extensive habitat preservation that would result. Although there are no recovery criteria for the Fort Tejon woolly sunflower, the measures proposed by TRC are consistent with typical rare plant conservation approaches. Therefore, we further conclude that the proposed action would not diminish the likelihood of the recovery of the Fort Tejon woolly sunflower.

INCIDENTAL TAKE STATEMENT

Take of plant species is not prohibited under the Act; therefore Section 7(b)(4) and 7(o)(2) of the Act do not apply to plant species and no incidental take statement is provided for the Fort Tejon woolly sunflower. Limited protection of listed plants is provided to the extent that the Act prohibits the removal and reduction to possession of federally listed endangered plants or the malicious damage of such plants on areas under Federal jurisdiction, or the destruction of listed plants on non-Federal areas in violation of State law or regulation or in the course of any violation of a State criminal trespass law. As described above, the proposed TUMSHCP and associated documents identify anticipated impacts to the Fort Tejon woolly sunflower as well as measures that are necessary and appropriate to minimize those impacts.

KUSCHE'S SANDWORT

STATUS OF THE SPECIES

Regulatory History

Kusche's sandwort (*Arenaria macradenia* var. *kuschei*) has no Federal or State designation. This variety was formerly recognized by the CNDDB and CNPS (2008) as a special-status species. Based on recent collections, it was determined that *A. m.* var. *kuschei* intergrades completely with *E. m* var. *arcuifolia* (Hartman et al. 2005). This taxon currently has no Federal, State, or CNPS special status. However, the discussion below assumes that Kusche's sandwort may be an extreme local variant of *E. m.* var. *arcuifolia*, and as such is treated as if it were special-status with regard to distribution, habitat associations, and threats.

Natural History/Habitat Requirements

Kusche's sandwort blooms from June to July (CNPS 2008). The flowers are very small: petals are 6 to 11 millimeters long and sepals are 5 to 7 millimeters long and densely glandular hairy (Hickman 1996). Pollinators have not been identified for Kusche's sandwort, but pollinator studies for a related species (*Arenaria serpyllifolia*) revealed that ants were the primary pollinator (Mayer and Gottsberger 2002). Dispersal information is not available for Kusche's sandwort.

The species is found in openings in chaparral on granitic soil between 3,660 and 5,100 feet amsl (CNPS 2008). It has also been reported in open black oak and canyon live oak woodland, and sparse low scrub and subshrubs within dense chaparral (CNPS 2008). All known occurrences of Kusche's sandwort have been reported from areas of gentle to moderate topography (CNPS 2008). Other plants associated with Kusche's sandwort include birch-leaf mountain-mahogany (*Cercocarpus betuloides* var. *betuloides*), procumbent lotus (*Lotus procumbens*), canyon live oak, ripgut brome (*Bromus diandrus)*, one-sided bluegrass (*Poa secunda*), junegrass (*Koeleria macrantha*) and California-aster (*Corethrogyne filaginifolia*) (Dudek 2007a).

Distribution and Population Trends

Kusche's sandwort was previously only known from one indistinct or "vague" collection made in 1929 from Forest Camp in the Mojave Desert. The plant was not collected again until 1994, when it was found near the western summit of Liebre Mountain, approximately 14 miles southeast of the Covered Lands (Ross and Boyd 1996). A study conducted in 1997 included a survey of potential habitat on Liebre Mountain and adjacent areas and located six new populations (Boyd 1999). Most of these recently discovered populations are small, both in number of individual plants and in area covered by the plants (Stephenson and Calcarone 1999).

During a review of the CNDDB in 2008, the data base contained five records for Kusche's sandwort, based on observations made between 1997 and 2005, all of which are in the Liebre

Mountains. One of the five CNDDB occurrences is recorded to have included more than 650 plants but the remaining four occurrences numbered fewer than 50 plants each, with the smallest occurrence including only five plants. No systematic studies of population trends over time have been conducted.

Reason for Decline

Kusche's sandwort may be threatened by land management activities, road maintenance, and vehicles (CNPS 2008). Boyd (1999) observed that road maintenance may directly or indirectly impact the populations along 7N23 and off-highway vehicle damage may threaten the populations near the head of Tentrock Canyon and on the ridge between Bear and Fish Canyons. In addition, populations on the west summit of Liebre Mountain may be threatened by trampling by campers. Populations on the ridgeline between Bear and Fish canyons are susceptible to disturbance related to fuel modification zone maintenance (Boyd 1999). Two recorded occurrences from Soledad Canyon in Los Angeles County are at risk from private land development and mining.

Because the known populations are highly restricted and small, Kusche's sandwort may be sensitive to stochastic change (Boyd 1999); i.e., a landslide could extirpate an entire population. Vegetation management activities, such as "crush and burn" practices, have been used in the Angeles National Forest within the habitat for Kusche's sandwort (Ross and Boyd 1996), and the species does not fare well under such disturbance.

ENVIRONMENTAL BASELINE

The Applicant's consultants conducted presence/absence surveys for Kusche's sandwort within the TMV Planning Area. In the TMV Planning Area, Kusche's sandwort was observed in seven distinct occurrences representing approximately 24 individuals.

During various surveys conducted in portions of the Covered Lands outside of the TMV Planning Area, Kusche's sandwort has been observed on granite to quartz monzonite, young alluvial terraces, and debris flows between 3,800 and 4,200 feet (Dudek 2007a; Intermap Technologies Inc. 2005). Kusche's sandwort was observed in a canyon live oak forest (Dudek 2007a, 2007c). In the Covered Lands, the majority of occurrences were found on north-facing slopes with a slope angle between 15 to 45 degrees, although this taxon was also present on steeper slopes (Dudek 2007a; Intermap Technologies Inc. 2005).

Because the entire Covered Lands area was not surveyed for Kusche's sandwort, suitable habitat for this species was modeled on all Covered Lands as a means of predicting possible occurrences. The model included chaparral, riparian woodland, oak woodland, and oak savannah vegetation communities on granitic soils that occur at elevations between 3,800 and 5,600 feet amsl. The results of the modeling conclude that the Covered Lands support approximately 30,505 acres of modeled suitable habitat for Kusche's sandwort.

Recovery

Because the species is not federally listed, we have not developed a recovery plan for the Kusche's sandwort. To address the potential recovery of the species, we consider general concepts for the conservation of rare plants. These include the preservation of existing populations, ensuring adequate space for the species to fluctuate its distribution in response to edaphic factors, continuation of dispersal mechanisms, control of exotic invasive plants, and maintenance of natural pollinator communities. The principal way of achieving these goals is preservation of suitable habitat with adequate buffers from human alterations. In addition, restoration of formerly suitable habitat areas can contribute to the species' recovery. Once enough space has been preserved and restored, rare plant species should be able to persist and perhaps increase to historical levels.

EFFECTS OF THE ACTION

Planwide Activities

Livestock

The Applicant proposes to continue to graze livestock at historical levels on the balance of the action area outside the development areas, consistent with the types and level of historical grazing and ranch management practices. Plants are susceptible to the presence of livestock primarily due to direct grazing or browsing. We do not know if the Kusche's sandwort is palatable to livestock, but we cannot rule out the possibility that cattle will graze on the species during normal feeding. Cattle can also affect plants directly through trampling. Again, we have no measure of the effects trampling by livestock on the Kusche's sandwort, but we can conclude that the plant persists in areas subject to historical and current grazing. We conclude that the Kusche's sandwort may be affected by livestock activities, but that the effects are consistent with the continued persistence of the species on the Covered Lands. We do not know if the species' distribution would be broader or whether the number of individual plants would be higher in the absence of livestock.

Cattle and other livestock may also be vectors of non-native plants and can spread invasive species into habitat occupied by the Kusche's sandwort. While this spread is difficult to control, given the history of livestock on the Covered Lands, the probability that livestock will not be grazing in new areas, and the fact that many invasive plant species have already been established on the Covered Lands, we do not expect that continued livestock grazing at historical levels will exacerbate the problem. In addition, under the TUMSHCP, the Applicant must submit a grazing management plan, as a component of the RWMP, to the Service every 5 years for our review and approval. Our review of such plans will allow for the implementation of additional measures or modification of grazing practices to ensure the compatibility of grazing with the conservation of the Kusche's sandwort.

Range Management/Ancillary Ranch Structures

Range management activities support livestock operations and consist of construction, operation, and maintenance of watering facilities, feeding areas, fences, and corrals, consistent with the types and level of historical grazing and ranch management practices; repair, reconstruction, and relocation of roads to accommodate historical grazing and ranch management practices; and repair, maintenance, or installation of ranch management communication equipment (e.g., whip antennas) that are less than 20 feet high. The repair, reconstruction and relocation of roads to accommodate historical grazing and ranch management practices are evaluated below under Roads. Range management also incorporates ancillary ranch structures including squeezes, loading chutes, holding and feeding fields, corrals, branding traps, barns, sewage disposal facilities, livestock and wildlife watering facilities, and utilities serving existing ranch uses.

As described above under Planwide Activities in the Description of the Proposed Action section, *de-minimis* activities associated with ancillary ranch structures would be covered under the TUMSHCP. Non–*de minimis* activities associated with ancillary ranch structures are also allowed (1) if the activity is located in disturbed areas (e.g., undergrounding utilities in road rights-of-way), or (2) following a meet-and-confer process with the Service to ensure that the activity associated with an ancillary ranch structure avoids or adequately minimizes impacts to Covered Species and their habitats.

If range management activities (especially new facilities) were to take place in areas where the Kusche's sandwort grows, the individual plants could be removed. The Applicant has proposed to conduct surveys prior to such disturbance and avoid areas where the plants currently grow (see Table 2 of this biological opinion, and Section 7.1.2.2 of the TUMSHCP). This measure should be sufficient to avoid removal of Kusche's sandwort plants as a result of ranch construction and modification activities. Therefore, we conclude that the effects from range management on the Kusche's sandwort would be negligible.

Fuel Management

Fuel management practices would consist primarily of grazing, and the effects of fuel management by grazing should be largely consistent with the effects of livestock. Other fuel management activities include fuel modification zones created (1) by existing roads, and (2) through irrigation and/or vegetation clearing and mowing within 120 feet surrounding existing structures (i.e., backcountry cabins, ancillary ranch structures, and other existing structures).

If Kusche's sandwort plants fall within the zone designated for fuel clearance, individual plants could be lost, and the repeated clearance could preclude their re-establishment. The Applicant has proposed to survey for the plant and avoid, as much as possible, areas where the Kusche's sandwort occurs (see Table 2 of this biological opinion, and Section 7.1.2.2 of the TUMSHCP). This should minimize the impact of fuel clearance to the extent it is considered feasible to avoid occupied areas while achieving fuel management objectives, although some plants could still be

lost. Therefore, we conclude that the effects from fuel management activities on the Kusche's sandwort would be negligible.

Fuel management associated with Commercial and Residential Development Activities is discussed below under Commercial and Residential Development Activities.

Filming

Filming activities generally consist of temporary on-scene filming and photography-related uses, including, but not limited to the filming and staging of movies, television shows, and commercials; photo shoots; and still photography and related uses. Such activities may include the erection and dismantling of props, temporary installation of trailers and equipment for film crews, filming of on-camera action, catering, rehabilitation of disturbed areas, and the movement of film crews to and from locations.

The primary effect of filming on the Kusche’s sandwort would be from habitat disturbance during the staging of production. The TUMSHCP (Section 2.2.1, Planwide Activities) states that the RWMP will include best management practices for filming activities and the Interim RWMP requires that any temporary construction related to film production be first reviewed to avoid sensitive resources, and that any areas disturbed by filming are restored to pre-filming condition, including revegetation. We expect the effects of filming on the Kusche’s sandwort to be negligible.

Recreation

Recreation associated with the Planwide Activities includes private recreation by TRC, its employees and guests and public access is governed by the Interim RWMP and managed by the Conservancy. Such recreational use is also subject to the terms of the TUMSHCP and the terms of Service-approved conservation easements. While the private recreation by TRC occurs currently throughout the Covered Lands, public recreation, which generally consists of docent led tours by the Conservancy per the Interim RWMP, occurs in the Established Open Space portion of the Mitigation Lands.

These public and private recreation uses are limited to passive activities listed in the Project Description. Recreation activities associated with Planwide Activities would occur in open space areas generally outside the TMV Planning Area at a relatively small scale, and have infrequent impacts. Recreational uses by TRC, its employees, and the public are limited by the access guidelines and best management practices in the Interim RWMP and will be further regulated in Public Access Plans, which are subject to permanent Service review and approval.

Some recreational activities could affect Kusche’s sandwort individual plants, but we expect such effects to be minimal, in part due to the proposed effort to document locations of the plant and direct such activities away from sensitive areas. While some trampling and other recreation-related effects may occur, these should be negligible due to the low likelihood that such activities

would overlap with the Kusche's sandwort occurrences due to the plant's rarity and scattered distribution (i.e., the Kusche's sandwort is not likely to be present where recreational activities are occurring).

Indirect effects on recreation from greater population density is addressed under Commercial and Residential Development Activities, below

Irrigation/Water Diversion

The action area contains existing water diversions for irrigation of agriculture inside and outside the action area, and a few small agricultural areas totaling about 232 acres exist in the TMV Planning Area (e.g., small vineyards and an orchard near Castac Lake). Agricultural uses that remain in open space after TRC identifies the final development footprint will continue subject to State and local regulations. We do not anticipate any adverse impacts to the Kusche's sandwort from on-going agricultural activity, because no additional diversions are proposed and TRC has proposed to survey for the Kusche's sandwort and avoid areas where the species occurs. Also, maintenance and relocation work, if any, is subject to the survey and avoidance requirements in the TUMSHCP, and prior to TRC relocating water diversions, the Service would review and approve the proposed new locations.

Agricultural uses that remain in open space after TRC identifies the final development footprint will continue. Due to repeated disturbance for tilling and preparation for planting, irrigation of agricultural areas by these facilities is unlikely to have an effect on the Kusche's sandwort because the species would not be present (i.e., tilled and irrigated lands do not support suitable habitat for Kusche's sandwort). Agriculture is a very small percentage of the land use in the action area and will remain so throughout the life of the proposed ITP due to the Applicant's commitment to conserve areas within the Covered Lands outside of development. Future development and ongoing Planwide Activities do not include expansion of existing agricultural fields. We do not expect any substantial effects from these activities on Kusche's sandwort.

Roads/Trails

A network of generally unpaved roads exists in the action area. As described in the TUMSHCP, the roads outside the development areas would be maintained, relocated, or new roads could be constructed, in compliance with the 200-acre limit on disturbance by Planwide Activities, to facilitate the Planwide Activities. The unimproved dirt roads exist for access for fire protection, security, ranching activities, and hunting. Any new or relocated roads will be sited to avoid impacts to sensitive resources; however, if new roads are constructed in areas where the Kusche's sandwort occurs, the plants could be destroyed and the habitat lost. The Applicant has proposed to survey for covered species prior to such activities and avoid locations of these species to the extent practicable (see Table 2 of this biological opinion, and Section 7.1.2.2 of the TUMSHCP). This should avoid and minimize the effects of road and trail construction on the Kusche's sandwort, and we do not expect substantial effects on the species as a result.

Utilities

The action area contains, or would contain, various small utilities to support ranch activities. As described in Section 2.2.1 of the TUMSHCP, these utilities would be *de minimis* or would be located in previously disturbed areas (e.g., undergrounding utilities in road rights-of-way). Any utilities associated with Planwide Activities that are not *de minimis* or cannot be located in previously disturbed areas would require Service review and approval prior to relocation or construction.

Installation or maintenance of utilities to support ranch activities may affect the Kusche's sandwort by disturbing habitat or killing individual plants. We expect utilities to have a minimal impact on the Kusche's sandwort, because utility posts and towers have small footprints, the utilities affect a very small percentage of the action area. Also, TRC has proposed to survey project areas and avoid Kusche's sandwort to the extent possible, which should minimize the potential for adverse impacts to the species during utility installation/maintenance.

Potential impacts by utilities associated with the proposed development are included in the discussion of effects of Commercial and Residential Development Activities below.

Backcountry Cabins

Eight backcountry cabins occur in the action area and could be maintained, improved, repaired, replaced, or reconstructed in their existing location or relocated outside of the Condor Study Area. Continued human use of the cabins should not cause meaningful new habitat disturbance, and the Applicant proposes to ensure that all cabin use be conducted in a manner that would avoid adverse impacts to the Covered Species. Currently, the Interim RWMP requires that new or relocated cabins be first subject to a site evaluation to avoid impacts to sensitive natural resources, such as Kusche's sandwort populations. In addition, prior to relocating an existing cabin, the Applicant would allow the Service to review and approve (if appropriate) the proposed new location. These measures would likely minimize the impacts of cabins and their use on the species.

Fencing

Fences exist throughout the action area. Fences would be maintained and new fencing could be constructed and maintained as required to support the proposed activities, including exclusion of cattle from sensitive habitats that support Covered Species. The Applicant proposes to design and locate new fencing to avoid known occurrences of the Kusche's sandwort and avoid and minimize impacts to newly discovered populations to the extent feasible and practicable (see Table 2 of this biological opinion, and Section 7.1.2.2 of the TUMSHCP). Under the TUMSHCP, the Applicant must submit a grazing management plan, as a component of the RWMP, to the Service every 5 years for review and approval. Our review of such plans will allow for the implementation of additional measures or modification of fencing practices. This

should minimize the direct impacts of fences on the species, and we expect that fencing will have little to no effect on Kusche's sandwort.

Lebec/Existing Headquarters Area Uses

Existing activity in the Lebec/Existing Headquarters Area (i.e., corporate headquarters buildings, an antique shop, a post office, a church, and several single-family residences for ranch employees) would continue to occur. While additional development could occur here under the TUMSHCP, TRC has not included development plans for this area in the project description. We expect that activities associated with use of this area will not have any effects on the Kusche's sandwort because the species does not occur in these areas nor is modeled suitable habitat present.

Mitigation, Monitoring, and Management

Mitigation, monitoring, and management activities to carry out identified biological goals and objectives for the California condor or other Covered Species included in the TUMSHCP or other resource agency permits for the commercial and residential Covered Activities, as well as mitigation, monitoring, and management activities imposed pursuant to any local, State, or Federal approval of development on Tejon Ranch would be carried out in accordance with the Act and would be subject to Service review. We acknowledge that other agencies may credit the Applicant for mitigation and protective measures included in the TUMSHCP for mitigation imposed by such other agencies. Any restoration, enhancement, or similar mitigation activities would not be allowed if they would result in unpermitted adverse effects to species or critical habitat under the Act. Additionally, any mitigation activities for other agencies would be subject to the protective measures included in Tables 1 and 2, in the Description of the Proposed Action section of this biological opinion. Therefore, we anticipate that any potential threats to the Kusche's sandwort as a result mitigation, monitoring, and management activities would be effectively minimized.

Estimate of Disturbance Due to Planwide Activities

The Applicant proposes a maximum of 200 acres of ground disturbance associated with the Planwide Activities described above. These ground disturbances would occur outside of the Commercial and Residential Development Activities (discussed below) and may be permanent or temporary. The disturbance would primarily be associated with construction of roads, backcountry cabins, and ancillary structures. If the Applicant restores a portion of this disturbance, an area equal in size may then be disturbed. Thus, no more than 200 acres may exist in a developed condition because of Planwide Activities at one time.

For the purposes of this effects analysis, we assume that all parts of the action area that could be affected by Planwide Activities have an equal chance of being affected and that all habitat types would be affected in equal proportion. This assumption is based upon the Applicant’s inability to predict exactly where 200 acres of habitat disturbance due to Planwide Activities would occur.

In addition, there is no indication that the distribution or location of Kusche's sandwort modeled habitat would cause Planwide Activities to disproportionately occur in Kusche's sandwort modeled habitat.

For the purposes of estimating species-specific habitat disturbance by Planwide Activities, we are not using the 8,817-acre development envelope used by the Applicant to estimate impacts from development (TUMSHCP Table 2-1, footnote 4), but rather we are using the 5,533-acre area that actually could be developed within the development envelope. We did this, because after the 5,533-acre development footprint is developed, 3,284 acres of the 8,817-acre development envelope would remain and be subject to Planwide Activities, and modeled habitat for the Kusche's sandwort could occur in the 3,284 acres. Therefore, we included 3,284 acres of the development envelope in this analysis to acquire an estimate of habitat lost by Planwide Activities that is as accurate as possible. When we combine this estimate with anticipated habitat loss from commercial and residential development in a summary effects analysis (discussed below), we will have slightly double-counted and overestimated the amount of Kusche's sandwort habitat that would be lost in the action area. We conclude that this does not compromise our analysis because the overlap is very small relative to the size of the action area, and this approach errs on the side of the species by analyzing a larger impact than would actually occur.

Excluding commercial and residential development areas, the National Cement and La Liebre Mines, the VA Cemetery, and Not-A-Part lands (blocks of land within the boundary of the action area but not owned by TRC), a total of 12,423 acres within the exterior boundaries of the plan area are not subject to Planwide Activities. We expect that Planwide Activities could occur on the remaining 129,463 acres of the action area (141,886 acres within the action area minus the 12,423 acres of excluded areas above). Therefore, the ratio of disturbance due to Planwide Activities (200 acres) to Covered Lands subject to Planwide Activities (129,463 acres) equals 0.0015. We applied this ratio to Kusche’s sandwort habitat outside the excluded areas but in the action area and rounded the remainder up to a whole acre. Thus, 30,505 acres of modeled habitat minus 2,097 acres lost to development equals 28,408 acres subject to Planwide Activities. Using our ratio of 0.0015, we anticipate that Planwide Activities would disturb or remove up to approximately 43 acres of modeled suitable habitat for the Kusche’s sandwort over the permit duration, or less than 0.2 percent of the modeled suitable habitat.

This could be an overestimate because the Applicant is proposing measures to minimize disturbance to Kusche’s sandwort habitat, including surveying modeled suitable habitat for the Kusche's sandwort prior to Planwide Activities, delineating the plant populations, and avoiding occurrences to the maximum extent practicable (see Table2; also, Section 2.2.1 and 7.1.2.2 of the TUMSHCP). Consequently, we expect the effects to Kusche’s sandwort habitat to be minimal, especially in comparison to the large area of modeled suitable habitat that would be conserved, and the measures TRC has proposed to avoid affecting Kusche’s sandwort habitat. While there would be some loss of Kusche’s sandwort modeled suitable habitat due to Planwide Activities, in comparison to the modeled suitable habitat conserved, we conclude that the loss would not

appreciably reduce the numbers, reproduction, or distribution of the species on the Covered Lands or rangewide.

Commercial and Residential Development Activities

Direct Effects

The Covered Activities could result in temporary impacts, including habitat loss, to modeled suitable habitat for the Kusche's sandwort. We do not have an exact acreage for these temporary effects. The total area of permanent loss of modeled suitable habitat due to development is expected to be 2,097 acres, so the temporary effects should be less, in part because TRC has proposed to minimize the footprint of work areas and mark the limits within which development that results in habitat loss may occur. Also, because the effects are temporary, we would expect the modeled suitable habitat for the Kusche's sandwort to be able to support the species in the future as it recovers from disturbance.

The principal permanent effect of the Commercial and Residential Development Activities on the Kusche's sandwort would be from habitat loss. The Applicant has calculated that Covered Activities would result in the permanent loss of 2,097 acres of modeled suitable habitat for Kusche's sandwort within Covered Lands (approximately 7 percent of the total modeled Kusche's sandwort habitat in the Covered Lands). (No modeled suitable habitat for the Kusche's sandwort occurs within the Lebec/Existing Headquarters Area.) We do not include an estimate of the number of individual Kusche's sandwort plants that could be lost within that area, primarily because for most plant species, except large individuals of perennial plants such as trees or large shrubs, the number of individuals affected tells little about the effects to the species. The affected habitat acreage is more revealing because that figure provides an indication of how the seedbank (the natural repository for the seeds to lie dormant until conditions are right for germination) has been affected and whether the plants' distribution has been disturbed.

Because 93 percent of modeled habitat for the Kusche's sandwort would be conserved and all of the 7 known occurrences within Covered Lands would be preserved within a large open space system, the proposed impacts to this species as a result of Covered Activities would not appreciably affect Kusche's sandwort on the Covered Lands or within its broader range in California. We conclude that the loss of 7 percent of modeled suitable habitat within Covered Lands resulting from permanent habitat loss associated with Covered development Activities, together with implementation of avoidance and minimization measures to reduce impacts to individual plants would not appreciably reduce the species' reproduction, numbers or distribution range-wide, especially considering that all currently known locations would be preserved.

Indirect Effects

The indirect effects of development on the Kusche's sandwort could include: introduction of invasive, nonnative plants; irrigation and runoff that affects adjacent habitat; loss of pollinator

habitat; impacts due to fuel modification; and overspray or drift of pesticides into Kusche's sandwort habitat. Such effects do not extend outside the boundaries of the Covered Lands. These indirect effects could result in loss of individual plants and could alter occupied habitat to where the Kusche's sandwort cannot persist. Because the development footprint has not been determined, we cannot specifically identify which of the seven known populations of Kusche's sandwort could be subject to these indirect effects; however, we can conclude that any such effects would be minor given the avoidance and minimization measures the Applicant has proposed, including pre-activity surveys to avoid known locations where the Kusche's sandwort occurs, BMPs to control runoff and pesticide use, and measures to control the escape of nonnative plants into adjacent open space where the Kusche's sandwort would be conserved (see Table 2 of this biological opinion).

The increased population of the development areas is likely to increase the pressure for recreational activities, particularly in the TMV Planning Area. Recreational activities allowed within the TMV Planning Area Open Space are limited to passive recreation as described above under Planwide Activities and in the Project Description. Even so, in the SDEIS for the TUMSHCP, we estimated that the TUMSHCP would increase the human population of the TMV Planning Area by 11,441 people and we expect the recreational activities of future residents of the TMV Planning Area to cause a higher level of disturbance and impacts in this area than in other parts of the action area that are more remote.

If recreation occurs in occupied Kusche's sandwort habitat, it could cause a higher level of disturbance and impacts in the TMV Planning Area Open Space than in other parts of the action area that are more remote. To minimize impacts of recreation, TRC would provide Home Owners' Association(s) with educational information regarding acceptable activities in open space areas, including recreational activities and pet restrictions. In addition, the TUMSHCP would require that recreation in the TMV Planning Area Open Space, be conducted in a manner that would avoid adverse impacts to the Covered Species and their habitats or result in less-than-significant impacts. At a minimum, the recreation activities would be planned to avoid sensitive species and known occurrences, and the TUMSHCP would require the use of existing roads and trails where possible. We expect the effects of recreation in the TMV Planning Area Open Space on the Kusche's sandwort to be minimal.

The Applicant proposes to clear and thin vegetation within 200 feet of the proposed development, creating an up to 1,773-acre fuel modification zone (although it is likely that the majority of this zone will occur within the development envelope). The expected intensity of disturbance associated with these activities alone would not preclude the sandwort's occupation of modeled habitat near this area; however, the ongoing maintenance of this area, whether by grazing or mechanized means, could affect the sandwort's occupation or colonization of otherwise suitable habitat. The estimated areal extent in which fuel modification may affect the sandwort is included in the 2,097 acres of modeled habitat estimated to be lost within the 8,817-acre development envelope.

TUMSHCP Mitigation

TRC proposes to preserve in perpetuity the balance of the action area outside the development areas, including 28,407 acres of the modeled suitable habitat for the Kusche's sandwort. The Applicant would maintain the preserved land in its current condition. Considering the relatively narrow distribution of the species and its relative abundance on the Covered Lands, the preservation of 93 percent of modeled suitable habitat will effectively minimize effects to the Kusche's sandwort and should contribute to the species' conservation.

For those potential effects due to development where preservation alone cannot prevent the effects from occurring (e.g., intrusion into Kusche's sandwort modeled suitable habitat), the Applicant has proposed other measures to avoid and minimize the effects of the covered activities on the Kusche's sandwort (see Table 2 and the TUMSHCP, Sections 2.2.1, 2.2.3, and 7.1.2.2). These additional specific measures will help conserve the species on the Covered Lands and further minimize the impact to the reproduction, numbers, and distribution of the Kusche's sandwort in the wild.

Summary of Effects Analysis

In determining whether a proposed action is likely to jeopardize the continued existence of a species, we consider the effects of the action with respect to the reproduction, numbers, and distribution of the species. We also consider the effects of the action on the recovery of the species. In that context, the following paragraph(s) summarize(s) the effects of the proposed TUMSHCP on the Kusche's sandwort.

The Planwide Activities and the Commercial and Residential Development Activities could potentially have a minor effect on the Kusche's sandwort. As stated above, the Applicant estimates that up to 2,097 acres of modeled suitable habitat could be lost due to development, and we have calculated that in the remainder of the action area that Planwide Activities could affect up to 43 additional acres of modeled suitable habitat for the Kusche's sandwort, for a total of 2,140 acres of lost modeled suitable habitat for the species. Considering that the Applicant proposes to conserve 28,407, the majority (approximately 93 percent) of the modeled suitable habitat on the Covered Lands would be conserved. Within this conserved area, the Applicant would avoid effects on all 7 known occurrences of the Kusche's sandwort on the Covered Lands and would minimize and avoid effects to other Kusche's sandwort plants to the extent possible.

We conclude that the combination of the conservation of all known occurrences of Kusche's sandwort as well as the majority of modeled suitable habitat on the Covered Lands, and avoidance and minimization proposed by TRC, would allow the proposed activities to proceed without reducing the reproduction, numbers, and distribution of the Kusche's sandwort across its range.

Recovery

Kusche's sandwort is not a listed species, and there are no recovery criteria with which to compare the current and future status of the species. The proposed action would result in minor effects on the species and its modeled habitat within the action area, but would not appreciably affect the reproduction, numbers or distribution of the Kusche's sandwort rangewide. The proposed action would also result in the permanent conservation of approximately 93 percent of suitable modeled habitat for the species within the action area, which would have long-term, stabilizing benefits to the species by securing a portion of the species' range from future habitat loss, thus addressing a primary reason for the species' decline.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section, because they require separate consultation pursuant to section 7 of the Act.

Hunting

Private and commercial hunting operations occur on Tejon Ranch, including the action area; however, hunting is not an activity covered by the TUMSHCP. The Applicant proposes to continue hunting operations throughout the ranch during the proposed permit term. Hunting in the TMV Planning Area would be limited to guided hunts. Hunting activities involve travel on existing paved and unpaved roads, overnight use of backcountry cabins, hiking, discharging hunting weapons, etc. The effects from hunting will generally be consistent with, and to a considerable extent are captured in, the descriptions of effects for Roads/Trails, Backcountry Cabins, and Recreation described above. Therefore, we expect that hunting in the action area will have negligible cumulative effects on the Kusche's sandwort.

Mining

Two commercial mining operations occur in the action area, La Liebre and National Cement; these mining operations are not covered activities under the TUMSHCP. The total area used for the two operations is about 2,636 acres, and the Applicant would maintain the mining leases through the proposed permit term. The species is not known to occur in proximity to the mines, although the Applicant estimates that the mining sites may support up to 525 acres of modeled suitable habitat for the Kusche's sandwort. However, because the mining areas are already disturbed and the effects of mining occur in a small area relative to the amount of modeled suitable habitat in the action area, we expect that continued mining in the action area will have only negligible cumulative effects on the Kusche's sandwort.

Other Activities

As discussed above under project description, within the external boundaries of the Plan Area, there are existing inholdings and utilities. The Bakersfield National Cemetery also occurs inside the plan area. These projects and activities are not Covered Activities under the TUMSHCP. We are not aware of any reasonably foreseeable activities within the 3,870 acres of inholdings that may affect the condor. Activities associated with existing utilities, transmission lines and associated structures, such as maintenance, would be restricted to existing easement areas, and would have minor, if any, effects on the Kusche's sandwort. Therefore, we do not anticipate any cumulative effects from the ongoing maintenance and operation of non-covered existing utilities. The Bakersfield National Cemetery is in place, and we are not aware of any activities associated with the cemetery that may have an adverse effect on Kusche's sandwort.

CONCLUSION

After reviewing the current status of the Kusche's sandwort, the environmental baseline for the action area, the effects of the proposed TUMSHCP and the cumulative effects, it is the Service's biological opinion that the implementation of the TUMSHCP, as proposed, is not likely to jeopardize the continued existence of the Kusche's sandwort. We have reached this conclusion for the following reasons:

1. All 7 of the currently known occurrences of the species on the Covered Lands would be conserved under TRC's proposed plan.

2. For other areas potentially occupied by the species but not yet surveyed (the modeled suitable habitat), TRC proposes to conserve approximately 93 percent of that habitat in perpetuity, based on our estimate of modeled suitable habitat potentially lost due to the Covered Activities.

3. Where the modeled suitable habitat overlaps with most of the proposed activities, TRC proposes to conduct pre-activity surveys and carry out the action while avoiding newly discovered populations of the Kusche's sandwort.

4. The large area of conservation that includes the Kusche's sandwort should ensure the species persists and thus the TUMSHCP would contribute to the species' recovery and survival.

We conclude that the likelihood of the survival of the Kusche's sandwort would not be diminished by the proposed action principally because of the extensive habitat preservation that would result. Although there are not recovery criteria for the Kusche's sandwort, the measures proposed by the Applicant are consistent with typical rare plant conservation approaches. Therefore, we further conclude that the proposed action would not diminish the likelihood of the recovery of the Kusche's sandwort.

INCIDENTAL TAKE STATEMENT

Take of plant species is not prohibited under the Act; therefore Section 7(b)(4) and 7(o)(2) of the Act do not apply to plant species and no incidental take statement is provided for the Kusche's sandwort. Limited protection of listed plants is provided to the extent that the Act prohibits the removal and reduction to possession of federally listed endangered plants or the malicious damage of such plants on areas under Federal jurisdiction, or the destruction of listed plants on non-Federal areas in violation of State law or regulation or in the course of any violation of a State criminal trespass law. As described above, the proposed TUMSHCP and associated documents identify anticipated impacts to the Kusche's sandwort as well as measures that are necessary and appropriate to minimize those impacts.

ROUND-LEAVED FILAREE

STATUS OF THE SPEICES

Regulatory History

Round-leaved filaree (*California macrophylla*) has no Federal or State designation but is a CNPS List 1B.1 species (CDFG 2007c, CNPS 2008). CNPS List 1B species are considered rare throughout their range and vulnerable to threats (CNPS 2008). CNPS species with a threat rank of .1 are "seriously endangered in California (over 80 percent of occurrences threatened/high degree and immediacy of threat)" (CNPS 2008). This species has a California Heritage Element Ranking of S2 indicating a very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it vulnerable to extirpation from the state (CDFG 2011d). The species is not federally-listed and there is no designated critical habitat or recovery plan.

Natural History/Habitat Requirements

Round-leaved filaree is a prostrate, annual or biennial plant in the Geranium family (Geraniaceae) (Jepson Flora Project 2011). Its population size fluctuates annually, depending on environmental conditions, such as rainfall frequency, duration, timing and quantity, and temperature. It is usually less than 2 inches tall and has glandular stems and opposite, simple, kidney-shaped leaves. It is the sole member of the genus *California*, which has recently been segregated from the genus *Erodium* based on morphological and molecular characteristics (Jepson Flora Project 2011). Round-leaved filaree germinates after winter rains, forming a basal rosette from 1 inch to 1 foot in diameter, until it bolts and sends up umbellate inflorescences in the spring and early-summer months. The flowers are small and white, tinged red to purple (Jepson Flora Project 2011).

In general, round-leaved filaree is found in open sites on clay soils in cismontane woodland and valley and foothill grassland below 4,000 feet amsl (CNPS 2008, Jepson Flora Project 2011). Most verified reports in the CNDDB (CDFG 2013b) are from annual grasslands with a mixture of non-native grasses and native forbs. Blue oak woodland is the only type of woodland associated with round-leaved filaree populations in the CNDDB (CDFG 2013b). Wind Wolves Preserve (formerly San Emigdio Ranch) in Kern County has two metapopulations reported in blue oak woodlands (CDFG 2013b).

Round-leaved filaree typically blooms between March and July (Jepson Flora Project 2011). The flowers are only open for 1 day, with the anthers enclosing the stigma after the petals drop to self-pollinate (Gillespie 2003). The mature fruiting body can disperse itself up to 5 feet from the parent plant in the absence of wind (Gillespie 2003). Because round-leaved filaree self-pollinates and disperses its seeds via dehiscent carpel walls, typical native pollinators, such as ants, do not appear to play a significant role in either pollination or seed dispersal of this species (Gillespie 2003).

A study of the round-leaved filarees' response to various treatments (e.g., fire, weeding) showed that the establishment of round-leaved filaree declined after fire disturbance, but seed production increased (Gillespie and Allen 2004). In addition, Gillespie (2003) found that removal of non-native grasses (e.g., by weeding or fire) favored the establishment of round-leaved filaree.

The round-leaved filaree is found in a variety of habitats, and the associated plants species vary accordingly. For example, a population of round-leaved filaree in Bodfish Canyon near Lake Isabella occurs on open, red clay soils in vegetation dominated by blue oak and California juniper. Woolly fish-hooks (*Ancistrocarphus filagineus*), Pringle's yampah (*Perideridia pringlei*), common goldenstar (*Bloomeria crocea*), and cupleaf ceanothus (*Ceanothus greggii*) were also present in this habitat dominated by native plants (CDFG 2013b). Within annual grassland habitats, associated species recorded from collections from Los Angeles and Kern counties include native species such as fascicled tarweed (*Deinandra fasciculata*), blue dicks (*Dichelostemma capitatum*), short-podded lotus (*Lotus humistratus*), dwarf plantain (*Plantago erecta*), Palmer's rabbitbrush (*Ericameria palmeri* ssp. *pachylepis*), blow-wives (*Achyrachaena mollis*), woolly fish-hooks, California goldfields (*Lasthenia californica*), and tidy-tips (*Layia platyglossa*) (CDFG 2013b). Non-natives include tocalote (*Centaurea melitensis*), red-stem filaree (*Erodium cicutarium*), wild oats (*Avena* sp.), and soft chess (*Bromus hordeaceus*) (CDFG 2013b). Gillespie (2003) found that bare ground occupied from 16 percent to 89 percent of the five sites examined, with the largest populations (approximately 700 and 1,000) occurring in areas with the most non-native grasses (21 percent percent and 39 percent, respectively).

Distribution and Population Trends

The range of round-leaved filaree extends from northern Mexico to Oregon and southern Utah (CNPS 2008; Jepson Flora Project 2011). It is reported in 27 counties in California, from Lassen to San Diego. It may be extirpated from Santa Cruz Island and Butte County (CNPS 2008). Gillespie (2003) determined that 105 unique populations have been reported, with most on the eastern side of the California Coast Ranges. The Jepson Online Interchange for California Floristics (Jepson Flora Project 2011) lists the Sacramento Valley, northern San Joaquin Valley, central western California, South Coast, northern Channel Islands (i.e., Santa Cruz Island), western Transverse Range, and the Peninsular Ranges as the geographic regions in which round-leaved filaree occurs. While apparently well distributed in central and northern California, it is very rare in Southern California (Reiser 2001). It is considered scarce and declining in western Riverside County (Roberts et al. 2004).

The CNDDB contains 162occurrence records for round-leaved filaree in California, of which 10 are from, or partially within, Kern County (CDFG 2013b). All 8 occurrences in Kern County are considered extant. One occurrence is on publicly held land, one is on private land, and ownership on the remaining six occurrences is unknown (CDFG 2013b). In Kern County, it is reported from the Temblor Range, the foothills east of Tehachapi, in the extreme southwestern Tehachapi Mountains along the northwest side of the Antelope Valley, at Dry Bog Knoll, and at the head of Adobe Canyon in the Greenhorn foothills (Twisselmann 1967). Collections by Wiggins and Wolf from 1935 at the borders of Kern County have not been more recently verified

(CDFG 2013b). A population of about 400 plants was reported in 2004 at Bodfish, south of Lake Isabella (CDFG 2013b).

Reasons for Decline

Overall threats to this species include urbanization, habitat alteration, OHVs, pipeline construction, feral pigs, non-native plants, and grazing (CNPS 2008b).

ENVIRONMENTAL BASELINE

The Applicant's consultants conducted presence/absence surveys for round-leaved filaree within the TMV Planning Area, but not throughout the remainder of the Covered Lands. Round-leaved filaree was observed in the southeastern portion of the Covered Lands in 11 areas within the TMV Planning Area that supported approximately 430 to 730 individuals (Dudek 2007a).

Based upon the results of the surveys, the Applicant's consultants modeled suitable habitat for this species on all Covered Lands. The model included chaparral, conifer, grassland, riparian woodland, scrub, oak woodland, and oak savannah vegetation communities on clay soils that occur at elevations below 4,600 feet amsl. The Covered Lands support 58,073 acres of potential habitat for round-leaved filaree.

Due to the observations of round-leaved filaree within the surveyed TMV Planning Area, the potential of this species to occur elsewhere within modeled suitable habitat on non-surveyed portions of Covered Lands appears to be high. The CNDDB contains no records of round-leaved filaree in the Covered Lands, most likely due to a lack of survey effort and not the species' absence. The nearest CNDDB occurrence is approximately 2 miles south of the Covered Lands (CDFG 2013b).

Recovery

Because the species is not federally listed, we have not developed a recovery plan for the round-leaved filaree. To address the potential recovery of the species, we consider general concepts for the conservation of rare plants. These include the preservation of existing populations, ensuring adequate space for the species to fluctuate its distribution in response to edaphic factors, continuation of dispersal mechanisms, control of exotic invasive plants, and maintenance of natural pollinator communities. The principal way of achieving these goals is preservation of suitable habitat with adequate buffers from human alterations. In addition, restoration of formerly suitable habitat areas can contribute to the species' recovery. Once enough space has been preserved and restored, rare plant species like the round-leaved filaree should be able to persist and perhaps increase to historical levels.

EFFECTS OF THE ACTION

Planwide Activities

Livestock

The Applicant proposes to continue to graze livestock at historical levels on the balance of the action area outside the development areas, consistent with the types and level of historical grazing and ranch management practices. Plants are susceptible to the presence of livestock primarily due to direct grazing or browsing. We do not know if the round-leaved filaree is palatable to livestock, but because grazing is identified as one of the threats to the species, we cannot rule out the possibility that cattle will graze on the species during normal feeding. Cattle can also affect plants directly through trampling. Again, we have no measure of the effects trampling by livestock on the round-leaved filaree, but we can conclude that the plant persists in areas subject to historical and current grazing. We conclude that the round-leaved filaree may be affected by livestock activities, but that the effects are consistent with the continued persistence of the species on the Covered Lands. We do not know if the species' distribution would be broader or whether the number of individual plants would be higher in the absence of livestock.

Cattle and other livestock may also be vectors of non-native plants and can spread invasive species into habitat occupied by the round-leaved filaree. While this spread is difficult to control, given the history of livestock on the Covered Lands, the probability that livestock will not be grazing in new areas, and the fact that many invasive plant species have already been established on the Covered Lands, we do not expect that livestock grazing will exacerbate the problem. In addition, under the TUMSHCP, the Applicant must submit grazing management plans to the Service every 5 years for review and approval. Our review of such plans will allow for the implementation of additional measures or modification of grazing practices to ensure the compatibility of grazing with the conservation of the round-leaved filaree.

Lastly, research on the round-leaved filaree indicates that removal of nonnative grasses may be beneficial to the species (Gillespie and Allen 2004; Gillespie 2003). While the research demonstrated the benefits of weeding, grazing may also reduce competition from nonnative annual grasses and open up space for the round-leaved filaree to germinate and grow. If grazing in areas occupied by round-leaved filaree is timed appropriately, cattle grazing could be beneficial. As noted above, the Applicant must submit grazing management plans, as a component of the RWMP, to the Service every 5 years for review and approval. Our review of such plans will allow for the implementation of additional measures or modification of grazing practices to ensure the compatibility of grazing with the conservation of the round-leaved filaree.

Range Management/Ancillary Ranch Structures

Range management activities support livestock operations and consist of construction, operation, and maintenance of watering facilities, feeding areas, fences, and corrals, consistent with the types and level of historical grazing and ranch management practices; repair, reconstruction, and

relocation of roads to accommodate historical grazing and ranch management practices; and repair, maintenance, or installation of ranch management communication equipment (e.g., whip antennas) that are less than 20 feet high. The repair, reconstruction and relocation of roads to accommodate historical grazing and ranch management practices are evaluated below under Roads. Range management also incorporates ancillary ranch structures including squeezes, loading chutes, holding and feeding fields, corrals, branding traps, barns, sewage disposal facilities, livestock and wildlife watering facilities, and utilities serving existing ranch uses.

As described above under Planwide Activities in the Description of the Proposed Action section, *de-minimis* activities associated with ancillary ranch structures would be covered under the TUMSHCP. Non–*de minimis* activities associated with ancillary ranch structures are also allowed (1) if the activity is located in disturbed areas (e.g., undergrounding utilities in road rights-of-way), or (2) following a meet-and-confer process with the Service to ensure that the activity associated with an ancillary ranch structure avoids or adequately minimizes impacts to Covered Species and their habitats.

If range management activities (especially new facilities) were to take place in areas where the round-leaved filaree grows, individual plants could be removed. The applicant has proposed to conduct surveys prior to such disturbance, mark, and avoid areas where the plant currently occurs to the extent feasible and practicable. This measure, together with the Service's ability to review and approve the Applicant's grazing management plan, should be sufficient to minimize or avoid removal of round-leaved filaree plants as a result of ranch construction and modification activities. We expect the effects of ranch management on the round-leaved filaree to be minor.

Fuel Management

Fuel management practices would consist primarily of grazing, and the effects of fuel management by grazing should be largely consistent with the effects of livestock. Other fuel management activities include fuel modification zones created (1) by existing roads, and (2) through irrigation and/or vegetation clearing and mowing within 120 feet surrounding existing structures (i.e., backcountry cabins, ancillary ranch structures, and other existing structures). Vegetation thinning and mowing are the current practices around cabins and roads.

If round-leaved filaree plants fall within the zone designated for fuel clearance, individual plants could be lost, and the repeated modification could prevent them from re-establishing. The Applicant has proposed to survey for the plant and avoid, as much as possible, areas where the round-leaved filaree occurs (see Table 2 of this biological opinion, and Section 7.1.2.3 of the TUMSHCP). This should minimize the impact of fuel clearance to the extent it is considered feasible to avoid occupied areas. We expect fuel management to have a minor impact on the round-leaved filaree.

Fuel management associated with proposed development is discussed below under Commercial and Residential Development Activities.

Filming

Filming activities generally consist of temporary on-scene filming and photography-related uses, including, but not limited to the filming and staging of movies, television shows, and commercials; photo shoots; and still photography and related uses. Such activities may include the erection and dismantling of props, temporary installation of trailers and equipment for film crews, filming of on-camera action, catering, rehabilitation of disturbed areas, and the movement of film crews to and from locations.

The primary effect of filming on the round-leaved filaree would be from habitat disturbance during the staging of production. The TUMSHCP (Section 2.2.1) states that the RWMP will include best management practices for filming activities and the Interim RWMP requires that any temporary construction related to film production be first reviewed to avoid sensitive resources, and that any areas disturbed by filming are restored to pre-filming condition, including revegetation (Interim RWMP). We expect the effects of filming on the round-leaved filaree to be negligible.

Recreation

Recreation associated with the Planwide Activities includes private recreation by TRC, its employees and guests and public access is governed by the Interim RWMP and managed by the Conservancy. Such recreational use is also subject to the terms of the TUMSHCP and the terms of Service-approved conservation easements. While the private recreation by TRC occurs currently throughout the Covered Lands, public recreation, which generally consists of docent led tours by the Conservancy per the Interim RWMP, occurs in the Established Open Space portion of the Mitigation Lands.

These public and private recreation uses are limited to passive activities listed in the Project Description. Recreation activities associated with Planwide Activities would occur in open space areas generally outside the TMV Planning Area at a relatively small scale, and have infrequent impacts. Recreational uses by TRC, its employees, and the public are limited by the access guidelines and best management practices in the Interim RWMP and will be further regulated in Public Access Plans, which are subject to permanent Service review and approval.

Some recreational activities could affect round-leaved filaree individual plants, but we expect such effects to be minimal, in part due to the proposed effort to document locations of the plant and direct such activities away from sensitive areas. While some trampling and other recreation-related effects may occur, these should be negligible due to the low likelihood that such activities would overlap with the round-leaved filaree occurrences due to the plant's widespread but scattered distribution (i.e., the round-leaved filaree is not likely to be present where recreational activities are occurring).

The indirect effects of increased demand for recreation associated with proposed development are discussed under Commercial and Residential Development Activities, below.

Irrigation/Water Diversion

The action area contains existing water diversions for irrigation of agriculture inside and outside the action area, and a few small agricultural areas totaling about 232 acres exist in the TMV Planning Area (e.g., small vineyards and an orchard near Castac Lake). Agricultural uses that remain in open space after TRC identifies the final development footprint will continue subject to State and local regulations. We do not anticipate any adverse impacts to the round-leaved filaree from on-going agricultural activity, because no additional diversions are proposed and TRC has proposed to survey for and avoid installation of such facilities in areas where the species occurs (Table 2 of this biological opinion). Also, maintenance and relocation work, if any, is subject to the survey and avoidance requirements in the TUMSHCP, and prior to TRC relocating water diversions, the Service would review and approve the proposed new locations.

Due to repeated disturbance for tilling and preparation for planting, irrigation of agricultural areas by these facilities is unlikely to have an effect on the round-leaved filaree because the species would not be present (i.e., irrigated lands do not support suitable habitat for round-leaved filaree). Agriculture is a very small percentage of the land use in the action area and will remain so throughout the life of the proposed ITP due to the Applicant's commitment to conserve areas within the Covered Lands outside of development. Future development does not include expansion of existing agricultural fields. Consequently, we do not expect irrigation or water diversion activities to have any effect on the round-leaved filaree.

Roads/Trails

A network of generally unpaved roads exists in the action area. As described in the TUMSHCP, the roads outside the development areas would be maintained, relocated, or new roads could be constructed, in compliance with the 200-acre limit on disturbance by Planwide Activities, to facilitate the Planwide Activities. If new roads are constructed in areas where the round-leaved filaree occurs, the plants could be destroyed and the habitat lost; however, TRC has proposed to survey for covered species prior to such activities and avoid locations of these species to the extent possible (Sections 2.2.1 and 7.1.2.3 of the TUMSHCP). This should avoid or effectively minimize the effects of road and trail construction on the round-leaved filaree.

The direct and indirect effects of roads in the development areas as a result of residential and commercial development are addressed below under Commercial and Residential Development Activities.

Utilities

The action area contains, or would contain, various small utilities to support ranch activities. As described in Section 2.2.1 of the TUMSHCP, these utilities would be *de minimis* or would be located in previously disturbed areas (e.g., undergrounding utilities in road rights-of-way). Any utilities associated with Planwide Activities that are not *de minimis* or cannot be located in

previously disturbed areas would require Service review and approval prior to relocation or construction.

Installation or maintenance of utilities to support ranch activities may affect the round-leaved filaree by disturbing habitat or killing individual plants; however, we expect utilities to have at most a minor impact on the round-leaved filaree because utility posts and towers have small footprints, and the utilities affect a very small percentage of the action area. Also, TRC has proposed to survey project areas and avoid round-leaved filaree to the extent possible, which should effectively minimize the potential for adverse impacts to the species during utility installation/maintenance.

Potential impacts by utilities associated with the proposed development are included in the discussion of effects of Commercial and Residential Development Activities below.

Backcountry Cabins

Eight backcountry cabins occur in the action area and could be maintained, improved, repaired, replaced, or reconstructed in their existing location or relocated outside of the Condor Study Area. Continued human use of the cabins should not cause meaningful new habitat disturbance, and the Applicant proposes to ensure that all cabin use be conducted in a manner that would avoid adverse impacts to the Covered Species. Currently, the Interim RWMP requires that new or relocated cabins be first subject to a site evaluation to avoid impacts to sensitive natural resources, such as round-leaved filaree populations. In addition, prior to relocating an existing cabin, the TUMSHCP allows the Service to review and approve (if appropriate) the proposed new location. These measures should effectively minimize the impacts of cabins and their use on the round-leaved filaree.

Fencing

Fences exist throughout the action area. Fences would be maintained and new fencing could be constructed and maintained as required to support the proposed activities, including exclusion of cattle from sensitive habitats that support Covered Species. The Applicant proposes to design and locate new fencing to avoid known occurrences of the species, and to survey for and avoid new locations. This should ensure that the effects of fences on the round-leaved filaree are negligible.

Lebec/Existing Headquarters Area Uses

Existing activity in the Lebec/Existing Headquarters Area (i.e., corporate headquarters buildings, an antique shop, a post office, a church, and several single-family residences for ranch employees) would continue to occur. While additional development could occur here under the TUMSHCP, the Applicant does not currently have development plans for this area in the project description. While this area supports modeled suitable habitat, pre-construction surveys would conducted and any impacts to habitat occupied by round-leaved filaree would be avoided or

minimized to the extent practicable (Table 2 and Section 7.1.2.3 of the TUMSHCP). Consequently, we expect that activities associated with use of this area will little top no effect on the round-leaved filaree.

Mitigation, Monitoring, and Management

Mitigation, monitoring, and management activities to carry out identified biological goals and objectives for the California condor or other Covered Species included in the TUMSHCP or other resource agency permits for the commercial and residential Covered Activities, as well as mitigation, monitoring, and management activities imposed pursuant to any local, State, or Federal approval of development on Tejon Ranch would be carried out in accordance with the Act and would be subject to Service review. We acknowledge that other agencies may credit TRC for mitigation and protective measures included in the TUMSHCP for mitigation imposed by such other agencies. Any restoration, enhancement, or similar mitigation activities would not be allowed if they would result in unpermitted adverse effects to species or critical habitat under the Act. Additionally, any mitigation activities for other agencies would be subject to the protective measures included in Tables 1 and 2, in the Description of the Proposed Action section of this biological opinion. Therefore, we anticipate that any potential threats to the round-leaved filaree as a result mitigation, monitoring, and management activities would be effectively minimized.

Estimate of Disturbance Due to Planwide Activities

The Applicant proposes a maximum of 200 acres of ground disturbance associated with the Planwide Activities described above. These ground disturbances would occur outside of the proposed development (discussed below) and may be permanent or temporary. The disturbance would primarily be associated with construction of roads, backcountry cabins, and ancillary structures. If the Applicant restores a portion of this disturbance, an area equal in size may then be disturbed. Thus, no more than 200 acres may exist in a developed condition because of Planwide Activities at one time.

For the purposes of this effects analysis, we assume that all parts of the action area that could be affected by Planwide Activities have an equal chance of being affected and that all habitat types would be affected in equal proportion. This assumption is based upon the Applicant's inability to predict exactly where 200 acres of habitat disturbance due to Planwide Activities would occur. In addition, there is no indication that the distribution or location of round-leaved filaree modeled habitat would cause Planwide Activities to disproportionately occur in round-leaved filaree modeled habitat.

Also, for the purposes of estimating species-specific habitat disturbance by Planwide Activities, we are not using the 8,817-acre development envelope used by the Applicant to estimate impacts from development (TUMSHCP Table 2-1, footnote 4), but rather we are using the 5,533-acre area that actually could be developed within the development envelopes. We did this, because after the 5,533-acre development footprint is developed, 3,284 acres of the 8,817-acre

development envelope would remain and be subject to Planwide Activities, and modeled habitat for the round-leaved filaree could occur in the 3,284 acres. Therefore, we included 3,284 acres of the development envelope in this analysis to acquire an estimate of habitat lost by Planwide Activities that is as accurate as possible. When we combine this estimate with anticipated habitat loss from commercial and residential development in a summary effects analysis (discussed below), we will have slightly double-counted and overestimated the amount of round-leaved filaree habitat that would be lost in the action area. We conclude that this does not compromise our analysis because the overlap is very small relative to the size of the action area, and this approach errs on the side of the species by analyzing a larger impact than would actually occur.

Excluding commercial and residential development areas, the National Cement and La Liebre Mines, the VA Cemetery, and Not-A-Part lands (blocks of land within the boundary of the action area but not owned by TRC), a total of 12,423 acres within the exterior boundaries of the Covered Lands are not subject to Planwide Activities. We expect that Planwide Activities could occur on the remaining 129,463 acres of the action area (141,886 acres within the action area minus the 12,423 acres of excluded areas above). Therefore, the ratio of disturbance due to Planwide Activities (200 acres) to covered lands subject to Planwide Activities (129,463 acres) equals 0.0015. We applied this ratio to round-leaved filaree habitat outside the excluded areas but in the action area and rounded the remainder up to a whole acre. Thus, 58,073 acres of modeled habitat minus 4,997 acres lost to development equals 53,076 acres subject to Planwide Activities. Using our ratio of 0.0015, we anticipate that Planwide Activities would disturb or remove up to approximately 80 acres of modeled suitable habitat for the round-leaved filaree over the permit duration, or 0.14 percent of modeled suitable habitat on the Covered Lands.

This could be an overestimate because the Applicant is proposing measures to minimize disturbance to round-leaved filaree habitat, including surveying modeled suitable habitat prior to Planwide Activities involving ground disturbance, delineating the plant populations, and avoiding the species' occurrences to the extent practicable (see Table 2 of this biological opinion). Therefore, while there could be some loss of round-leaved filaree modeled suitable habitat due to Planwide Activities (approximately 80 acres, by our calculation), in comparison to the modeled suitable habitat conserved, we conclude that the loss would not appreciably reduce the numbers, reproduction, or distribution of the species. (The Applicant has also proposed to conserve some of the currently known occurrences of the round-leaved filaree, as discussed below under the Direct Effects of proposed development.)

<u>Commercial and Residential Development Activities</u>

Direct Effects

The Commercial and Residential Development could result in temporary impacts, including habitat loss, to modeled suitable habitat for the round-leaved filaree. We do not have an exact acreage for these temporary effects. The total area of permanent loss of modeled suitable habitat is expected to be 4,997 acres, so the temporary effects should be less, in part because TRC has proposed to minimize the footprint of work areas and mark the limits within which Covered

Activities that result in habitat loss may occur. Also, because the effects are temporary, we would expect the modeled suitable habitat for the round-leaved filaree to be able to support the species in the future as the disturbed habitat recovers.

The principal permanent effect of the Commercial and Residential Development Activities on the round-leaved filaree would be from habitat loss. The Applicant has calculated that Covered Activities would result in the permanent loss of 4,997 acres of modeled suitable habitat for round-leaved filaree within Covered Lands (approximately 9 percent of the total modeled round-leaved filaree habitat in the Covered Lands). This habitat loss includes any modeled habitat for the round-leaved filaree lost as a result of development activities in the Lebec/Existing Headquarters Area. Although the TUMSHCP did provide numbers of individual round-leaved filaree plants that could be affected under various scenarios, we do not include an estimate of the number of individual round-leaved filaree plants that could be lost within that area, primarily because for most plant species, except large individuals of perennial plants or extremely rare plants, the number of individuals affected tells little about the effects to the species; the affected habitat acreage is more revealing. The round-leaved filaree is an annual or biennial with a broad distribution in California, so the effects on acreage are more relevant to the species' overall conservation than the number of individuals lost or conserved.

While 9 percent of the modeled suitable habitat could be lost to development, the Applicant proposes to conserve known or future populations of the round-leaved filaree under two scenarios: (1) Three known occurrences, representing approximately 220 to 420 individuals of round-leaved filaree will be conserved within TMV Planning Area Open Space; or (2) at least three occurrences will be conserved in TMV Planning Area Open Space, including two known occurrences representing approximately 120 to 220 individuals and any new occurrence(s) documented within TMV Planning Area Open Space prior to development, such that the new occurrence(s) total(s) at least 100 individuals. Consequently, 8 or 9 of the 11 currently known occurrences within the TMV Planning Area could be lost to development. However, because 91 percent of modeled habitat for the round-leaved filaree would be preserved within a large open space system, the proposed impacts to this species as a result of Covered Activities would not substantially affect the population in the action area nor would it appreciably affect the species in its broader range within California. We conclude that the permanent loss of approximately 9 percent of modeled suitable habitat within Covered Lands resulting from permanent habitat loss associated with Covered Activities together with implementation of avoidance and minimization measures to reduce impacts on plant individuals, would not appreciably reduce the species' reproduction, numbers, or distribution range-wide.

Indirect Effects

The indirect effects of development on the round-leaved filaree could include: introduction of invasive, nonnative plants; irrigation and runoff that affects adjacent habitat; loss of pollinator habitat; impacts due to fuel modification; and overspray or drift of pesticides into round-leaved filaree habitat. Such effects do not extend outside the boundaries of the Covered Lands. These

indirect effects could result in loss of individual plants and could alter occupied habitat to where the round-leaved filaree cannot persist.

The increased population of the development areas is likely to increase the pressure for recreational activities, particularly in the TMV Planning Area. Recreational activities allowed within the TMV Planning Area Open Space are limited to passive recreation as described above under Planwide Activities and in the Project Description. Even so, in the SDEIS for the TUMSHCP, we estimated that the TUMSHCP would increase the human population of the TMV Planning Area by 11,441 people and we expect the recreational activities of future residents of the TMV Planning Area to cause a higher level of disturbance and impacts in this area than in other parts of the action area that are more remote.

If recreation occurs in occupied round-leaved filaree habitat, it could cause a higher level of disturbance and impacts in the TMV Planning Area Open Space than in other parts of the action area that are more remote. To minimize impacts of recreation, TRC would provide Home Owners' Association(s) with educational information regarding acceptable activities in open space areas, including recreational activities and pet restrictions. In addition, the TUMSHCP would require that recreation in the TMV Planning Area Open Space, be conducted in a manner that would avoid adverse impacts to the Covered Species and their habitats or result in less-than-significant impacts. At a minimum, the recreation activities would be planned to avoid sensitive species and known occurrences, and the TUMSHCP would require the use of existing roads and trails where possible. We expect the effects of recreation in the TMV Planning Area Open Space on the round-leaved filaree to be minimal.

The Applicant proposes to clear and thin vegetation within 200 feet of the proposed development, creating an up to 1,773-acre fuel modification zone. The ongoing maintenance of this area, whether by grazing or mechanized means, could affect the round-leaved filaree's occupation of suitable habitat. The estimated areal extent in which fuel modification may affect the round-leaved filaree is included in the 4,997 acres of modeled habitat estimated to be lost within the 8,817-acre development envelope.

While we cannot predict how many acres could be affected by indirect effects, we think these scenarios are unlikely to develop given the avoidance and minimization measures TRC has proposed (see Table 2 of this biological opinion, and Sections 2.2.1 and 7.1.2.3 of the TUMSHCP), including pre-activity surveys to avoid known locations where the round-leaved filaree occurs, BMPs to control runoff and pesticide use, and measures to control the escape of nonnative plants into adjacent open space where the round-leaved filaree would be conserved.

<u>TUMSHCP Mitigation</u>

The Applicant proposes to preserve in perpetuity virtually all of the action area outside the development envelope, including 53,076 acres of modeled suitable habitat for the round-leaved filaree. The Applicant would maintain the preserved land in its current condition. The proposed conservation of 91 percent of modeled suitable habitat for the round-leaved filaree is consistent

with conservation biology principles calling for large, interconnected blocks of habitat that support a given species' life history requirements. The conservation of the Mitigation Lands would benefit the round-leaved filaree by permanently securing them from future habitat loss in the action area and maintaining a large area of round-leaved filaree habitat.

Some loss of currently known occurrences of round-leaved filaree would occur due to development. The Applicant has proposed to conserve at least 3 of these current or future occurrences, although 8 or 9 of the current locations could be lost. The round-leaved filaree is widespread throughout its range, so we anticipate that more populations will be found on the Covered Lands outside of the development footprint, in the 53,076 acres of modeled suitable habitat that would be conserved, once more surveys are conducted. Therefore, while a large proportion of the known occurrences in the TMV Planning Area could be lost, we conclude that the preservation of a much larger area where the species is likely to occur compensates to some degree for that loss, and that the overall effect on the round-leaved filaree would be minor.

For those potential effects due to development where preservation alone cannot prevent the effects from occurring (e.g., intrusion into round-leaved filaree habitat), TRC has proposed other measures to avoid and minimize the effects of the covered activities on the round-leaved filaree (see Table 2 of this biological opinion). These additional specific measures will further help conserve the species on the Covered Lands and further minimize the impact to the reproduction, numbers, and distribution of the round-leaved filaree in the wild.

Summary of Effects Analysis

In determining whether a proposed action is likely to jeopardize the continued existence of a species, we consider the effects of the action with respect to the reproduction, numbers, and distribution of the species. We also consider the effects of the action on the recovery of the species. In that context, the following paragraph(s) summarize(s) the effects of the proposed TUMSHCP on the round-leaved filaree.

The Planwide Activities and the Commercial and Residential Development could have some effect on the round-leaved filaree. As stated above, TRC estimates that up to 4,997 acres of modeled suitable habitat could be lost due to development, and we have calculated that in the remainder of the action area that Planwide Activities could affect up to 80 additional acres of modeled suitable habitat for the round-leaved filaree, for a total of 5,077 acres of lost modeled suitable habitat for the species. Considering that TRC proposes to conserve 53,076 acres, the majority (approximately 91 percent) of the modeled suitable habitat on the Covered Lands would be conserved. In addition to the overall conservation of modeled suitable habitat, the Applicant proposes to conserve known or future populations of the round-leaved filaree under two scenarios: (1) three known occurrences, representing approximately 220 to 420 individuals of round-leaved filaree will be conserved within TMV Planning Area Open Space; or (2) at least three occurrences will be conserved in TMV Planning Area Open Space, including two known occurrences representing approximately 120 to 220 individuals and any new occurrence(s) documented within TMV Planning Area Open Space prior to development, such that the new

occurrence(s) total(s) at least 100 individuals. Despite the proposed loss of known occurrences, we conclude that the preservation of a much larger area where the species is likely to occur compensates to some degree for that loss.

We further conclude that the combination of avoidance and minimization proposed by TRC in addition to the conservation of the majority of modeled suitable habitat on the Covered Lands would allow the proposed activities to proceed without appreciably reducing the rangewide reproduction, numbers, and distribution of the round-leaved filaree. We anticipate that more populations will be found on the Covered Lands outside of the development footprint, in the 53,076 acres of modeled suitable habitat that would be conserved, once more surveys are conducted.

Recovery

The round-leaved filaree is not a listed species, and there are no recovery criteria with which to compare the current and future status of the species. The proposed action would cause a small reduction in the species numbers, reproduction, and distribution within the action area but would not appreciably affect the reproduction, numbers, or distribution of the round-leaved filaree rangewide. The proposed action would also result in the permanent conservation of 53,076 acres or 91 percent of suitable modeled habitat for the species within the action area, which would have long-term, stabilizing benefits to the species by securing a portion of the species' range from future habitat loss, thus addressing a primary reason for the species' decline.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section, because they require separate consultation pursuant to section 7 of the Act.

Hunting

Private and commercial hunting operations occur on Tejon Ranch, including the action area; however, hunting is not an activity covered by the TUMSHCP. The Applicant proposes to continue hunting operations throughout the ranch during the proposed permit term. Hunting in the TMV Planning Area would be limited to guided hunts. Hunting activities involve travel on existing paved and unpaved roads, overnight use of backcountry cabins, hiking, discharging hunting weapons, etc. The effects from hunting will generally be consistent with, and to a considerable extent are captured in, the descriptions of effects for Roads/Trails, Backcountry Cabins, and Recreation described above. Therefore, we expect that hunting in the action area will have negligible cumulative effects on the round-leaved filaree.

Mining

Two commercial mining operations occur in the action area, La Liebre and National Cement; these mining operations are not covered activities under the TUMSHCP. The total area used for the two operations is about 2,636 acres, and the Applicant would maintain the mining leases through the proposed permit term. The round-leaved filaree is not known to occur in proximity to the mines, although the Applicant estimates that the areas may support up to 138 acres of modeled suitable habitat for the species. Because much of the mining areas is already disturbed, and the effects of mining occur in a small area relative to the amount of modeled suitable habitat in the action area, we expect that continued mining in the action area will have only negligible cumulative effects on the round-leaved filaree.

Other Activities

As discussed above under project description, within the external boundaries of the Plan Area, there are existing inholdings and utilities. The Bakersfield National Cemetery also occurs inside the Plan Area. These projects and activities are not Covered Activities under the TUMSHCP. We are not aware of any reasonably foreseeable activities within the 3,870 acres of inholdings that may affect the round-leaved filaree. Activities associated with utilities, transmission lines and related structures, such as maintenance activities, would be restricted to currently established easement areas and would have only minor, if any, effects on round-leaved filaree habitat. Therefore, we do not anticipate any cumulative effects from the ongoing maintenance and operation of non-covered existing utilities. The Bakersfield National Cemetery is in place, and we are not aware of any activities associated with the cemetery that may have an adverse effect on round-leaved filaree.

CONCLUSION

After reviewing the current status of the round-leaved filaree, the environmental baseline for the action area, the effects of the proposed TUMSHCP and the cumulative effects, it is the Service's biological opinion that the implementation of the TUMSHCP, as proposed, is not likely to jeopardize the continued existence of the round-leaved filaree. We have reached this conclusion for the following reasons:

1. TRC would conserve large areas potentially occupied by the species but not yet surveyed; approximately 53,076 acres of the modeled suitable habitat (or approximately 91 percent) would be conserved in perpetuity.

2. In addition to conserving some populations within the TMV Planning Area Open Space, where the modeled suitable habitat overlaps with proposed activities, the Applicant proposes (for most Covered Activities) to conduct pre-activity surveys and carry out the action while avoiding newly discovered populations of the round-leaved filaree.

3. The large area of conservation that includes the round-leaved filaree should ensure the species persists and thus the TUMSHCP would contribute to the species' recovery and survival.

We conclude that the likelihood of the survival of the round-leaved filaree would not be diminished by the proposed action principally because of the extensive habitat preservation that would result. Although no recovery criteria for the round-leaved filaree exist, the measures proposed by TRC are consistent with typical rare plant conservation approaches. Therefore, we further conclude that the proposed action would not diminish the likelihood of the recovery of the round-leaved filaree.

INCIDENTAL TAKE STATEMENT

Take of plant species is not prohibited under the Act; therefore Section 7(b)(4) and 7(o)(2) of the Act do not apply to plant species and no incidental take statement is provided for the round-leaved filaree. Limited protection of listed plants is provided to the extent that the Act prohibits the removal and reduction to possession of federally listed endangered plants or the malicious damage of such plants on areas under Federal jurisdiction, or the destruction of listed plants on non-Federal areas in violation of state law or regulation or in the course of any violation of a state criminal trespass law. As described above, the proposed TUMSHCP and associated documents identify anticipated impacts to the round-leaved filaree as well as measures that are necessary and appropriate to minimize those impacts.

STRIPED ADOBE LILY

STATUS OF THE SPECIES

Regulatory History

The striped adobe lily (*Fritillaria striata*) has no Federal designation, but was listed as threatened in California in 1987. The striped adobe lily is also a CNPS List 1B.1 species. CNPS List 1B species are considered "rare, threatened, or endangered in California and elsewhere" (CNPS 2008). CNPS species with a threat rank of 1 are "seriously endangered in California, with over 80 percent of occurrences threatened/high degree and immediacy of threat" (CNPS 2008). The striped adobe lily has a California Heritage Element Ranking of S2, indicating that there are 6 to 20 occurrences of this species, that there are 1,000 to 3,000 individuals or that the species occupies only 2,000 to 10,000 acres in California (CDFW 2013).

Natural History/Habitat Requirements

The striped adobe lily is a slender, bulbous perennial in the lily family (Liliaceae). It occurs in cismontane woodland and in valley and foothill grassland habitats (CDFW 2013). More specifically, it has been documented in blue oak woodland and non-native grassland habitats (Service 1998b). Striped adobe lily is restricted to heavy, usually red, clay soils, but the physiological and/or ecological basis for this restriction is not known (Stebbins 1989). Populations of striped adobe lily typically occur on the lower portions of north-facing (0 degrees to 90 degrees and 0 degrees to 270 degrees) slopes (Stebbins 1989) between 443 and 4,774 feet amsl (135 and 1,455 meters) in elevation. Most of the verified reports in the CNDDB (CDFW 2013) are from annual grasslands with a mixture of non-native grasses and native forbs. At least two documented occurrences of striped adobe lily are from oak woodlands and one record is from a native perennial grassland.

The vegetative and reproductive phenology of the striped adobe lily may be correlated with rainfall patterns. The species' vegetative growth progresses slowly from November through January. Also, the amount and timing of winter rains greatly influence the size and total number of flowers per plant in a given season (Stebbins 1989). Flowering is positively correlated with elevation, exposure, and soil moisture levels. The striped adobe lily typically blooms between February and April, and blooming periods are longer in years with more spring rain. The seeds are dispersed via dehiscent capsules (Hickman 1996) that reach maturity between mid-April and late May (Stebbins 1989).

According to Stebbins (1989), no striped adobe lily seedlings have been observed, suggesting that reproduction may be primarily vegetative, which would also contribute to the species' limited distribution; however, the reproductive ecology and specific pollinating mechanisms of striped adobe lily are not well understood. Stebbins suggests that the pollination ecology of striped adobe lily may be similar to other members of the lily family in the region where the striped adobe lily occurs (Stebbins 1989). According to Tamura (1998), *Fritillaria* spp. with

large nectaries are typically pollinated by wasps and *Fritillaria* spp. with normal-sized nectaries are typically pollinated by bumblebees; striped adobe lily nectaries are considered large according to the measurements established by Tamura (1998).

Distribution and Population Trends

The largest documented population of striped adobe lily occurs in Kern County about 1 mile northeast of Long Tom Mine in the Pine Mountain USGS quadrangle. About 100,000 individuals were documented in this population in 1990, and densities near the center of the occurrence ranged from 5 to 9 plants per square foot between 1998 and 2001 (CDFW 2013). The population occurs on private property in oak woodland on heavy clay soils. Other plants associated with this population include filaree (*Erodium* sp.), lomatium (*Lomatium* sp.), soap plant, peppergrass (*Lepidium* sp.), snakelily (*Dichelostemma* sp.), miner's lettuce (*Montia* sp.), fiddleneck (*Amsinckia* sp.), and buttercup (*Ranunculus* sp.).

The striped adobe lily is endemic to the southern Sierra Nevada foothills of eastern Tulare and Kern counties (CDFG 2000). The Jepson Online Interchange for California Floristics (Jepson Flora Project 2011) lists the southern Sierra Nevada, especially the Greenhorn Mountains, as the geographic region in which striped adobe lily occurs. At least 23 extant populations of this species are known (CDFW 2013). It is reported from nine USGS quadrangles: Tejon Ranch, Rio Bravo Ranch, Democrat Hot Springs, Sand Canyon, Pine Mountain, Frazier Valley, Success Dam, Lindsay, and Porterville (CNPS 2008). Collections of this plant have been made from Kern County (SMASCH 2007).

The CNDDB contains 26 records for striped adobe lily in California (CDFW 2013), 21 of which are from Kern County. All of the populations from Kern County occur on private land, and all but one are considered extant. The striped adobe lily is reported from various places throughout the county, including the Greenhorn Mountains, along Rancheria Road, and in the Tejon Hills.

As of 1999, the population status of striped adobe lily was unknown due to the fact that many of the populations occur on private lands and census data were not available. Official tabulations of the number and size of populations have been disputed by ranchers and landowners. Results from field surveys supported by landowners provide population estimates much in excess of previous estimates. Claims have also been made that many additional populations exist, but as of 2000, documentation of population numbers and new occurrences had not been shared with the Service or reported to the CNDDB (CDFG 2000). Despite the controversy regarding population information, according to the Striped Adobe Lily Species Management Plan (CDFG 2000) at least four populations of striped adobe lily are known to have been extirpated when their habitat was converted to agricultural lands. Three more populations at lower elevations on the slopes of Lewis Hill near Frazier Valley are threatened by expansion of citrus orchards (CDFG 2000).

The striped adobe lily remains listed as threatened by the State of California. Two new occurrences, one on Lewis Hill and the other along Rancheria Road, were reported to the CNDDB in 2001 and 2002 (CDFW 2013).

Reasons for Decline

The striped adobe lily is threatened by agriculture, urbanization, road maintenance activities, and non-native plants (CDFG 2000, CNPS 2008). According to the CDFG, heavy grazing has also directly negatively impacted some populations (CDFG 2000); however, the impact of grazing on the lily is not understood (Stebbins 1989). Most remaining populations occur on ranch lands that have been grazed for many decades (CDFG 2000). The timing and intensity of grazing appear to be significant and light grazing and avoidance during the flowering and seed production period may actually benefit the species (Stebbins 1989, CDFG 2000). Stebbins (1989) suggests that striped adobe lily may benefit from light to moderate levels of grazing prior to early to mid-February (but after seed dispersal) due to the effects that grazing has on reducing non-native competitors, such as non-native annual grasses.

ENVIRONMENTAL BASELINE

The Applicant's consultants conducted presence/absence surveys for the striped adobe lily within the TMV Planning Area portion of the Covered Lands. The surveys did not reveal any striped adobe lily plants in the TMV Planning Area; however, the CNDDB reports 3 occurrences of striped adobe lily in the northern portion of the TMV Planning Area near the Tejon Hills (CDFG 2013b), so we assume the species is present in those locations and potentially in other suitable habitat on the Covered Lands.

We are not aware of any other occurrences on the Covered Lands, although that is most likely due to a lack of surveys. In lieu of surveys on other part of the Covered Lands, the Applicant created models of the suitable habitat for the species on all Covered Lands. The model included grasslands and oak savannahs on clay soils that occur at elevations between 400 and 4,800 feet amsl. A total of 32,213 acres of suitable habitat for striped adobe lily were modeled on Covered Lands. However, because of the negative survey results within the TMV Planning Area and the paucity of records in the CNDDB, the potential of this species to occur within this modeled suitable habitat is expected to be low. In addition, because it is unlikely that all modeled habitat would be saturated and because it is assumed that some modeled habitat may not contain the microhabitat required by this species, not all modeled habitat is expected to be occupied by this species. We expect that striped adobe lily will not be widespread on the Covered Lands despite the extensive area of modeled suitable habitat.

Recovery

Because the species is not federally listed, we have not developed a recovery plan for the striped adobe lily. To address the potential recovery of the species, we consider general concepts for the conservation of rare plants. These include the preservation of existing populations, ensuring

adequate space for the species to fluctuate its distribution in response to edaphic factors, continuation of dispersal mechanisms, control of exotic invasive plants, and maintenance of natural pollinator communities. The principal way of achieving these goals is preservation of suitable habitat with adequate buffers from human alterations. In addition, restoration of formerly suitable habitat areas can contribute to the species' recovery. Once enough space has been preserved and restored, rare plant species should be able to persist and perhaps increase to historical levels.

EFFECTS OF THE ACTION

Planwide Activities

Livestock

The Applicant proposes to continue to graze livestock at historical levels on the balance of the action area outside the development areas, consistent with the types and level of historical grazing and ranch management practices. Plants are susceptible to the presence of livestock primarily due to direct grazing or browsing. We do not know if the striped adobe lily is palatable to livestock, but we cannot rule out the possibility that cattle will graze on the species during normal feeding. Stebbins (1989) suggests that light grazing at the appropriate time of year may be beneficial if the grazing controls nonnative species that compete with or exclude the striped adobe lily. Therefore, if grazing in areas occupied by striped adobe lily is timed appropriately, cattle grazing could be beneficial. Cattle can also affect plants directly through trampling. Again, we have no measure of the effects trampling by livestock on the striped adobe lily, but we can conclude that the plant has persisted in areas traditionally grazed. We conclude that the striped adobe lily may be affected by livestock activities, but that the effects are consistent with the continued persistence of the species on the Covered Lands. Under the TUMSHCP, the Applicant must submit grazing management plans to the Service every 5 years for review and approval. Our review of such plans will allow for the implementation of additional measures or modification of grazing practices to ensure the compatibility of grazing with the conservation of the striped adobe lily.

Cattle and other livestock may also be vectors of non-native plants and can spread invasive species into habitat occupied by the striped adobe lily. While this spread is difficult to control, given the history of livestock on the Covered Lands, the probability that livestock will not be grazing in new areas, and the fact that many invasive plant species have already been established on the Covered Lands, we do not expect that continued livestock grazing will exacerbate the problem. In addition, under the TUMSHCP, the Applicant must submit a grazing management plan as a component of the RWMP to the Service every 5 years for our review. Our review of such plans will allow for the implementation of additional measures or modification of grazing practices to ensure the compatibility of grazing with the conservation of the striped adobe lily.

Range Management/Ancillary Ranch Structures

Range management activities support livestock operations and consist of construction, operation, and maintenance of watering facilities, feeding areas, fences, and corrals, consistent with the types and level of historical grazing and ranch management practices; repair, reconstruction, and relocation of roads to accommodate historical grazing and ranch management practices; and repair, maintenance, or installation of ranch management communication equipment (e.g., whip antennas) that are less than 20 feet high. The repair, reconstruction and relocation of roads to accommodate historical grazing and ranch management practices are evaluated below under Roads. Range management also incorporates ancillary ranch structures including squeezes, loading chutes, holding and feeding fields, corrals, branding traps, barns, sewage disposal facilities, livestock and wildlife watering facilities, and utilities serving existing ranch uses.

As described above under Planwide Activities in the Description of the Proposed Action section, *de-minimis* activities associated with ancillary ranch structures would be covered under the TUMSHCP. Non–*de minimis* activities associated with ancillary ranch structures are also allowed (1) if the activity is located in disturbed areas (e.g., undergrounding utilities in road rights-of-way), or (2) following a meet-and-confer process with the Service to ensure that the activity associated with an ancillary ranch structure avoids or adequately minimizes impacts to Covered Species and their habitats.

If range management activities (especially new facilities) were to take place in areas where the striped adobe lily grows, the individual plants could be removed. The TUMSHCP requires baseline surveys prior to such disturbance and avoidance of the three currently known occurrences, and avoidance to extent practicable and minimization of impacts in occupied areas documented in future baseline surveys (see Table 2 of this biological opinion). This measure should be sufficient to avoid removal of striped adobe lily as a result of ranch construction and modification activities. Therefore, range management activities will little to no effect on the striped adobe lily.

Fuel Management

Fuel management practices would consist primarily of grazing to keep grasses and weeds at bay and the effects of fuel management should be largely consistent with the effects of livestock. Other fuel management activities include fuel modification zones created (1) by existing roads, and (2) through irrigation and/or vegetation clearing and mowing within 120 feet surrounding existing structures (i.e., backcountry cabins, ancillary ranch structures, and other existing structures). If striped adobe lilies fall within the zone designated for fuel clearance, individual plants could be lost, and the repeated clearance could prevent them from re-establishing. The Applicant has proposed to survey for and direct Planwide Activities to avoid, to the extent possible, areas where the striped adobe lily is found (see Table 2 of this biological opinion, and Section 7.1.2.4 of the TUMSHCP). We conclude that the effects of fuel management on the striped adobe lily should be minor if the survey and avoidance efforts are employed as proposed, although some effects may still occur.

Fuel management associated with proposed development is discussed below under Commercial and Residential Development Activities.

Filming

Filming activities generally consist of temporary on-scene filming and photography-related uses, including, but not limited to the filming and staging of movies, television shows, and commercials; photo shoots; and still photography and related uses. Such activities may include the erection and dismantling of props, temporary installation of trailers and equipment for film crews, filming of on-camera action, catering, rehabilitation of disturbed areas, and the movement of film crews to and from locations.

The primary effect of filming on the striped adobe lily would be from habitat disturbance during the staging of production. The TUMSHCP (Section 2.2.1) states that the RWMP will include best management practices for filming activities and the Interim RWMP requires that any temporary construction related to film production be first reviewed to avoid sensitive resources, and that any areas disturbed by filming are restored to pre-filming condition, including revegetation (Interim RWMP). As a result, we expect the effects of filming on the striped adobe lily to be negligible.

Recreation

Recreation associated with the Planwide Activities includes private recreation by TRC, its employees, and guests, and public access is governed by the Interim RWMP and managed by the Conservancy. Such recreational use is also subject to the terms of the TUMSHCP and the terms of Service-approved conservation easements. While the private recreation by TRC occurs currently throughout the Covered Lands, public recreation, which generally consists of docent led tours by the Conservancy per the Interim RWMP, occurs in the Established Open Space portion of the Mitigation Lands.

These public and private recreation uses are limited to passive activities listed in the Project Description. Recreation activities associated with Planwide Activities would occur in open space areas generally outside the TMV Planning Area at a relatively small scale, and have infrequent impacts. Recreational uses by TRC are limited by the access guidelines and best management practices in the Interim RWMP and will be further regulated in Public Access Plans, which are subject to permanent Service review and approval.

The direct and indirect effects of Recreation within Established Open Space are discussed as a Planwide Activity in this section, while the direct and indirect effects of recreation as a result of residential and commercial development are addressed below under Proposed Development. However, recreation in both Established Open Space and in proposed development areas is limited to passive activities including walking; hiking; sightseeing; climbing; limited equestrian uses; non-motorized biking on roads or trails; bird/wildlife watching and other nature study;

photography; picnics; astronomy; archery and target shooting; cross-country snow skiing, snow-shoeing, and sledding; and fishing and boating. Overnight camping within Established Open Space may be allowed under a Public Access Plan. Recreation activities associated with Planwide Activities would occur outside the TMV Planning Area, at a relatively small scale, and have infrequent impacts. Recreational uses by TRC, its employees, and the public would be limited to the types of passive uses identified above under the TUMSHCP, and public recreational use would be further regulated in Public Access Plans, which are subject to permanent Service review and approval.

Some recreational activities could affect individual striped adobe lily plants, but we expect such effects to be minimal, in part due to the proposed effort to document locations of the plant and direct such activities away from sensitive areas. While some trampling and other recreation-related effects may occur, these should be negligible due to the low likelihood that such activities would overlap with the striped adobe lily occurrences because of the plant's rarity on the Covered Lands (only 3 known occurrences anywhere on the Covered Lands) and the low likelihood that the striped adobe lily is would be present where recreational activities are occurring.

The indirect effects of increased demand for recreation associated with proposed development are addressed below under Commercial and Residential Development Activities.

Irrigation/Water Diversion

The action area contains existing water diversions for irrigation of agriculture inside and outside the action area, and a few small agricultural areas totaling about 232 acres exist in the TMV Planning Area (e.g.,small vineyards and an orchard near Castac Lake). Agricultural uses that remain in open space after TRC identifies the final development footprint will continue subject to State and local regulations. We do not anticipate any adverse impacts to striped adobe lily from on-going agricultural activity, because no additional diversions are proposed and the Applicant has proposed to survey for and avoid installation of such facilities in areas where the striped adobe lily occurs. Also, maintenance and relocation work, if any, is subject to the survey and avoidance requirements in the TUMSHCP, and prior to TRC relocating water diversions, the Service would review and approve the proposed new locations.

Agricultural uses that remain in open space after TRC identifies the final development footprint will continue. Due to repeated disturbance for tilling and preparation for planting, irrigation of agricultural areas by these facilities is unlikely to have an effect on the striped adobe lily because the species would not be present (i.e., irrigated lands do not support suitable habitat for striped adobe lily). Agriculture is a very small percentage of the land use in the action area and will remain so throughout the life of the proposed ITP due to the Applicant's commitment to conserve areas within the Covered Lands outside of development (Section 7.1.2.4 of the TUMSHCP). Future development does not include expansion of existing agricultural fields.

Roads/Trails

A network of generally unpaved roads exists in the action area. As described in the TUMSHCP, the roads outside the development areas would be maintained, relocated, or new roads could be constructed, in compliance with the 200-acre limit on disturbance by Planwide Activities, to facilitate the Planwide Activities. Although maintenance, relocation, and new roads could destroy individual striped adobe lily plants, the Applicant has proposed to site new or relocated roads to avoid impacts to sensitive resources. Also, road/trail use is expected to be irregular and of low intensity, and we do not expect the presence and use of roads/trails to preclude the lily's occupation of the area.

Motorized vehicles, horses, off-highway vehicles, bicycles, etc. could destroy individual striped adobe lily plants on roads/trails. Road maintenance could damage and kill individuals that are missed during survey efforts. However, the striped adobe lily is not likely to occur on existing roads or trails due to frequent disturbance. The plants may grow adjacent to established roads and trails, but the species is most likely to be affected when new roads or trails are established or relocated because the Applicant has proposed to survey for and avoid, as much as possible, areas where the striped adobe lily is found. These measures should minimize the effects of roads/trails on the striped adobe lily.

The direct and indirect effects of roads in the development areas as a result of residential and commercial development are addressed below under Commercial and Residential Development Activities.

Utilities

The action area contains, or would contain, various small utilities to support ranch activities. As described in Section 2.2.1 of the TUMSHCP, these utilities would be *de minimis* or would be located in previously disturbed areas (e.g., undergrounding utilities in road rights-of-way). Any utilities associated with Planwide Activities that are not *de minimis* or cannot be located in previously disturbed areas would require Service review and approval prior to relocation or construction.

We do not expect utilities to have a measurable effect on the striped adobe lily because utility posts and towers have small footprints and the utilities affect a very small percentage of the action area. Also, TRC has proposed to survey project areas and avoid striped adobe lily to the extent possible, which should avoid or minimize the potential for adverse impacts to the species during utility installation/maintenance.

Potential impacts by utilities associated with the proposed development are included in the discussion of effects of Commercial and Residential Development Activities below.

Backcountry Cabins

Eight backcountry cabins occur in the action area and could be maintained, improved, repaired, replaced, or reconstructed in their existing location or relocated outside of the Condor Study Area. The Interim RWMP requires that new or relocated cabins be first subject to a site evaluation to avoid impacts to sensitive natural resources, such as striped adobe lily populations. In addition, prior to relocating an existing cabin, TRC would allow the Service to review and approve (if appropriate) the proposed new location. Continued human use of the cabins should not cause meaningful new habitat disturbance beyond what has occurred in the past. These measures would minimize the impacts of cabins and their use on the striped adobe lily, and we expect the effects on the species to be negligible from this activity.

Fencing

Fences exist throughout the action area. Fences would be maintained and new fencing could be constructed and maintained as required to support the proposed activities, including exclusion of cattle from sensitive habitats that support Covered Species. The Applicant proposes to design and locate new fencing to avoid known occurrences of the covered species (see Table 2 of this biological opinion, and Section 2.2.1 of the TUMSHCP). This should minimize the impacts of fences on the striped adobe lily. We expect the effects on the species from fencing to be negligible.

Lebec/Existing Headquarters Area Uses

Existing activity in the Lebec/Existing Headquarters Area (i.e., corporate headquarters buildings, an antique shop, a post office, a church, and several single-family residences for ranch employees) would continue to occur. While additional development could occur here under the TUMSHCP, TRC has not included development plans for this area in the project description. While this area supports modeled suitable habitat, pre-construction surveys would conducted and any impacts to habitat occupied by striped adobe lily would be avoided or minimized to the extent practicable (Table 2 and Section 7.1.2.4 of the TUMSHCP. We expect that activities associated with use of this area will not have any effects on the striped adobe lily because the species does not occur in these areas

Mitigation, Monitoring, and Management

Mitigation, monitoring, and management activities to carry out identified biological goals and objectives for the California condor or other Covered Species included in the TUMSHCP or other resource agency permits for the commercial and residential Covered Activities, as well as mitigation, monitoring, and management activities imposed pursuant to any local, State, or Federal approval of development on Tejon Ranch would be carried out in accordance with the Act and would be subject to Service review. We acknowledge that other agencies may credit the Applicant for mitigation and protective measures included in the TUMSHCP for mitigation imposed by such other agencies. Any restoration, enhancement, or similar mitigation activities

would not be allowed if they would result in unpermitted adverse effects to species or critical habitat under the Act. Additionally, any mitigation activities for other agencies would be subject to the protective measures included in Tables 1 and 2, in the Description of the Proposed Action section of this biological opinion. Therefore, we anticipate that any potential threats to the striped adobe lily as a result mitigation, monitoring, and management activities would be effectively minimized.

Estimate of Disturbance Due to Planwide Activities

The Applicant proposes a maximum of 200 acres of ground disturbance associated with the Planwide Activities described above. These ground disturbances would occur outside of the proposed development (discussed below) and may be permanent or temporary. The disturbance would primarily be associated with construction of roads, backcountry cabins, and ancillary structures. If the Applicant restores a portion of this disturbance, an area equal in size may then be disturbed. Thus, no more than 200 acres may exist in a developed condition because of Planwide Activities at one time.

For the purposes of this effects analysis, we assume that all parts of the action area that could be affected by Planwide Activities have an equal chance of being affected and that all habitat types would be affected in equal proportion. This assumption is based upon the Applicant's inability to predict exactly where 200 acres of habitat disturbance due to Planwide Activities would occur. In addition, there is no indication that the distribution or location of striped adobe lily modeled habitat would cause Planwide Activities to disproportionately occur in striped adobe lily modeled habitat.

Also, for the purposes of estimating species-specific habitat disturbance by Planwide Activities, we are not using the 8,817-acre development envelope used by the Applicant to estimate impacts from development (TUMSHCP Table 2-1, footnote 4), but rather we are using the 5,533-acre area that actually could be developed within the development envelope. We did this, because after the 5,533-acre development footprint is developed, 3,284 acres of the 8,817-acre development envelope would remain and be subject to Planwide Activities, and modeled habitat for the striped adobe lily could occur in the 3,284 acres. Therefore, we included 3,284 acres of the development envelope in this analysis to acquire an estimate of habitat lost by Planwide Activities that is as accurate as possible. When we combine this estimate with anticipated habitat loss from commercial and residential development in a summary effects analysis (discussed below), we will have slightly double-counted and overestimated the amount of striped adobe lily habitat that would be lost in the action area. We conclude that this does not compromise our analysis because the overlap is very small relative to the size of the action area, and this approach errs on the side of the species by analyzing a larger impact than would actually occur.

Excluding commercial and residential development areas, the National Cement and La Liebre Mines, the VA Cemetery, and Not-A-Part lands (blocks of land within the boundary of the action area but not owned by TRC), a total of 12,423 acres within the exterior boundaries of the Covered Lands are not subject to Planwide Activities. We expect that Planwide Activities could

occur on the remaining 129,463 acres of the action area (141,886 acres within the action area minus the 12,423 acres of excluded areas above). Therefore, the ratio of disturbance due to Planwide Activities (200 acres) to covered lands subject to Planwide Activities (129,463 acres) equals 0.0015. We applied this ratio to striped adobe lily habitat outside the excluded areas but in the action area and rounded the remainder up to a whole acre. Thus, 32,213 acres of modeled habitat minus 2,737 acres lost to development equals 29,476 acres subject to Planwide Activities. Using our ratio of 0.0015, we anticipate that Planwide Activities would disturb or remove approximately 44 acres of modeled suitable habitat for the striped adobe lily over the permit duration, or less than 1 percent of the modeled suitable habitat.

This could be an overestimate because the Applicant is proposing measures to minimize disturbance to striped adobe lily habitat. Consequently, we expect the effects to striped adobe lily habitat to be minimal, especially in comparison to the large area of modeled suitable habitat, and the measures TRC has proposed to avoid affecting striped adobe lily habitat. While there could be some loss of striped adobe lily modeled suitable habitat (approximately 44 acres, by our calculation) due to Planwide Activities, in comparison to the modeled suitable habitat conserved, we conclude that the loss would not appreciably reduce the rangewide numbers, reproduction, or distribution of the species.

Commercial and Residential Development Activities

Direct Effects

The Commercial and Residential Development Activities could result in the temporary direct impacts of modeled suitable habitat for the striped adobe lily. We do not have an exact acreage for these temporary effects. The total area of permanent loss of modeled suitable habitat is expected to be 2,737 acres. The temporary effects should be substantially less because the TUMSHCP requires flagging and fencing of the disturbance/grading perimeters to mark the limits within which Covered Activities may occur and that may result in loss of modeled suitable habitat. Also, because the effects are temporary, we would expect the modeled suitable habitat for the striped adobe lily to be able to support the species in the future as the disturbed habitat recovers.

The principal permanent effect of the proposed development on the striped adobe lily would be from habitat loss. The Applicant has calculated that development would result in the permanent loss of 2,737 acres of modeled suitable habitat for striped adobe lily within Covered Lands (approximately 8 percent of the total modeled striped adobe lily habitat in the Covered Lands). This habitat loss includes any modeled habitat for the striped adobe lily lost as a result of development activities in the Lebec/Existing Headquarters Area. Although the TUMSHCP did provide numbers of individual striped adobe lily plants that could be affected under various scenarios (however, all 3 documented occurrence locations would be conserved), we do not include an estimate of the number of individual striped adobe lily plants that could be lost within that area, primarily because for most plant species, except large individuals of perennial plants or extremely rare plants, the number of individuals affected tells little about the effects to the

species; the affected habitat acreage is more revealing because it gives an indication of how the underground propagules (in the case of the striped adobe lily, likely bulbs) are affected and to what extent. Also, the striped adobe lily is an annual or biennial with a broad distribution in California, so the effects on acreage are more relevant to the species' overall conservation than the number of individuals lost or conserved.

Because approximately 92 percent of modeled habitat for the striped adobe lily and all 3 documented occurrences would be preserved within a large open space system, the proposed impacts to this species as a result of development would not substantially affect the population on site nor would it substantially affect the species in its broader range within California. We conclude that the permanent loss of approximately 8 percent of modeled suitable habitat within Covered Lands resulting from permanent habitat loss associated with development, prior to implementation of avoidance and minimization measures, would not appreciably reduce the species' reproduction, numbers or distribution range-wide, especially considering that the 3 known locations in the TMV Planning Area would be preserved (see Table 2 and the TUMSHCP Section 7.1.2.4).

Indirect Effects

The indirect effects of development on the striped adobe lily could include: introduction of invasive, nonnative plants; irrigation and runoff that affects adjacent habitat; loss of pollinator habitat; impacts due to fuel modification; and overspray or drift of pesticides into striped adobe lily habitat. These indirect effects could result in loss of individual plants and could alter occupied habitat to where the striped adobe lily cannot persist. We think these scenarios are unlikely to develop given the avoidance and minimization measures TRC has proposed, including pre-activity surveys to avoid known locations where the striped adobe lily occurs, BMPs to control runoff and pesticide use, and measures to control the escape of nonnative plants into adjacent open space where the striped adobe lily would be conserved (see Table 2 of this biological opinion, and Sections 2.2.1 and 7.1.2.4 of the TUMSHCP).

The increased population of the development areas is likely to increase the pressure for recreational activities, particularly in the TMV Planning Area. Recreational activities allowed within the TMV Planning Area Open Space are limited to passive recreation as described above under Planwide Activities and in the Project Description. Even so, in the SDEIS for the TUMSHCP, we estimated that the TUMSHCP would increase the human population of the TMV Planning Area by 11,441 people and we expect the recreational activities of future residents of the TMV Planning Area to cause a higher level of disturbance and impacts in this area than in other parts of the action area that are more remote.

If recreation occurs in occupied striped adobe lily habitat, it could cause a higher level of disturbance and impacts in the TMV Planning Area Open Space than in other parts of the action area that are more remote. To minimize impacts of recreation, TRC would provide Home Owners' Association(s) with educational information regarding acceptable activities in open space areas, including recreational activities and pet restrictions. In addition, the TUMSHCP

would require that recreation in the TMV Planning Area Open Space, be conducted in a manner that would avoid adverse impacts to the Covered Species and their habitats or result in less-than-significant impacts. At a minimum, the recreation activities would be planned to avoid sensitive species and known occurrences, and the TUMSHCP would require the use of existing roads and trails where possible. We expect the effects of recreation in the TMV Planning Area Open Space on the striped adobe lily to be minimal.

The Applicant proposes to clear and thin vegetation within 200 feet of the proposed development, creating an up to 1,773-acre fuel modification zone (although it is likely that the majority of this zone will occur within the development envelope). The expected intensity of disturbance associated with these activities alone would not preclude the striped adobe lily's occupation of modeled habitat near this area; however, the ongoing maintenance of this area, whether by grazing or mechanized means, could obstruct the lily's occupation of suitable habitat. The estimated areal extent in which fuel modification may affect the striped adobe lily is included in the 2,737 acres of modeled habitat estimated to be lost within the 8,817-acre development envelope.

TUMSHCP Mitigation

The Applicant proposes to preserve in perpetuity virtually all of the action area outside the development envelope, including 29,476 acres of modeled suitable habitat for the striped adobe lily. The Applicant would maintain the preserved land in its current condition. Considering the rarity of the species on the Covered Lands (3 historical records, presumed extant), the preservation of 92 percent of modeled suitable habitat should contribute to the species' conservation. More specifically, the Applicant proposes to conserve the 3 known occurrences of striped adobe lily in the northern portion of the TMV Planning Area near the Tejon Hills (CDFG 2013b). These occurrences would be conserved within existing conservation easement areas (see Table 2 of this biological opinion).

For those potential effects due to development where preservation alone cannot prevent the effects from occurring (e.g., intrusion into striped adobe lily habitat), TRC has proposed other measures to avoid and minimize the effects of the covered activities on the striped adobe lily (see Table 2 of this biological opinion). These additional specific measures will further help conserve the species on the Covered Lands.

Summary of Effects Analysis

The Planwide Activities and the proposed development could have some effect on the striped adobe lily, although there are only three documented occurrences of the species on the Covered Lands and the potential of this species to occur within modeled suitable habitat within the action area is low. As stated above, TRC estimates that up to 2,737 acres of modeled suitable habitat could be lost due to development, and we have calculated that in the remainder of the action area that Planwide Activities could affect an additional 44 acres of modeled suitable habitat for the striped adobe lily, for a total of 2,781 acres of lost modeled suitable habitat for the species.

Considering that TRC proposes to conserve 29,476 acres, the majority (approximately 91 percent) of the modeled suitable habitat on the Covered Lands would be conserved. In addition all documented occurrences of the striped adobe lily on the covered lands would be protected under the TUMSHCP.

We conclude that the combination of avoidance and minimization proposed by TRC in addition to the conservation of the majority of modeled suitable habitat on the Covered Lands is consistent with accepted conservation principles and would allow the proposed activities to proceed without appreciably reducing the range-wide reproduction, numbers, and distribution of the striped adobe lily.

Recovery

The striped adobe lily is not a listed species, and there are no recovery criteria with which to compare the current and future status of the species. The proposed conservation of 92 percent of modeled suitable habitat for the striped adobe lily is consistent with conservation biology principles calling for large, interconnected blocks of habitat that support a given species' life history requirements. The conservation of the Mitigation Lands would benefit the striped adobe lily by permanently securing them from future habitat loss in the action area and maintaining a large area of striped adobe lily habitat. Therefore, the TUMSHCP will not diminish but is likely to contribute to the recovery of the adobe striped lily.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section, because they require separate consultation pursuant to section 7 of the Act.

Hunting

Private and commercial hunting operations occur on Tejon Ranch, including the action area; however, hunting is not an activity covered by the TUMSHCP. The Applicant proposes to continue hunting operations throughout the ranch during the proposed permit term. Hunting in the TMV Planning Area would be limited to guided hunts. Hunting activities involve travel on existing paved and unpaved roads, overnight use of backcountry cabins, hiking, discharging hunting weapons, etc. The effects from hunting will generally be consistent with, and to a considerable extent are captured in, the descriptions of effects for Roads/Trails, Backcountry Cabins, and Recreation described above. Therefore, we expect that hunting in the action area will have negligible cumulative effects on the striped adobe lily.

Mining

Two commercial mining operations occur in the action area, La Liebre and National Cement; these mining operations are not covered activities under the TUMSHCP. The total area used for the two operations is about 2,636 acres, and the Applicant would maintain the mining leases through the proposed permit term. The species is not known to occur in proximity to the mines, although the Applicant estimates that the areas may support up to 122 acres of modeled suitable habitat for the species. Because much of the mining areas is already disturbed and the effects of mining occur in a small area relative to the amount of modeled suitable habitat in the action area, we conclude that continued mining in the action area will have only negligible cumulative effects on the striped adobe lily.

Other Activities

As discussed above under project description, within the external boundaries of the Plan Area, there are existing inholdings and utilities. The Bakersfield National Cemetery also occurs inside the plan area. These projects and activities are not Covered Activities under the TUMSHCP. We are not aware of any reasonably foreseeable activities within the 3,870 acres of inholdings that may affect the striped adobe lily. Activities associated with utilities, transmission lines and related structures, such as maintenance activities, would be restricted to currently established easement areas and would have only minor, if any, effects on striped adobe lily habitat. Therefore, we do not anticipate any cumulative effects from the ongoing maintenance and operation of non-covered existing utilities. The Bakersfield National Cemetery is in place, and we are not aware of any activities associated with the cemetery that may have an adverse effect on striped adobe lily.

CONCLUSION

After reviewing the current status of the striped adobe lily, the environmental baseline for the action area, the effects of the proposed TUMSHCP and the cumulative effects, it is the Service's biological opinion that the implementation of the TUMSHCP, as proposed, is not likely to jeopardize the continued existence of the striped adobe lily. We have reached this conclusion for the following reasons:

1. TRC would conserve large areas potentially occupied by the species but not yet surveyed; approximately 29,476 acres of the modeled suitable habitat (or approximately 92 percent) would be conserved in perpetuity.

2. The 3 known occurrences of striped adobe lily in the northern portion of the TMV Planning Area near the Tejon Hills would be conserved in their entirety within existing conservation easement areas.

3. Where the modeled suitable habitat overlaps with proposed activities, TRC proposes to conduct pre-activity surveys and carry out the action while avoiding populations of the striped adobe lily to the extent possible (Section 7.1.2.4 of the TUMSHCP).

4. The large area of conservation that includes the striped adobe lily should ensure the species persists and thus the TUMSHCP would contribute to the species' survival and recovery.

We conclude that the likelihood of the survival of the striped adobe lily would not be diminished by the proposed action principally because of the extensive habitat preservation that would result. Although there are no recovery criteria for the striped adobe lily, the measures proposed by the Applicant are consistent with typical rare plant conservation approaches, especially habitat preservation. Therefore, we further conclude that the proposed action would not diminish the likelihood of the recovery of the striped adobe lily.

INCIDENTAL TAKE STATEMENT

Take of plant species is not prohibited under the Act; therefore Section 7(b)(4) and 7(o)(2) of the Act do not apply to plant species and no incidental take statement is provided for the striped adobe lily. Limited protection of listed plants is provided to the extent that the Act prohibits the removal and reduction to possession of federally listed endangered plants or the malicious damage of such plants on areas under Federal jurisdiction, or the destruction of listed plants on non-Federal areas in violation of State law or regulation or in the course of any violation of a State criminal trespass law. As described above, the proposed TUMSHCP and associated documents identify anticipated impacts to the striped adobe lily as well as measures that are necessary and appropriate to minimize those impacts.

TEHACHAPI BUCKWHEAT

STATUS OF THE SPECIES

Regulatory History

Tehachapi buckwheat (*Eriogonum callistum*) does not have Federal or State status, but has been recognized as a special-status species by CNDDB and added to the database (CDFG 2011d). Tehachapi buckwheat is also a CNPS 1B.1 species, and is considered seriously endangered in California (CDFG 2011d). The Tehachapi buckwheat has a California Heritage Element Ranking of S1, indicating it is critically imperiled in the state because of extreme rarity (often five or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state (CDFG 2011d).

Natural History/Habitat Requirements

Tehachapi buckwheat was first described in 2006 (Reveal 2006a). It is a perennial in the Buckwheat family (Polygonaceae). Individuals arise from a woody taproot, forming compact, rounded, subshrubs about 1 to 3 feet (0.3 to 1.0 meter) across and 4 to 14 inches (10 to 35 centimeters) tall (Reveal 2006a). The leaves of Tehachapi buckwheat are 1 to 2 inches (2 to 5 centimeters) long and silky grayish-white tomentose (densely covered with short, matted, woolly hairs) on both surfaces. Each inflorescence is 1 to 2 inches (2 to 4 centimeters) in diameter and typically contains 10 to 25 pinkish-white buds that will become bright white flowers. The flowers are densely white tomentose (hairy) with long, soft hairs and rosy to yellowish-green midribs on the petals (Reveal 2006a).

Tehachapi buckwheat flowers from late spring through summer (Reveal 2006b). Observations of Tehachapi buckwheat during 2007 surveys by the Applicant's consultants suggest the plant may be pollinated by a variety of beetles and ants, and that butterflies may not be important pollinators due to the lack of butterfly species observed visiting the plants during peak phenology (i.e., June and July) in 2007 (Dudek 2007a). Based upon pollination syndromes (Howe and Westley 1988; USFS 2008) and observations on the Covered Lands (Dudek 2007a), Tehachapi buckwheat is most likely pollinated by beetles and ants, but no specific pollination studies are available regarding this species. Very little else is known about the natural history of Tehachapi buckwheat. For example, we do not have documented dispersal mechanisms for Tehachapi buckwheat, but Stokes (1936) found that *Eriogonum* spp. seeds are dispersed by animals, runoff, wind, and rain.

Tehachapi buckwheat is primarily associated with chaparral dominated by Parry manzanita (*Arctostaphylos parryana*). It is less often associated with pinyon pine woodlands and chaparral dominated by chamise (*Adenostoma fasciculatum*) (Dudek 2007a, 2007c). Other associated species include Utah service-berry (*Amelanchier utahensis*), chaparral yucca (*Yucca whipplei*), and scrub oak.

Distribution and Population Trends

The Tehachapi buckwheat was first observed during surveys on Tejon Ranch conducted by Jones and Stokes (2006). The only known occurrences of the Tehachapi buckwheat are those observed during the special-status plant surveys in the TMV Planning Area on Covered Lands (Dudek 2009). The population appears to be stable and experiencing few threats at this time, so population trends are not discernible.

Reasons for Decline

We are not aware of any current threats to Tehachapi buckwheat because the species was first described in 2006 and scientific literature on the species has been limited. Threats have been documented for the related Kern buckwheat (*Eriogonum kennedyi* var. *pinicola*) and cushenberry buckwheat (*Eriogonum ovalifolium* var. *vineum*), which, like Tehachapi buckwheat, are perennial cushion-form buckwheat species and narrow endemics. The threats to cushenberry buckwheat and Kern buckwheat include over-grazing, mining, urbanization/construction, road maintenance activities, competition from non-native plants (especially tall species that shade individuals), and changes in hydrology (CNPS 2008; Center for Plant Conservation 2008; Sanders 2008). These threats may be applicable to Tehachapi buckwheat occurrences in the Covered Lands as well, although grazing is likely of limited concern because the species occurs in rocky openings in chaparral where cattle would have difficulty accessing the plants and these areas are not grazed regularly, and the species persists on Tejon Ranch despite wide-spread grazing on the ranch for much of the last century.

ENVIRONMENTAL BASELINE

Tehachapi buckwheat is known only from the area immediately in and around the south central portion of the Covered Lands, near Poleline Ridge. In 2007, 500 to 600 Tehachapi buckwheat individuals were documented in the Poleline Ridge area within the TMV Planning Area and on Covered Lands adjacent to the southern edge of the TMV Planning Area (Dudek 2007a). Occurrences were on limestone, and the majority of individuals were observed on rock outcrops primarily at elevations from 4,800 to 5,000 feet. Some individuals were found between 4,600 and 4,800 feet, and few individuals were found in the ranges of 4,400 to 4,600 feet or 5,200 to 5,400 feet. All occurrences were on north-facing slopes. The CNDDB contains no other records of Tehachapi buckwheat in the Covered Lands or elsewhere (CDFG 2011a).

Suitable habitat for the Tehachapi buckwheat was modeled on all Covered Lands. Modeled suitable habitat on Covered Lands includes chaparral and woodland at elevations between 4,400 and 5,500 feet and on suitable soils, including Anaverde gravelly loam, Lebec rocky loam, and Xerorthents-Rock Outcrop complex. A version of the model was also run for areas in the western portion of Covered Lands that do not have soils data. A total of 2,579 acres of suitable habitat for Tehachapi buckwheat was modeled for Covered Lands with soils data, and 10 acres of suitable habitat were modeled on Covered Lands without soils data.

Recovery

Because the species is not federally listed, we have not developed a recovery plan for the Tehachapi buckwheat. To address the potential recovery of the species, we consider general concepts for the conservation of rare plants. These include the preservation of existing populations, ensuring adequate space for the species to fluctuate its distribution in response to edaphic factors, continuation of dispersal mechanisms, control of exotic invasive plants, and maintenance of natural pollinator communities. The principal way of achieving these goals is preservation of suitable habitat with adequate buffers from human alterations. In addition, restoration of formerly suitable habitat areas can contribute to the species' recovery. Once enough space has been preserved and restored, rare plant species should be able to persist and perhaps increase to historical levels.

EFFECTS OF THE ACTION

Planwide Activities

Livestock

The Applicant proposes to continue to graze livestock at historical levels on the balance of the action area outside the development areas, consistent with the types and level of historical grazing and ranch management practices. Plants are susceptible to the presence of livestock primarily due to direct grazing or browsing. We do not know if the Tehachapi buckwheat is palatable to livestock. Over-grazing is identified as a threat to similar buckwheat species; however, the relationship between past grazing practices and the Tehachapi buckwheat's current status is not clear. Direct grazing on Tehachapi buckwheat would be detrimental, but as noted earlier, the Tehachapi buckwheat does not grow in areas that are accessible to cattle for grazing (i.e., rocky openings in chaparral where cattle would have difficulty accessing the plants). Therefore, we do not expect that grazing has had or will have more than a minor effect on the Tehachapi buckwheat.

Cattle can also affect plants directly through trampling. Again, we have no measure of the effects of trampling by livestock on the Tehachapi buckwheat, but we know that the plant persists on the Covered Lands despite potential trampling effects that may have occurred over the long period of historical cattle grazing. We conclude that the Tehachapi buckwheat may be affected by livestock activities, but that the effects are would likely be minor because the plant does not occur in areas accessible to grazing.

Cattle and other livestock may also be vectors of non-native plants and can spread invasive species into habitat occupied by the Tehachapi buckwheat. While this spread is difficult to control, given the history of livestock on the Covered Lands, the probability that livestock will not be grazing in new areas, and the fact that many invasive plant species have already been established on the Covered Lands, we do not expect that continued livestock grazing will exacerbate the problem. In addition, under the TUMSHCP, the Applicant must submit a grazing

management plan, as a component of the RWMP, to the Service every 5 years for our review and approval, which regulates livestock grazing in order to continue to maintain the habitats that are defined by the parameters in the habitat model for the Tehachapi buckwheat. Our review of such plans will allow for the implementation of additional measures or modification of grazing practices to ensure the compatibility of grazing with the conservation of the Tehachapi buckwheat.

Overall, we do not know if the species' distribution would be broader or whether the number of individual plants would be higher in the absence of livestock. The Applicant has proposed to take steps to avoid and minimize the effects of this and other Planwide Activities (see Table 2 of this biological opinion, and Section 2.2.1 of the TUMSHCP) should help with the species' conservation on the Covered Lands. In addition, under the TUMSHCP, the Applicant must submit a grazing management plan, as a component of the RWMP, to the Service every 5 years for review and approval. Our review of such plans will allow for the implementation of additional measures or modification of grazing practices to ensure the compatibility of grazing with the conservation of the Tehachapi buckwheat. In addition to these avoidance and minimization measures, the Applicant has proposed to conserve all known occurrences of the Tehachapi buckwheat in the area of known extant plants (i.e., Poleline Ridge) as part of the TMW Planning Area Open Space. Considering this measure, impacts to the known Tehachapi buckwheat plants are unlikely; however, unknown and new occurrences may be affected, although such effects would be minimized to the extent feasible by implementation of the measures listed in Table 2.

Therefore, we expect livestock to have minor effects on the Tehachapi buckwheat.

Range Management/Ancillary Ranch Structures

Range management activities support livestock operations and consist of construction, operation, and maintenance of watering facilities, feeding areas, fences, and corrals, consistent with the types and level of historical grazing and ranch management practices; repair, reconstruction, and relocation of roads to accommodate historical grazing and ranch management practices; and repair, maintenance, or installation of ranch management communication equipment (e.g., whip antennas) that are less than 20 feet high. The repair, reconstruction and relocation of roads to accommodate historical grazing and ranch management practices are evaluated below under Roads. Range management also incorporates ancillary ranch structures including squeezes, loading chutes, holding and feeding fields, corrals, branding traps, barns, sewage disposal facilities, livestock and wildlife watering facilities, and utilities serving existing ranch uses.

As described above under Planwide Activities in the Description of the Proposed Action section, *de-minimis* activities associated with ancillary ranch structures would be covered under the TUMSHCP. Non–*de minimis* activities associated with ancillary ranch structures are also allowed (1) if the activity is located in disturbed areas (e.g., undergrounding utilities in road rights-of-way), or (2) following a meet-and-confer process with the Service to ensure that the activity associated with an ancillary ranch structure avoids or adequately minimizes impacts to Covered Species and their habitats.

If range management activities (especially new facilities) were to take place in areas where the Tehachapi buckwheat grows, the individual plants could be removed. The Applicant proposes to conduct surveys prior to such disturbance and completely avoid the currently known individual Tehachapi buckwheat plants. It also requires avoidance to extent practicable and minimization of impacts in occupied areas documented in future baseline surveys (see Table 2 of this biological opinion). This measure should be sufficient to avoid removal of Tehachapi buckwheat plants as a result of ranch construction and modification activities. Therefore, range management activities will not affect the Tehachapi buckwheat.

In addition to such avoidance and minimization measures, the Applicant has proposed to conserve all known occurrences of the Tehachapi buckwheat in the area of known extant plants (i.e., Poleline Ridge) as part of the TMW Planning Area Open Space. Considering this measure, impacts to the known Tehachapi buckwheat plants are unlikely; however, unknown and new occurrences may be affected, although such effects would be minimized to the extent possible by implementation of the measures listed in Table 2 and in Section 7.1.2.5 of the TUMSHCP.

Fuel Management

Fuel management practices would consist primarily of grazing, and the effects of fuel management by grazing should be largely consistent with the effects of livestock. Other fuel management activities include fuel modification zones created (1) by existing roads, and (2) through irrigation and/or vegetation clearing and mowing within 120 feet surrounding existing structures (i.e., backcountry cabins, ancillary ranch structures, and other existing structures).

If Tehachapi buckwheat plants fall within the zone designated for fuel clearance, individual plants could be lost, and the repeated clearance could prevent them from re-establishing. The Applicant has proposed to survey for the Tehachapi buckwheat and avoid fuel clearance where the species occurs, to the extent possible to the extent practicable. These measures should minimize the impact of fuel clearance activities on the Tehachapi buckwheat to the extent such avoidance is considered feasible. The known occurrences of Tehachapi buckwheat would not be affected by fuel management activities because the Applicant has proposed to avoid all effects to the plants in the TMV Planning Area Open Space.

Fuel management associated with Commercial and Residential Development Activities is discussed below under Commercial and Residential Development Activities.

Filming

Filming activities generally consist of temporary on-scene filming and photography-related uses, including, but not limited to the filming and staging of movies, television shows, and commercials; photo shoots; and still photography and related uses. Such activities may include the erection and dismantling of props, temporary installation of trailers and equipment for film

crews, filming of on-camera action, catering, rehabilitation of disturbed areas, and the movement of film crews to and from locations.

The primary effect of filming on the Tehachapi buckwheat would be from habitat disturbance during the staging of production. The TUMSHCP (Section 2.2.1) states that the RWMP will include best management practices for filming activities and the Interim RWMP requires that any temporary construction related to film production be first reviewed to avoid sensitive resources, and that any areas disturbed by filming are restored to pre-filming condition, including revegetation (Interim RWMP). We expect the effects of filming on the Tehachapi buckwheat to be negligible.

Recreation

Recreation associated with the Planwide Activities includes private recreation by TRC, its employees and guests and public access governed by the Interim RWMP and managed by the Conservancy. Such recreational use is also subject to the terms of the TUMSHCP and the terms of Service-approved conservation easements. While the private recreation by TRC occurs currently throughout the Covered Lands, public recreation, which consists of docent led tours by the Conservancy per the Interim RWMP, only occurs in the Established Open Space portion of the Mitigation Lands.

These public and private recreation uses are limited to passive activities listed in the Project Description. Recreation activities associated with Planwide Activities would occur in open space areas generally outside the TMV Planning Area at a relatively small scale, and have infrequent impacts. Recreational uses by TRC, its employees, and guests and the public are limited by the access guidelines and best management practices in the Interim RWMP, including trail restrictions to avoid proximity to golden eagle (*Aquila chrysaetos*) nesting sites, and will be further regulated in Public Access Plans, which are subject to permanent Service review and approval.

Some recreational activities could affect individual Tehachapi buckwheat plants, but we expect such effects to be minimal, in part due to the proposed effort to document locations of the plant and direct such activities away from sensitive areas. While some trampling and other recreation-related effects may occur, these should be negligible due to the low likelihood that such activities would overlap with the Tehachapi buckwheat occurrences due to the plant's rarity and scattered distribution (i.e., the Tehachapi buckwheat is not likely to be present where recreational activities are occurring). We expect at most minor effects on the Tehachapi buckwheat from recreation Planwide.

The Applicant has also proposed to conserve all known occurrences of the Tehachapi buckwheat in the area of known extant plants (i.e., Poleline Ridge) as part of the TMV Planning Area Open Space. Considering this measure, impacts to the known Tehachapi buckwheat plants are unlikely; however, unknown and new occurrences may be affected, although such effects would be minimized to the extent feasible by implementation of the measures listed in Table 2 and

Section 7.1.2.5 of the TUMSHCP. The effects of recreation on the Tehachapi buckwheat should be minor.

The effects of recreation on the TMV Planning Area Open Space are discussed separately under Commercial and Residential Development Activities.

Irrigation/Water Diversion

The action area contains existing water diversions for irrigation of agriculture inside and outside the action area, and a few small agricultural areas totaling about 232 acres exist in the TMV Planning Area (e.g., small vineyards and an orchard near Castac Lake). Agricultural uses that remain in open space after TRC identifies the final development footprint will continue subject to State and local regulations. These facilities do not occur in suitable modeled habitat for the Tehachapi buckwheat, and the Applicant has proposed to conserve the known Tehachapi buckwheat plants in the TMV Planning Area Open Space (i.e., Poleline Ridge). Consequently, we do not expect any effects to the known Tehachapi buckwheat due to these water diversions, and any impacts to unknown or newly discovered plants would be minimized per the measures listed in Table 2 and in Sections 2.2.1 and 7.1.2.5 of the TUMSHCP

Also, due to repeated disturbance for tilling and preparation for planting, irrigation of agricultural areas by these facilities is unlikely to have an effect on the Tehachapi buckwheat because the species would not be present (i.e., irrigated lands do not support suitable habitat for Tehachapi buckwheat). Agriculture is a very small percentage of the land use in the action area and will remain so throughout the life of the proposed ITP due to the Applicant's commitment to conserve areas within the Covered Lands outside of development (Section 7.1.2.4 of the TUMSHCP). Future development does not include expansion of existing agricultural fields.

Roads/Trails

A network of generally unpaved roads exists in the action area. As described in the TUMSHCP, the roads outside the development areas would be maintained, relocated, or new roads could be constructed, in compliance with the 200-acre limit on disturbance by Planwide Activities, to facilitate the Planwide Activities. Motorized vehicles, horses, off-highway vehicles, bicycles, etc. could destroy individual Tehachapi buckwheat plants on roads/trails. Road maintenance could damage and kill individuals that are missed during survey efforts. However, the Tehachapi buckwheat is not likely to occur on existing roads or trails due to frequent disturbance. The plants may grow adjacent to established roads and trails, but the species is most likely to be affected (removed or intruded upon) when new roads or trails are established or relocated. The Applicant has proposed to survey for and avoid, to the extent practicable, areas where the Tehachapi buckwheat is newly discovered, and all known Tehachapi buckwheat plants would be conserved in the TMV Planning Area Open Space. These measures should ensure that the effects to the Tehachapi buckwheat are minor.

The effects of roads as a result of residential and commercial development are addressed below under Commercial and Residential Development Activities.

Utilities

The action area contains, or would contain, various small utilities to support ranch activities. As described in Section 2.2.1 of the TUMSHCP, these utilities would be *de minimis* or would be located in previously disturbed areas (e.g., undergrounding utilities in road rights-of-way). Any utilities associated with Planwide Activities that are not *de minimis* or cannot be located in previously disturbed areas would require Service review and approval prior to relocation or construction.

Installation or maintenance of utilities to support ranch activities may affect the Tehachapi buckwheat by disturbing habitat or killing individual plants. We do not expect utilities to have any appreciable impact on the Tehachapi buckwheat, because the Applicant has proposed to conserve all known Tehachapi buckwheat plants in the TMV Planning Area Open Space. Where utilities could affect unknown or newly discovered Tehachapi buckwheat plants, utility posts and towers have small footprints, so the utilities would affect a very small percentage of the population. Also, the Applicant has proposed to survey project areas and avoid Tehachapi buckwheat plants not otherwise conserved to the extent possible (see Table 2 of this biological opinion), which should minimize the potential for adverse impacts to the species during utility installation/maintenance.

Potential impacts by utilities associated with the proposed development are included in the discussion of effects of Commercial and Residential Development Activities below.

Backcountry Cabins

Eight backcountry cabins occur in the action area and could be maintained, improved, repaired, replaced, or reconstructed in their existing location or relocated outside of the Condor Study Area. Continued human use of the cabins should not cause meaningful new habitat disturbance, and TRC proposes to ensure that all cabin use be conducted in a manner that would avoid adverse impacts to the Covered Species (see Table 2 of this biological opinion, and Section 2.2.1 of the TUMSHCP). Currently, the Interim RWMP requires that new or relocated cabins be first subject to a site evaluation to avoid impacts to sensitive natural resources, such as Tehachapi buckwheat populations. In addition, prior to relocating an existing cabin, TRC would allow the Service to review and approve (if appropriate) the proposed new location. These measures would likely minimize the impacts of cabins and their use on the Tehachapi buckwheat. Because the Applicant proposes to conserve all known Tehachapi buckwheat plants in the TMV Planning Area Open Space, we do not expect any of these plants to be affected by activities associated with the backcountry cabins, including relocation outside of the Condor Study Area. Some impacts to unknown or newly discovered Tehachapi buckwheat plants may occur, but these will be avoided or effectively minimized by the measures listed in Table 2 and described in Section 7.1.2.5 of the TUMSHCP.

Fencing

Fences exist throughout the action area. Fences would be maintained and new fencing could be constructed and maintained as required to support the proposed activities, including exclusion of cattle from sensitive habitats that support Covered Species. TRC proposes to design and locate new fencing to avoid known occurrences of the covered species. This should effectively avoid or minimize the direct impacts of fences on the Tehachapi buckwheat. Where the Tehachapi buckwheat is discovered or unknown, some effects may occur; however, these effects should be effectively minimized by the measures proposed by TRC (see Table 2 of this biological opinion, and Section 7.1.2.5 of the TUMSHCP).

Lebec/Existing Headquarters Area Uses

Existing activity in the Lebec/Existing Headquarters Area (i.e., corporate headquarters buildings, an antique shop, a post office, a church, and several single-family residences for ranch employees) would continue to occur. While additional development could occur here under the TUMSHCP, TRC has not included development plans for this area in the project description. We expect that activities associated with use of this area will not have any effects on the Tehachapi buckwheat because the species does not occur in these areas nor is modeled suitable habitat present.

Mitigation, Monitoring, and Management

Mitigation, monitoring, and management activities to carry out identified biological goals and objectives for the California condor or other Covered Species included in the TUMSHCP or other resource agency permits for the commercial and residential Covered Activities, as well as mitigation, monitoring, and management activities imposed pursuant to any local, State, or Federal approval of development on Tejon Ranch would be carried out in accordance with the Act and would be subject to Service review. We acknowledge that other agencies may credit the Applicant for mitigation and protective measures included in the TUMSHCP for mitigation imposed by such other agencies. Any restoration, enhancement, or similar mitigation activities would not be allowed if they would result in unpermitted adverse effects to species or critical habitat under the Act. Additionally, any mitigation activities for other agencies would be subject to the protective measures included in Tables 1 and 2, in the Description of the Proposed Action section of this biological opinion. Therefore, we anticipate that any potential threats to the Tehachapi buckwheat as a result mitigation, monitoring, and management activities would be effectively minimized

Estimate of Disturbance Due to Planwide Activities

The Applicant proposes a maximum of 200 acres of ground disturbance associated with the Planwide Activities described above. These ground disturbances would occur outside of the proposed development (discussed below) and may be permanent or temporary. The disturbance

would primarily be associated with construction of roads, backcountry cabins, and ancillary structures. If the Applicant restores a portion of this disturbance, an area equal in size may then be disturbed. Thus, no more than 200 acres may exist in a developed condition because of Planwide Activities at one time.

For the purposes of this effects analysis, we assume that all parts of the action area that could be affected by Planwide Activities have an equal chance of being affected and that all habitat types would be affected in equal proportion. This assumption is based upon the Applicant's inability to predict exactly where 200 acres of habitat disturbance due to Planwide Activities would occur. In addition, there is no indication that the distribution or location of Tehachapi buckwheat modeled habitat would cause Planwide Activities to disproportionately occur in Tehachapi buckwheat modeled habitat.

Also, for the purposes of estimating species-specific habitat disturbance by Planwide Activities, we are not using the 8,817-acre development envelope used by the Applicant to estimate impacts from development (TUMSHCP Table 2-1, footnote 4), but rather we are using the 5,533-acre area that actually could be developed within the development envelope. We did this, because after the 5,533-acre development footprint is developed, 3,284 acres of the 8,817-acre development envelope would remain and be subject to Planwide Activities, and modeled habitat for the Tehachapi buckwheat could occur in the 3,284 acres. Therefore, we included 3,284 acres of the development envelope in this analysis to acquire an estimate of habitat lost by Planwide Activities that is as accurate as possible. When we combine this estimate with anticipated habitat loss from commercial and residential development in a summary effects analysis (discussed below), we will have slightly double-counted and overestimated the amount of Tehachapi buckwheat habitat that would be lost in the action area. We conclude that this does not compromise our analysis because the overlap is very small relative to the size of the action area, and this approach errs on the side of the species by analyzing a larger impact than would actually occur.

Excluding commercial and residential development areas, the National Cement and La Liebre Mines, the VA Cemetery, and Not-A-Part lands (blocks of land within the boundary of the action area but not owned by the Applicant), a total of 12,423 acres within the exterior boundaries of the Covered Lands are not subject to Planwide Activities. We expect that Planwide Activities could occur on the remaining 129,463 acres of the action area (141,886 acres within the action area minus the 12,423 acres of excluded areas above). Therefore, the ratio of disturbance due to Planwide Activities (200 acres) to Covered Lands subject to Planwide Activities (129,463 acres) equals 0.0015. We applied this ratio to Tehachapi buckwheat habitat outside the excluded areas but in the action area and rounded the remainder up to a whole acre. Thus, 2,579 acres of modeled habitat minus 16 acres lost to development (discussed below) equals 2,562 acres subject to Planwide Activities. Using our ratio of 0.0015, we anticipate that Planwide Activities would disturb or remove approximately 4 acres of modeled suitable habitat for the Tehachapi buckwheat over the permit duration.

This could be an overestimate because the Applicant is proposing measures to avoid and minimize disturbance to Tehachapi buckwheat habitat, including preservation of all known existing Tehachapi buckwheat plants and other measures listed in Table 2 to minimize the effects on newly discovered populations. Consequently, we expect the effects to Tehachapi buckwheat habitat to be minimal, especially in comparison to the large area of modeled suitable habitat, and the measures TRC has proposed to all known existing Tehachapi buckwheat plants. While there could be some loss of Tehachapi buckwheat modeled suitable habitat (approximately 4 acres, by our calculation) due to Planwide Activities, in comparison to the modeled suitable habitat conserved and the preservation of known occurrences, we conclude that the loss would not appreciably reduce the numbers, reproduction, or distribution of the species in the wild, and that the approach is consistent with the conservation of the Tehachapi buckwheat.

Commercial and Residential Development Activities

Direct Effects

The Commercial and Residential Development Activities could result in the temporary direct impacts of modeled suitable habitat for the Tehachapi buckwheat. We do not have an exact acreage for these temporary effects. The total area of permanent loss of modeled suitable habitat is expected to be 16 acres. The temporary effects should be substantially less because the TUMSHCP requires flagging and fencing of the disturbance/grading perimeters to mark the limits within which Covered Activities may occur and that may result in loss of modeled suitable habitat. Also, because the effects are temporary, we would expect the modeled suitable habitat for the Tehachapi buckwheat to be able to support the species in the future as the disturbed habitat recovers.

The principal permanent effect of the Commercial and Residential Development Activities on the Tehachapi buckwheat would be from habitat loss. The Applicant has calculated that Covered Activities would result in the permanent loss of 16 acres of modeled suitable habitat for Tehachapi buckwheat within Covered Lands (less than 1 percent of the total modeled Tehachapi buckwheat habitat, and excluding the 4 acres we estimate could be lost due to Planwide Activities). (No modeled suitable habitat for the Tehachapi buckwheat occurs within the Lebec/Existing Headquarters Area.). The TUMSHCP did provide numbers of individual Tehachapi buckwheat plants within the Covered Lands, and we note that the known population of 500 to 600 individuals on Poleline Ridge would be avoided and conserved. For areas of modeled suitable habitat where the presence of the Tehachapi buckwheat is unknown, we do not include an estimate of the number of individual Tehachapi buckwheat plants that could be lost primarily because we have no density figures from which to calculate such losses. With the conservation of all known existing Tehachapi buckwheat plants in the TMV Planning Area Open Space, we expect most impacts due to development to be minor outside of the conserved areas because the species has not been recorded elsewhere (other than the Poleline Ridge area) in the TMV Planning Area during focused surveys.

Because 99 percent of modeled habitat for the Tehachapi buckwheat would be preserved (including all currently known locations) within a large open space system, the proposed impacts to this species as a result of Covered Activities would not appreciably reduce the species' known range, which is currently limited to the Covered Lands. We conclude that the permanent loss of less than 1 percent of modeled suitable habitat within Covered Lands resulting from permanent habitat loss associated with Covered Activities together with implementation of avoidance and minimization measures would not appreciably reduce the species' reproduction, numbers or distribution range-wide, especially considering that all currently known locations would be preserved.

Indirect Effects

The indirect effects of development on the Tehachapi buckwheat could include: introduction of invasive, nonnative species; irrigation and runoff that affects adjacent habitat; loss of pollinator habitat; impacts due to fuel modification; and overspray or drift of pesticides into Tehachapi buckwheat habitat. Such effects do not extend outside the boundaries of the Covered Lands. These indirect effects could result in loss of individual plants and could alter occupied habitat to where the Tehachapi buckwheat cannot persist. We think these scenarios are unlikely to develop given the avoidance and minimization measures the Applicant has proposed, including pre-activity surveys to avoid known locations where the Tehachapi buckwheat occurs, BMPs to control runoff and pesticide use, and measures to control the escape of nonnative species into adjacent open space where the Tehachapi buckwheat would be conserved. We conclude that the indirect effects of development on the Tehachapi buckwheat would be negligible.

The increased population of the development areas is likely to increase the pressure for recreational activities, particularly in the TMV Planning Area. Recreational activities allowed within the TMV Planning Area Open Space are limited to passive recreation as described above under Planwide Activities and in the Project Description. Even so, in the SDEIS for the TUMSHCP, we estimated that the TUMSHCP would increase the human population of the TMV Planning Area by 11,441 people and we expect the recreational activities of future residents of the TMV Planning Area to cause a higher level of disturbance and impacts in this area than in other parts of the action area that are more remote.

If recreation occurs in occupied Tehachapi buckwheat habitat, it could cause a higher level of disturbance and impacts in the TMV Planning Area Open Space than in other parts of the action area that are more remote. To minimize impacts of recreation, TRC would provide Home Owners' Association(s) with educational information regarding acceptable activities in open space areas, including recreational activities and pet restrictions. In addition, the TUMSHCP would require that recreation in the TMV Planning Area Open Space, be conducted in a manner that would avoid adverse impacts to the Covered Species and their habitats or result in less-than-significant impacts. At a minimum, the recreation activities would be planned to avoid sensitive species and known occurrences, and the TUMSHCP would require the use of existing roads and trails where possible. We expect the effects of recreation in the TMV Planning Area Open Space on the Tehachapi buckwheat to be minimal.

The Applicant proposes to clear and thin vegetation within 200 feet of the proposed development, creating an up to 1,773-acre fuel modification zone (although it is likely that the majority of this zone will occur within the development envelope). The expected intensity of disturbance associated with these activities alone would not preclude the Tehachapi buckwheat occupation of modeled habitat near this area; however, the ongoing maintenance of this area, whether by grazing or mechanized means, could affect the buckwheat's occupation or colonization of otherwise suitable habitat. The estimated areal extent in which fuel modification may affect the Tehachapi buckwheat is included in the modeled habitat estimated to be lost within the 8,817-acre development envelope.

TUMSHCP Mitigation

The Applicant proposes to preserve in perpetuity virtually all of the action area outside the development envelope, including 2,562 acres of modeled suitable habitat for the Tehachapi buckwheat. The Applicant would maintain the preserved land in its current condition. The proposed conservation of 99 percent of modeled suitable habitat for the Tehachapi buckwheat is consistent with conservation biology principles calling for large, interconnected blocks of habitat that support a given species' life history requirements. The conservation of the Mitigation Lands would benefit the Tehachapi buckwheat by permanently securing the plants from future habitat loss in the action area and maintaining a large area of Tehachapi buckwheat habitat.

For those potential effects due to development where preservation alone cannot prevent the effects from occurring (e.g., intrusion into modeled suitable habitat), the Applicant has proposed other measures to avoid and minimize the effects of the covered activities on the Tehachapi buckwheat, as listed in Table 2 and in Sections 2.2.1, 2.2.3, and 7.1.2.5 of the TUMSHCP. These additional specific measures will further help conserve the species on the Covered Lands and avoid an appreciable reduction in the reproduction, numbers, and distribution of the Tehachapi buckwheat in the wild.

Summary of Effects Analysis

In determining whether a proposed action is likely to jeopardize the continued existence of a species, we consider the effects of the action with respect to the reproduction, numbers, and distribution of the species. We also consider the effects of the action on the recovery of the species. In that context, the following paragraphs summarize the effects of the proposed TUMSHCP on the Tehachapi buckwheat.

The Planwide Activities and the Commercial and Residential Development Activities could have some effect on the Tehachapi buckwheat. As stated above, TRC estimates that up to 16 acres of modeled suitable habitat could be lost due to development, and we have calculated that in the remainder of the action area that Planwide Activities could affect an additional 4 acres of modeled suitable habitat for the Tehachapi buckwheat, for a total of 20 acres of lost modeled suitable habitat for the species. Considering that the Applicant proposes to conserve 2,562 acres,

the majority (approximately 99 percent) of the modeled suitable habitat on the Covered Lands, including all currently known locations, would be conserved. We conclude that the combination of avoidance and minimization proposed by TRC in addition to the conservation of almost the entire modeled suitable habitat on the Covered Lands and all of the known occurrences of the plant would allow the proposed activities to proceed without appreciably reducing the rangewide reproduction, numbers, and distribution of the Tehachapi buckwheat.

Recovery

The Tehachapi buckwheat is not a listed species, and there are no recovery criteria with which to compare the current and future status of the species. The proposed action could potentially result in minor impacts to the Tehachapi buckwheat within the action area in any area where the species has not been discovered yet but would not appreciably affect the reproduction, numbers or distribution of the Tehachapi buckwheat rangewide. The proposed action would also result in the permanent conservation all known occurrences and 99 percent of suitable modeled habitat for the Tehachapi buckwheat within the action area, which would have long-term, stabilizing benefits to the species by securing all of the species' known range from habitat loss.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section, because they require separate consultation pursuant to section 7 of the Act.

Hunting

Private and commercial hunting operations occur on Tejon Ranch, including the action area; however, hunting is not an activity covered by the TUMSHCP. The Applicant proposes to continue hunting operations on the Covered Lands during the proposed permit term. Hunting in the TMV Planning Area would be limited to guided hunts. Hunting activities involve travel on existing paved and unpaved roads, overnight use of backcountry cabins, hiking, discharging hunting weapons, etc. The effects from hunting will generally be consistent with, and to a considerable extent are captured in, the descriptions of effects for Roads/Trails, Backcountry Cabins, and Recreation described above. Therefore, we expect that hunting in the action area will have negligible cumulative effects on the Tehachapi buckwheat.

Mining

Two commercial mining operations occur in the action area, La Liebre and National Cement; these mining operations are not covered activities under the TUMSHCP. The total area used for the two operations is about 2,636 acres, and the Applicant would maintain the mining leases through the proposed permit term. The species is not known to occur in proximity to the mines; however, the Applicant estimates that the mining areas may support up to 633 acres of modeled

suitable habitat for the Tehachapi buckwheat. Because much of the mining areas is already disturbed, and the effects of mining occur in a small area relative to the amount of modeled suitable habitat in the action area, we conclude that continued mining in the action area will have only negligible cumulative effects on the Tehachapi buckwheat.

Other Activities

As discussed above under project description, within the external boundaries of the Plan Area, there are existing inholdings and utilities. The Bakersfield National Cemetery also occurs inside the Covered Lands. These projects and activities are not Covered Activities under the TUMSHCP. We are not aware of any reasonably foreseeable activities within the 3,870 acres of inholdings that may affect the Tehachapi buckwheat. Activities associated with utilities, transmission lines and related structures, such as maintenance activities, would be restricted to currently established easement areas and would have only minor, if any, effects on Tehachapi buckwheat habitat. Therefore, we do not anticipate any cumulative effects from the ongoing maintenance and operation of non-covered existing utilities. The Bakersfield National Cemetery is in place, and we are not aware of any activities associated with the cemetery that may have an adverse effect on Tehachapi buckwheat.

CONCLUSION

After reviewing the current status of the Tehachapi buckwheat, the environmental baseline for the action area, the effects of the proposed TUMSHCP and the cumulative effects, it is the Service's biological opinion that the implementation of the TUMSHCP, as proposed, is not likely to jeopardize the continued existence of the Tehachapi buckwheat. We have reached this conclusion for the following reasons:

1. TRC would conserve large areas potentially occupied by the species but not yet surveyed; approximately 2,562 acres of the modeled suitable habitat (or approximately 99 percent) would be conserved in perpetuity.

2. All currently known locations where the Tehachapi buckwheat has been recorded (up to 600 plants) would be conserved in perpetuity.

3. Where the modeled suitable habitat overlaps with proposed activities, TRC proposes to conduct pre-activity surveys and carry out the action while avoiding populations of the Tehachapi buckwheat.
4. The large area of conservation that includes the Tehachapi buckwheat should ensure the species persists and thus the TUMSHCP would contribute to the species’ survival and recovery.

We conclude that the likelihood of the survival of the Tehachapi buckwheat would not be diminished by the proposed action principally because of the extensive habitat preservation that would result. Although there are no recovery criteria for the Tehachapi buckwheat, the measures

proposed by the Applicant are consistent with typical rare plant conservation approaches, especially habitat preservation. Therefore, we further conclude that the proposed action would not diminish the likelihood of the recovery of the Tehachapi buckwheat.

INCIDENTAL TAKE STATEMENT

Take of plant species is not prohibited under the Act; therefore Section 7(b)(4) and 7(o)(2) of the Act do not apply to plant species and no incidental take statement is provided for the Tehachapi buckwheat. Limited protection of listed plants is provided to the extent that the Act prohibits the removal and reduction to possession of federally listed endangered plants or the malicious damage of such plants on areas under Federal jurisdiction, or the destruction of listed plants on non-Federal areas in violation of State law or regulation or in the course of any violation of a State criminal trespass law. As described above, the proposed TUMSHCP and associated documents identify anticipated impacts to the Tehachapi buckwheat as well as measures that are necessary and appropriate to minimize those impacts.

TEJON POPPY

STATUS OF THE SPECIES

Regulatory History

The Tejon poppy (*Eschscholzia lemmonii* ssp. *kernensis*) has no Federal or State designation, but it is a CNPS List 1B.1 species. CNPS List 1B species are considered rare, threatened, or endangered in California and elsewhere (CNPS 2008). CNPS species with a threat rank of .1 are "seriously endangered in California, with over 80 percent of occurrences threatened/high degree and immediacy of threat" (CNPS 2008). The Tejon poppy has a California Heritage Element Ranking of S1, indicating that there are less than 6 occurrences of this species; less than 1,000 individuals; or that the species occupies less than 2,000 acres in California (CDFG 2007c).

Natural History/Habitat Requirements

Tejon poppy was originally named *Eschscholzia caespitosa* ssp. *kernensis*, but was renamed in 1986 because it had more characteristics in common with Lemmon's poppy *(E. lemmonii* ssp. *lemmonii)* than with tufted poppy *(E. caespitosa)* (Cypher 2006). Tejon poppy is 2 to 12 inches (5 to 30 centimeters) tall with deeply dissected leaves and orange or deep yellow flowers. The petals on this species are 1 to 2 inches (2 to 4 centimeters) long (Hickman 1996). The elongate, cylindrical fruit contains tiny, bur-like seeds. Unlike California poppy (*E. californica*), Tejon poppy lacks a conspicuous receptacle rim beneath the flower. Tejon poppy can be differentiated from Lemmon's poppy by its erect, glabrous (lacking hairs or bristles) buds. Tejon poppy has smoother seeds and larger, darker flowers than tufted poppy (Cypher 2006).

Tejon poppy is an annual and flowers from March to May (CNPS 2008). It is normally scarce, but it can grow in dense colonies in wet years. In certain areas, Tejon poppy is present in all but the driest years (Twisselmann 1967). The capsules (i.e., seed-bearing fruit) of plants in the genus *Eschscholzia* are septicidal and described as being "explosively xerochastic," (Clark and Jernstedt 1978). "Xerochastic" describes the manner in which capsules open along the seams of the fruit (i.e., septicidal) as it dehisces (discharges contents by splitting along natural line). Explosive dehiscence provides short-distance dispersal, but in an extensive study of seed and seed coat morphology, Clark and Jernstedt (1978) observed that seeds in many species of *Eschscholzia*, including *E. lemmonii*, appear to be adapted for runoff dispersal that can occur over greater distances. Other specific details regarding the life history of Tejon poppy, such as pollinators and predators, are not known (Cypher 2006).

Tejon poppy occurs in chenopod scrub and in valley and foothill grassland habitats (CDFW 2013). More specifically, it has been documented in valley saltbush scrub and non-native grassland habitats (CDFW 2013). Tejon poppy grows on clay soils (Cypher 2006, CDFW 2013, Twisselmann 1967) between 525 and 3,280 feet amsl (160 and 1,000 meters) in elevation (CNPS 2008). Populations typically occur on south-facing slopes that are often steep (CDFW 2013).

Most of the verified reports of Tejon poppy in the CNDDB (CDFW 2013) are from valley saltbush scrub, with common saltbush (*Atriplex polycarpa*) and non-native annual grasses such as red brome (*Bromus madritensis* ssp. *rubens*), wild oats (*Avena fatua*), and rat-tail fescue (*Vulpia myuros*). Spiny saltbush (*Atriplex spinifera*) is also listed as an associate of Tejon poppy in these areas. Records of Tejon poppy from the 1960s from Comanche Point included Kern brodiaea (*Brodiaea terrestris* ssp. *kernensis*), sunset lupine (*Lupinus microcarpus* var. *horizontalis*), and Comanche Point layia (*Layia leucopappa*) as associated plant species (Cypher 2006).

Distribution and Population Trends

Because there are no known occurrences of Tejon poppy in the Covered Lands based upon a literature review (CDFW 2013), and because the species was not observed during surveys conducted in the TMV Planning Area portion of the Covered Lands, a specific description of habitat used by this species in the Covered Lands is not available. However, Tejon poppy could potentially occur within portions of the Covered Lands where habitat is present that is similar to where the species has been recorded elsewhere.

In general, the Tejon poppy is endemic to central and western Kern County. The Jepson Online Interchange for California Floristics (Jepson Flora Project 2011) lists the southwest Tehachapi Mountain Area and northern Western Transverse Ranges as the geographic regions in which Tejon poppy occurs. Tejon poppy is reported from 17 UUSGS quadrangles: Grapevine, Bear Mountain, Tejon Ranch, Arvin, Tejon Hills, Coal Oil Canyon, Taft, Maricopa, Fellows, Panorama Hills, Bena, East Elk Hills, Tupman, Reward, West Elk Hills, Pine Mountain, and Pleito Hills (CNPS 2008; CDFW 2013). Collections of this plant have been made from Kern County (SMASCH 2007).

The CNDDB includes 58 records of this species (CDFW 2013), all of which are assumed to be extant. Tejon poppy is known to be extant in Elk Hills, but populations documented in older literature reports and collections from Comanche Point, Tejon Hills, Dry Bog Knoll in the Greenhorn Range foothills, near the mouth of Salt Creek, south of Maricopa near Devil's Gulch, and in the mesas east of Bakersfield have not been revisited in three or more decades (CDFW 2013, Twisselmann 1967, Cypher 2006). Habitats in these areas have not been altered significantly, so these populations are assumed to be extant (Cypher 2006).

Most of the occurrences are on private property, but several are on lands owned by the Department of Energy (DOE) or Bureau of Land Management in Elk Hills. The majority of the occurrences of Tejon poppy in Elk Hills, however, are on lands owned by Occidental Petroleum (CDFW 2013). Land ownership at six occurrences, including most of the occurrences documented before 1970, is not known.

Reasons for Decline

Tejon poppy has always been rare due to its restricted range and affinity for clay soils (Cypher 2006). In 1997, the DOE sponsored floristic surveys in Elk Hills that led to the discovery of four colonies of Tejon poppy. Continued surveys at Elk Hills sponsored by Occidental Petroleum may reveal additional populations in the area (Cypher 2006). No populations of Tejon poppy are known to have been extirpated, so the status of this species is assumed to be stable.

Although the known occurrences are presumed to be extant, the Tejon poppy occurs in areas affected by oilfield development and related petroleum production activities in Elk Hills and could be impacted by such development (CDFW 2013). The Tejon poppy may also be affected by grazing and competition from non-native plants (CNPS 2008; Cypher 2006).

ENVIRONMENTAL BASELINE

The Applicant's consultants conducted presence/absence surveys for the Tejon poppy within the TMV Planning Area. Tejon poppy was not observed in the TMV Planning Area during the presence/absence surveys, and the CNDDB has no records of Tejon poppy in the Covered Lands. Numerous CNDDB records indicate that the Tejon poppy occurs west of the Covered Lands in Kern County. Three records are from TRC property, but outside the Covered Lands: the nearest occurrence is approximately 1 mile southwest of the northern section of the Covered Lands and two other occurrences are west of the Covered Lands in the Tejon Hills (CDFW 2013).

The Applicant modeled suitable habitat for this species on the Covered Lands. The model included grassland and scrub vegetation communities on all soils that occur at elevations between 500 and 3,300 feet amsl. According to the modeling, the Covered Lands potentially support 12,672 acres of suitable habitat for Tejon poppy.

Recovery

Because the species is not federally listed, we have not developed a recovery plan for the Tejon poppy. To address the potential recovery of the species, we consider general concepts for the conservation of rare plants. These include the preservation of existing populations, ensuring adequate space for the species to fluctuate its distribution in response to edaphic factors, continuation of dispersal mechanisms, control of exotic invasive plants, and maintenance of natural pollinator communities. The principal way of achieving these goals is preservation of suitable habitat with adequate buffers from human alterations. In addition, restoration of formerly suitable habitat areas can contribute to the species' recovery. Once enough space has been preserved and restored, rare plant species should be able to persist and perhaps increase to historical levels.

EFFECTS OF THE ACTION

Planwide Activities

Livestock

The Applicant proposes to graze livestock on the balance of the action area outside the development areas, consistent with the types and level of historical grazing and ranch management practices. Plants are susceptible to the presence of livestock primarily due to direct grazing or browsing. We do not know if the Tejon poppy is palatable to livestock, but we cannot rule out the possibility that cattle will graze on the species, if present, during normal feeding. Light grazing at the appropriate time of year may be beneficial if the grazing controls nonnative species that compete with or exclude the Tejon poppy. The relationship between past grazing practices and the species' current status is not clear, although grazing on the individual plants would be detrimental. Under the TUMSHCP, the Applicant must submit grazing management plans to the Service every 5 years for review and approval. Our review of such plans will allow for the implementation of additional measures or modification of grazing practices to ensure the compatibility of grazing with the conservation of the Tejon poppy if any occurrences are discovered in the future on the Covered Lands. Therefore, we expect livestock to have minor effects on the Tehachapi buckwheat.

Cattle can also affect plants directly through trampling. Again, we have no measure of the effects of trampling by livestock on the Tejon poppy, but we know that if the plant is present, it has persisted on the Covered Lands despite trampling effects that may have occurred over the long period of historical cattle grazing. We conclude that the Tejon poppy may be affected by livestock trampling, but lacking both information about such effects and no reported extant occurrences of the plant on the Covered Lands, we can make no assessment of the likely effect of trampling of the Tejon poppy by cattle.

Overall, we do not know if the species' distribution would be broader or if it would have been recorded on the Covered Lands during recent surveys in the absence of livestock. The Applicant has proposed to take steps to avoid and minimize the effects of this and other Planwide Activities (see Table 2 of this biological opinion, and Section 7.1.2.6 of the TUMSHCP), which should help with the species' conservation on the Covered Lands if it is found during subsequent surveys. Further, under the TUMSHCP, the Applicant must submit a grazing management plan, as a component of the RWMP, to the Service every 5 years for our review, which regulates livestock grazing in order to continue to maintain the habitats that are defined by the parameters in the suitable habitat model for the poppy. Our review of such plans will allow for the implementation of additional measures or modification of grazing practices to ensure the compatibility of grazing with the conservation of the Tejon poppy, if it is discovered on the Covered Lands. Overall, we expect livestock to have a minor effect on the Tejon poppy.

Range Management/Ancillary Ranch Structures

Range management activities support livestock operations and consist of construction, operation, and maintenance of watering facilities, feeding areas, fences, and corrals, consistent with the types and level of historical grazing and ranch management practices; repair, reconstruction, and relocation of roads to accommodate historical grazing and ranch management practices; and repair, maintenance, or installation of ranch management communication equipment (e.g., whip antennas) that are less than 20 feet high. The repair, reconstruction and relocation of roads to accommodate historical grazing and ranch management practices are evaluated below under Roads. Range management also incorporates ancillary ranch structures including squeezes, loading chutes, holding and feeding fields, corrals, branding traps, barns, sewage disposal facilities, livestock and wildlife watering facilities, and utilities serving existing ranch uses.

As described above under Planwide Activities in the Description of the Proposed Action section, *de-minimis* activities associated with ancillary ranch structures would be covered under the TUMSHCP. Non-*de minimis* activities associated with ancillary ranch structures are also allowed (1) if the activity is located in disturbed areas (e.g., undergrounding utilities in road rights-of-way), or (2) following a meet-and-confer process with the Service to ensure that the activity associated with an ancillary ranch structure avoids or adequately minimizes impacts to Covered Species and their habitats.

If range management activities (especially new facilities) were to take place in areas where the Tejon poppy grows, the individual plants could be removed. The Applicant proposes to conduct surveys prior to such disturbance and avoid, to extent practicable, and minimize effects to the Tejon poppy in areas where the species is found during future surveys (see Table 2 of this biological opinion). This measure should be sufficient to avoid removal of Tejon poppy plants as a result of ranch construction and modification activities.

Fuel Management

Fuel management practices would consist primarily of grazing, and the effects of fuel management by grazing should be largely consistent with the effects of livestock. Other fuel management activities include fuel modification zones created (1) by existing roads, and (2) through irrigation and/or vegetation clearing and mowing within 120 feet surrounding existing structures (i.e., backcountry cabins, ancillary ranch structures, and other existing structures).

If Tejon poppies fall within the zone designated for fuel clearance, individual plants could be lost, and repeated disturbance could prevent them from re-establishing. Because the Tejon poppy is an annual, it may be able to survive in fuel clearance zones, provided the zones are cleared after the Tejon poppy has concluded flowering and seed set. In any case, the Applicant has proposed to survey for the Tejon poppy and avoid fuel clearance where the species is discovered, to the extent possible, (Section 7.1.2.6 of the TUMSHCP). Therefore, we expect the effects on the Tejon poppy, if any, to be minor because the species is not currently known to occur on the Covered Lands and the Applicant has proposed measures (Table 2 of this biological opinion) to avoid and minimize effects if it is detected.

Fuel management associated with proposed development is discussed below under Commercial and Residential Development Activities.

Filming

Filming activities generally consist of temporary on-scene filming and photography-related uses, including, but not limited to the filming and staging of movies, television shows, and commercials; photo shoots; and still photography and related uses. Such activities may include the erection and dismantling of props, temporary installation of trailers and equipment for film crews, filming of on-camera action, catering, rehabilitation of disturbed areas, and the movement of film crews to and from locations.

The primary effect of filming on the Tejon poppy would be from habitat disturbance during the staging of production. The TUMSHCP (Section 2.2.1) states that the RWMP will include best management practices for filming activities and the Interim RWMP requires that any temporary construction related to film production be first reviewed to avoid sensitive resources, and that any areas disturbed by filming are restored to pre-filming condition, including revegetation (Interim RWMP). We expect the effects of filming on the Tejon poppy to be negligible.

Recreation

Recreation associated with the Planwide Activities includes private recreation by TRC, its employees and guests and public access is governed by the Interim RWMP and managed by the Conservancy. Such recreational use is also subject to the terms of the TUMSHCP and the terms of Service-approved conservation easements. While the private recreation by TRC occurs currently throughout the Covered Lands, public recreation, which generally consists of docent led tours by the Conservancy per the Interim RWMP, occurs in the Established Open Space portion of the Mitigation Lands.

Public and private recreation uses are limited to passive activities listed in the Project Description. Recreation activities associated with Planwide Activities would occur in open space areas generally outside the TMV Planning Area at a relatively small scale, and have infrequent impacts. Recreational uses by TRC, its employees, and the public are limited by the access guidelines and best management practices in the Interim RWMP and will be further regulated in Public Access Plans, which are subject to permanent Service review and approval.

Some recreational activities could affect individual Tejon poppy plants, but we expect such effects to be minimal, in part due to the proposed measures to document locations of the plant and direct such activities away from sensitive areas (see Table 2 of this biological opinion, and Sections 2.2.1 and 7.1.2.6 of the TUMSHCP). While some trampling and other recreation-related effects may occur, these should be negligible due to the low likelihood that such activities would overlap with the Tejon poppy occurrences on the Covered Lands (i.e., the Tejon poppy has not been detected on the Covered Lands, so we anticipate that it is not common on the

Covered Lands, and is therefore not likely to be encountered during casual recreational activities).

Irrigation/Water Diversion

The action area contains existing water diversions for irrigation of agriculture inside and outside the action area, and a few small agricultural areas totaling about 232 acres exist in the TMV Planning Area (e.g., small vineyards and an orchard near Castac Lake). Agricultural uses that remain in open space after TRC identifies the final development footprint will continue subject to State and local regulations. We do not anticipate any adverse impacts to the Tejon poppy from on-going agricultural activity, because the action area contains existing water diversions for irrigation of agriculture inside and outside of the action area. No additional diversions are proposed and maintenance and relocation work, if any, is subject to the survey and avoidance requirements in the TUMSHCP, and prior to TRC relocating water diversions, the Service would review and approve the proposed new locations.

Agricultural uses that remain in open space after TRC identifies the final development footprint will continue. Due to repeated disturbance for tilling and preparation for planting, irrigation of agricultural areas by these facilities is unlikely to have an effect on the Tejon poppy because the species would not be present (i.e., irrigated lands do not support suitable habitat for Tejon poppy). Agriculture is a very small percentage of the land use in the action area and will remain so throughout the life of the proposed ITP due to the Applicant’s commitment to conserve areas within the Covered Lands outside of development. Future development does not include expansion of existing agricultural fields. Therefore, we do not anticipate any effects to the Tejon poppy from irrigation or water diversion.

Roads/Trails

A network of generally unpaved roads exists in the action area. As described in the TUMSHCP, the roads outside the development areas would be maintained, relocated, or new roads could be constructed, in compliance with the 200-acre limit on disturbance by Planwide Activities, to facilitate the Planwide Activities. The unimproved dirt roads exist for access for fire protection, security, ranching activities, and hunting. Any new or relocated roads will be sited to avoid impacts to sensitive resources, including plants. In general, the likelihood of impacts is low, because the majority of modeled suitable habitat is in areas with infrequent road/trail use. Road/trail use is expected to be irregular and of low intensity, and we do not expect the presence and use of roads/trails to preclude the poppy's occupation of the area.

However, if new roads are constructed in areas where the poppy occurs, motorized vehicles, horses, off-highway vehicles, bicycles, etc. could destroy individual Tejon poppy plants. Road maintenance could damage and kill individuals that are missed during survey efforts. However, the Tejon poppy is not likely to occur on existing roads or trails due to frequent disturbance. The plants may grow adjacent to established roads and trails, but the species is most likely to be affected when new roads or trails are established or relocated. TRC has proposed to survey for

and avoid, as much as possible, areas where the Tejon poppy is discovered. Because the Tejon poppy has not been observed on the Covered Lands and TRC has proposed to avoid the plant where it is found during future surveys, we expect the effects of roads and trails to be negligible.

Utilities

The action area contains, or would contain, various small utilities to support ranch activities. As described in Section 2.2.1 of the TUMSHCP, these utilities would be *de minimis* or would be located in previously disturbed areas (e.g., undergrounding utilities in road rights-of-way). Any utilities associated with Planwide Activities that are not *de minimis* or cannot be located in previously disturbed areas would require Service review and approval prior to relocation or construction.

Installation or maintenance of utilities to support ranch activities could potentially affect the Tejon poppy, if it occurs on the Covered Lands, by disturbing habitat or killing individual plants. We do not expect utilities to have an appreciable impact on the Tejon poppy because utility posts and towers have small footprints, the utilities affect a very small percentage of the action area, and there are no documented occurrences of Tejon poppy in the action area. Also, the Applicant has proposed to survey project areas and, if the Tejon poppy is discovered, to avoid Tejon poppy to the extent possible, which should minimize the potential for adverse impacts to the species during utility installation/maintenance (see Table 2 of this biological opinion).

Potential impacts by utilities associated with the proposed development are included in the discussion of effects of Commercial and Residential Development Activities below.

Backcountry Cabins

Eight backcountry cabins occur in the action area and could be maintained, improved, repaired, replaced, or reconstructed in their existing location or relocated outside of the Condor Study Area. Currently, the Interim RWMP requires that new or relocated cabins be first subject to a site evaluation to avoid impacts to sensitive natural resources, such as Tejon poppy populations. In addition, prior to relocating an existing cabin, TRC would allow the Service to review and approve (if appropriate) the proposed new location. Human use of the cabins should not cause meaningful new habitat disturbance, and TRC proposes to ensure that all cabin use be conducted in a manner that would avoid adverse impacts to the Covered Species, as described in Table 2 and in Section 7.1.2.6 of the TUMSHCP. These measures should avoid or effectively minimize the impacts of cabins and their use on the Tejon poppy, if the species is discovered on the Covered Lands. We expect the effects on Tejon poppy form the use and maintenance of backcountry cabins to be minor, if any occur at all.

Fencing

Fences exist throughout the action area. Fences would be maintained and new fencing could be constructed and maintained as required to support the proposed activities, including exclusion of

cattle from sensitive habitats that support Covered Species. The Applicant proposes to design and locate new fencing to avoid known occurrences of the covered species (see Table 2 of this biological opinion, and Sections 2.2.1 and 7.1.2.6 of the TUMSHCP). These measures should effectively avoid or minimize the direct impacts of fences on the Tejon poppy, if the species is discovered on the Covered Lands.

Lebec/Existing Headquarters Area Uses

Existing activity in the Lebec/Existing Headquarters Area (i.e., corporate headquarters buildings, an antique shop, a post office, a church, and several single-family residences for ranch employees) would continue to occur. While additional development could occur here under the TUMSHCP, the Applicant does not currently have development plans for this area in the project description. No occurrences of Tejon poppy are known from the Lebec/Existing Headquarters Area, but the area does support modeled suitable habitat. The TUMSHCP requires pre-grading surveys for the species and avoidance of individuals, or minimization to the extent practicable, if full avoidance is not practicable (TUMSHCP, Section 7.1.2.6). We therefore expect that activities associated with use of this area would have negligible effects on the Tejon poppy.

Mitigation, Monitoring, and Management

Mitigation, monitoring, and management activities to carry out identified biological goals and objectives for the California condor or other Covered Species included in the TUMSHCP or other resource agency permits for the commercial and residential Covered Activities, as well as mitigation, monitoring, and management activities imposed pursuant to any local, State, or Federal approval of development on Tejon Ranch would be carried out in accordance with the Act and would be subject to Service review. We acknowledge that other agencies may credit TRC for mitigation and protective measures included in the TUMSHCP for mitigation imposed by such other agencies. Any restoration, enhancement, or similar mitigation activities would not be allowed if they would result in unpermitted adverse effects to species or critical habitat under the Act. Additionally, any mitigation activities for other agencies would be subject to the protective measures included in Tables 1 and 2, in the Description of the Proposed Action section of this biological opinion. Therefore, we anticipate that any potential threats to the Tejon poppy as a result mitigation, monitoring, and management activities would be effectively avoided or minimized.

Estimate of Disturbance Due to Planwide Activities

The Applicant proposes a maximum of 200 acres of ground disturbance associated with the Planwide Activities described above. These ground disturbances would occur outside of the proposed development (discussed below) and may be permanent or temporary. The disturbance would primarily be associated with construction of roads, backcountry cabins, and ancillary structures. If the Applicant restores a portion of this disturbance, an area equal in size may then be disturbed. Thus, no more than 200 acres may exist in a developed condition because of Planwide Activities at one time.

For the purposes of this effects analysis, we assume that all parts of the action area that could be affected by Planwide Activities have an equal chance of being affected and that all habitat types would be affected in equal proportion. This assumption is based upon the Applicant's inability to predict exactly where 200 acres of habitat disturbance due to Planwide Activities would occur. In addition, there is no indication that the distribution or location of Tejon poppy modeled habitat would cause Planwide Activities to disproportionately occur in Tejon poppy modeled habitat.

Also, for the purposes of estimating species-specific habitat disturbance by Planwide Activities, we are not using the 8,817-acre development envelope used by the Applicant to estimate impacts from development (TUMSHCP Table 2-1, footnote 4), but rather we are using the 5,533-acre area that actually could be developed within the development envelope. We did this, because after the 5,533-acre development footprint is developed, 3,284 acres of the 8,817-acre development envelope would remain and be subject to Planwide Activities, and modeled habitat for the Tejon poppy could occur in the 3,284 acres. Therefore, we included 3,284 acres of the development envelope in this analysis to acquire an estimate of habitat lost by Planwide Activities that is as accurate as possible. When we combine this estimate with anticipated habitat loss from commercial and residential development in a summary effects analysis (discussed below), we will have slightly double-counted and overestimated the amount of Tejon poppy habitat that would be lost in the action area. We conclude that this does not compromise our analysis because the overlap is very small relative to the size of the action area, and this approach errs on the side of the species by analyzing a larger impact than would actually occur.

Excluding commercial and residential development areas, the National Cement and La Liebre Mines, the VA Cemetery, and Not-A-Part lands (blocks of land within the boundary of the action area but not owned by TRC), a total of 12,423 acres within the exterior boundaries of the plan area are not subject to Planwide Activities. We expect that Planwide Activities could occur on the remaining 129,463 acres of the action area (141,886 acres within the action area minus the 12,423 acres of excluded areas above). Therefore, the ratio of disturbance due to Planwide Activities (200 acres) to covered lands subject to Planwide Activities (129,463 acres) equals 0.0015. We applied this ratio to Tejon poppy habitat outside the excluded areas but in the action area and rounded the remainder up to a whole acre. Thus, 12,672 acres of modeled habitat minus 108 acres lost to development equals 12,564 acres subject to Planwide Activities. Using our ratio of 0.0015, we anticipate that Planwide Activities would disturb or remove approximately 19 acres (0.15 percent) of modeled suitable habitat for the Tejon poppy over the permit duration.

This could be an overestimate because TRC is proposing measures to avoid and minimize disturbance to Tejon poppy habitat, as described in Table 2 and in Section 7.1.2.6 of the TUMSHCP. Consequently, we expect the effects to Tejon poppy habitat to be minimal, especially in comparison to the large area of modeled suitable habitat, and the measures TRC has proposed to avoid affecting Tejon poppy habitat. While there could be some loss of Tejon poppy modeled suitable habitat (approximately 19 acres) due to Planwide Activities, in comparison to the modeled suitable habitat conserved, we conclude that the loss would not appreciably reduce the rangewide numbers, reproduction, or distribution of the species, particularly because there

are no documented occurrences of the Tejon poppy on the Covered Lands and under the TUMSHCP, any occurrences discovered during development or construction related Planwide Activities would be avoided to the extent possible.

Commercial and Residential Development Activities

Direct Effects

The Commercial and Residential Development Activities could result in the temporary direct impacts of modeled suitable habitat for the Tejon poppy. We do not have an exact acreage for these temporary effects. The total area of permanent loss of modeled suitable habitat is expected to be 108 acres, so the temporary effects should be substantially less, in part because the Applicant has proposed to minimize the footprint of work areas with flagging and fencing of the disturbance/grading perimeters to mark the limits within which Covered Activities may occur and that may result in loss of modeled suitable habitat. Also, because the effects are temporary, we would expect the modeled suitable habitat for the Tejon poppy to be able to support the species in the future as the disturbed habitat recovers.

The principal permanent effect of the proposed development on the Tejon poppy would be from habitat loss. The Applicant has calculated that Covered Activities would result in the permanent loss of 108 acres of modeled suitable habitat for Tejon poppy within Covered Lands (less than 1 percent of the total modeled Tejon poppy habitat in the Covered Lands excluding the 19 acres of lost suitable modeled habitat estimated from Planwide Activities). This habitat loss includes any modeled habitat for the Tejon poppy lost as a result of development activities in the Lebec/Existing Headquarters area. Although the TUMSHCP did provide numbers of individual Tejon poppy plants that could be affected under various scenarios, we do not include an estimate of the number of individual Tejon poppy plants that could be lost within that area, primarily because there are no documented occurrences of Tejon poppy on the Covered Lands from which to derive an estimate. Also, the Tejon poppy is an annual and numbers of individuals of an annual plant can fluctuate greatly from year-to-year, depending upon climatic conditions. Because the numbers can fluctuate so widely, occupied area is a better indicator of the species' occurrence than is the number of individuals.

Because 99 percent of modeled suitable habitat for the Tejon poppy would be preserved within a large open space system and there are no documented occurrences of the species on the Covered Lands potential impacts resulting from the Covered Activities would not appreciably affect the species within the Covered Lands or within its broader range within California. We conclude that the permanent loss of less than 1 percent of modeled suitable habitat within Covered Lands resulting from habitat loss associated with Covered Activities together with implementation of avoidance and minimization measures would not appreciably reduce the species' reproduction, numbers, or distribution range-wide. Occurrences of Tejon poppy discovered in the future would be preserved to the extent possible under the TUMSHCP.

Indirect Effects

The indirect effects of development on the Tejon poppy could include: introduction of invasive, nonnative plants; irrigation and runoff that affects adjacent habitat; loss of pollinator habitat; impacts due to fuel modification; and overspray or drift of pesticides into Tejon poppy habitat. Such effects do not extend outside the boundaries of the Covered Lands. These indirect effects could result in loss of individual plants and could alter occupied habitat to where the Tejon poppy cannot persist. We think these scenarios are unlikely to develop given the avoidance and minimization measures TRC has proposed (see Table 2 of this biological opinion, and Sections 2.2.1 and 7.1.2.6 of the TUMSHCP), including pre-activity surveys to avoid any locations where the Tejon poppy is discovered, BMPs to control runoff and pesticide use, and measures to control the escape of nonnative plants into adjacent open space where any discovered occurrences of the Tejon poppy would be conserved. The potential indirect effects on the Tejon poppy should be negligible.

The increased population of the development areas is likely to increase the pressure for recreational activities, particularly in the TMV Planning Area. Recreational activities allowed within the TMV Planning Area Open Space are limited to passive recreation as described above under Planwide Activities and in the Project Description. Even so, in the SDEIS for the TUMSHCP, we estimated that the TUMSHCP would increase the human population of the TMV Planning Area by 11,441 people and we expect the recreational activities of future residents of the TMV Planning Area to cause a higher level of disturbance and impacts in this area than in other parts of the action area that are more remote.

If recreation occurs in occupied Tejon poppy habitat, it could cause a higher level of disturbance and impacts in the TMV Planning Area Open Space than in other parts of the action area that are more remote. To minimize impacts of recreation, TRC would provide Home Owners' Association(s) with educational information regarding acceptable activities in open space areas, including recreational activities and pet restrictions. In addition, the TUMSHCP would require that recreation in the TMV Planning Area Open Space, be conducted in a manner that would avoid adverse impacts to the Covered Species and their habitats or result in less-than-significant impacts. At a minimum, the recreation activities would be planned to avoid sensitive species and known occurrences, and the TUMSHCP would require the use of existing roads and trails where possible. We expect the effects of recreation in the TMV Planning Area Open Space on the Tejon poppy to be minimal.

The Applicant proposes to clear and thin vegetation within 200 feet of the proposed development, creating an up to 1,773-acre fuel modification zone. The ongoing maintenance of this area, whether by grazing or mechanized means, could affect the species' occupation or colonization of otherwise suitable habitat. The estimated areal extent in which fuel management may affect the poppy is included in the 108 acres of modeled habitat estimated to be lost within the 8,817-acre development envelope.

TUMSHCP Mitigation

The Applicant proposes to preserve in perpetuity virtually all of the action area outside the development envelope, including 12,533 acres of modeled suitable habitat for the Tejon poppy. The Applicant would maintain the preserved land in its current condition. The proposed conservation of more than 99 percent of modeled suitable habitat for the Tejon poppy is consistent with conservation biology principles calling for large, interconnected blocks of habitat that support a given species' life history requirements. The conservation of the Mitigation Lands would benefit the Tejon poppy by permanently securing them from future habitat loss in the action area and maintaining a large area of Tejon poppy habitat.

Summary of Effects Analysis

In determining whether a proposed action is likely to jeopardize the continued existence of a species, we consider the effects of the action with respect to the reproduction, numbers, and distribution of the species. We also consider the effects of the action on the recovery of the species. In that context, the following paragraphs summarize the effects of the proposed TUMSHCP on the Tejon poppy.

The Planwide Activities and the proposed development could potentially have some effect on the modeled suitable habitat for the Tejon poppy; however, because there are no known occurrences of the species on the covered lands, we cannot conclude that covered activities would cause any effect to any individuals at this time. As stated above, TRC estimates that up to 108 acres of modeled suitable habitat could be lost due to development, and we have calculated that in the remainder of the action area that Planwide Activities could affect an additional 19 acres of modeled suitable habitat for the Tejon poppy, for a total of 127 acres of lost modeled suitable habitat for the species. Considering that the Applicant proposes to conserve 12,533 acres, the majority (approximately 99 percent) of the modeled suitable habitat on the Covered Lands would be conserved. We conclude that the combination of avoidance and minimization measures proposed by TRC in addition to the conservation of virtually the entire modeled suitable habitat on the Covered Lands would allow the proposed activities to proceed without reducing the reproduction, numbers, and distribution of the Tejon poppy rangewide.

Recovery

TRC proposes to preserve in perpetuity the balance of the action area outside the development areas, including 12,533 acres of the modeled suitable habitat for the Tejon poppy. TRC would maintain the preserved land in its current condition. Considering the absence of any documented occurrences of the species on the covered lands, the preservation of 99 percent of modeled suitable habitat on the Covered Lands is consistent with the species' conservation.

For those potential effects due to development where preservation alone cannot prevent the effects from occurring (e.g., intrusion into modeled suitable Tejon poppy habitat), TRC has proposed other measures to avoid and minimize the effects of the covered activities on the Tejon

poppy (see Table 2 and Section 7.1.2.6 of the TUMSHCP) if it is discovered during pre-activity surveys. These additional specific measures will further help conserve the species on the Covered Lands and contribute to the recovery of the species rangewide.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section, because they require separate consultation pursuant to section 7 of the Act.

Hunting

Private and commercial hunting operations occur on Tejon Ranch, including the action area; however, hunting is not an activity covered by the TUMSHCP. The Applicant proposes to continue hunting operations on the Covered Lands during the proposed permit term. Hunting activities involve travel on existing paved and unpaved roads, overnight use of backcountry cabins, hiking, discharging hunting weapons, etc. The effects from hunting will generally be consistent with, and to a considerable extent are captured in, the descriptions of effects for Roads/Trails, Backcountry Cabins, and Recreation described above. Therefore, we expect that hunting in the action area will have negligible cumulative effects on the Tejon poppy.

Mining

Two commercial mining operations occur in the action area, La Liebre and National Cement; these mining operations are not covered activities under the TUMSHCP. The total area used for the two operations is about 2,636 acres, and the Applicant would maintain the mining leases through the proposed permit term. The species is not known to occur in proximity to the mine; however, the Applicant estimates that the mining areas may support up to 24 acres of modeled suitable habitat for the Tejon poppy. Because much of the mining areas is already disturbed, and the effects of mining occur in a small area relative to the amount of modeled suitable habitat in the action area, we conclude that continued mining in the action area will have negligible cumulative effects on the Tejon poppy.

Other Activities

As discussed above under project description, within the external boundaries of the Plan Area, there are existing inholdings and utilities. The Bakersfield National Cemetery also occurs inside the plan area. These projects and activities are not Covered Activities under the TUMSHCP. We are not aware of any reasonably foreseeable activities within the 3,870 acres of inholdings that may affect the Tejon poppy. Activities associated with utilities, transmission lines and related structures, such as maintenance activities, would be restricted to currently established easement areas and would have only minor, if any, effects on Tejon poppy habitat. Therefore, we do not anticipate any cumulative effects from the ongoing maintenance and operation of non-

covered existing utilities. The Bakersfield National Cemetery is in place, and we are not aware of any activities associated with the cemetery that may have an adverse effect on the Tejon poppy.

CONCLUSION

After reviewing the current status of the Tejon poppy, the environmental baseline for the action area, the effects of the proposed TUMSHCP and the cumulative effects, it is the Service's biological opinion that the implementation of the TUMSHCP, as proposed, is not likely to jeopardize the continued existence of the Tejon poppy. We have reached this conclusion for the following reasons:

1. There are no documented occurrences of the Tejon poppy on the covered lands, and the Applicant would conserve large areas on the covered lands with the potential to be occupied by the species; up to approximately 12,533 acres or approximately 99 percent of the modeled suitable habitat would be conserved in perpetuity.

2. Where the modeled suitable habitat overlaps with proposed activities, TRC proposes to conduct pre-activity surveys and carry out the action while avoiding populations of the Tejon poppy that may be discovered.

3. The large area of conservation that includes modeled suitable habitat for the Tejon poppy should ensure the persistence of the species on the Covered Lands, should any occurrences be discovered, and thus the TUMSHCP would contribute to the species' recovery and survival.

We conclude that the likelihood of the survival of the Tejon poppy would not be diminished by the proposed action principally because of the extensive habitat preservation that would result in the conservation of any occurrences of the Tejon poppy discovered on the Covered Lands. Although there are no recovery criteria for the Tejon poppy, the measures proposed by the Applicant are consistent with typical rare plant conservation approaches, especially habitat preservation. Therefore, we further conclude that the proposed action would not diminish the likelihood of the recovery of the Tejon poppy.

INCIDENTAL TAKE STATEMENT

Take of plant species is not prohibited under the Act; therefore Section 7(b)(4) and 7(o)(2) of the Act do not apply to plant species and no incidental take statement is provided for the Tejon poppy. Limited protection of listed plants is provided to the extent that the Act prohibits the removal and reduction to possession of federally listed endangered plants or the malicious damage of such plants on areas under Federal jurisdiction, or the destruction of listed plants on non-Federal areas in violation of State law or regulation or in the course of any violation of a

State criminal trespass law. As described above, the proposed TUMSHCP and associated documents identify anticipated impacts to the Tejon poppy as well as measures that are necessary and appropriate to minimize those impacts.

As discussed under Organization of the Biological Opinion, the following five sections (Conservation Recommendations, Reporting Requirements, Disposition of Dead or Injured Specimens, Reinitiation Notice, and Literature Cited) apply to all of the Covered Species analyzed above.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

We do not have any further Conservation Recommendations for the species analyzed in this biological opinion. Because the proposed actions are based upon a habitat conservation plan negotiated over many years and intended to promote the conservation of the covered species, such additional recommendations are not necessary.

REPORTING REQUIREMENTS

Pursuant to 50 CFR 402.14(i)(3), the progress of the action and its impact on the species must be reported to the Service. Because the action the Service is contemplating is the issuance of an ITP to TRC, we require the Applicant to provide monitoring and reporting as described below.

Section 4.5.2 and 7.3 of the TUMSHCP contains monitoring and reporting requirements for the ITP. The monitoring and reporting are divided into Compliance Monitoring (Section 4.5.1.1; 7.3.1) and Effectiveness Monitoring (Section 4.5.1.2; 7.3.2). Compliance monitoring is intended to verify that the Applicant is carrying out all of the terms and conditions of the ITP, including the TUMSHCP and IA. Effectiveness monitoring is directed at the Covered Species to determine how effective the TUMSHCP and other measures are at promoting the species' survival and recovery. Aspects of both of these monitoring programs are relevant to the monitoring and reporting necessary for this biological opinion, and we therefore adopt the Compliance and Effectiveness Monitoring proposed by the Applicant under the TUMSHCP as our Reporting Requirements pursuant to 50 CFR 402.14(i)(3).

Where species-specific monitoring/reporting is proposed under the TUMSHCP, the section(s) within the TUMSHCP are referenced as appropriate.

Compliance Monitoring

Compliance monitoring tracks the status of TUMSHCP implementation and refers primarily to administrative duties related to verifying that the Applicant is carrying out the terms of the TUMSHCP, the permit, and the IA. Compliance monitoring information includes a summary of

dates of completion, revisions, and implementation progress on the following TUMSHCP components:

- Impacts to Covered Species and/or their modeled suitable habitat as a result of Covered Activities during the prior year (based on assessment of impacts to vegetation communities as discussed below);
- Status of lands added to the open space system, including Established Open Space and TMV Planning Area Open Space;
- Avoidance and minimization measures implemented in relation to Commercial and Residential Development Activities;
- Construction training that would occur prior to grading at the start of each construction event. Construction training will be geared toward ensuring that construction personnel for each construction event are properly informed of relevant TUMSHCP Covered Species goals, objectives, and avoidance and minimization measures prior to grading. Construction monitoring reports will be used to measure the effectiveness of the construction training.

Impacts to the 19 wildlife species covered by the TUMSHCP will be tracked through quantification of take on the basis of reduction of modeled suitable habitat, the projected loss of individual animals where applicable, as well as analysis of the impacts of the taking on the species as a whole. Impacts to plants, if observed, will be reported qualitatively and as part of the annual assessment of impacts to vegetation communities, described below. Impacts to California condor will be assessed based on the measures presented in Section 4.5.2 of the TUMSHCP and included in the analysis of the California condor in the biological opinion.

Because incidental take of the wildlife species (other than the California condor) will be difficult to detect or quantify for reasons defined for each species in the Incidental Take Statements prepared for them (e.g., the relatively small body size of some species makes finding a dead specimen unlikely), the potential incidental take of the wildlife species (other than the California condor), where applicable as indicated in the respective species' Incidental Take Statement, will occur with the loss of up to 5,533 of the 8,817 acres[16] of habitat shown in the table below (Table

[16] The 5,533 acres includes the following: TMV Planning Area (5,082 acres for TMV Specific Plan Area and Oso Canyon, 170 acres West of Freeway); 265 acres Lebec/Headquarters Area; 16 acres Tejon-Castac Water District (TCWD) facilities. The 5,082 acres described in the TUMSHCP for the TMV Specific Plan Area occur within a 7,860-acre development envelope. Because the exact development envelope is not known, it was not possible to determine which vegetation communities within that 7,860-acre development envelope would be impacted by up to 5,082 acres of development. Given this constraint, this TUMSHCP overstates the impacts and assumes 100 percent impact of the 7,860-acre development envelope for the purposes of biological analysis for take of Covered Species; however, it should be emphasized that this assumption is for analysis purposes only and no more than 5,082 acres will be impacted by development within the 7,860-acre development envelope. Therefore, a total development envelope of 8,817 acres is shown as impacted in the table. An additional 200 acres of ground disturbance are qualitatively analyzed for ground disturbance related to Planwide Activities.

7-2 from the TUMSHCP), and up to 200 additional acres from Planwide Activities. Anticipated take of the applicable wildlife species (other than California condor) will be measured first in terms of the modeled habitat acres affected by Covered Activities shown in the table below, and then as estimates of individual numbers (where appropriate) as described in each species' Incidental Take Statement.

Table 6. Take as Estimated by Vegetation Community in Covered Lands

Vegetation Type	Total Acres Requested for Impact in Covered Lands (acres)
Upland Communities	
Scrubs	326
Chaparrals	814
Grasslands	2,485
Savannahs	2,046
Woodland	2,643
Conifer Forest	73
Riparian/Wetland Communities	
Riparian Scrub	5
Riparian/Wetland	2
Wetland	22
Lake	0
Riparian Woodland	1
Wash	1
Non-Native Land Covers	
Agriculture[1]	227
Total	**8,645**[2]

Notes:

[1] Acreage total is for mapped agriculture vegetation communities that support elements of the life history requirements for certain Covered Species, such as foraging needs for raptors.

[2] The total acreage presented in this table is 172 acres less than the total development envelope acreage (8,817 acres) for two reasons. First, 88 acres of developed areas are not included in the total acreage because developed areas do not serve as suitable habitat for any of the Covered Species. Secondly, the analysis assumes 75 percent avoidance of effects on riparian/wetland vegetation communities. The total acres reflect this assumption, as well as the acres for riparian vegetation communities and species models that are based on these riparian communities. Therefore, 84 acres of riparian/wetland vegetation are not included in this table. This is a conservative assumption, as the Clean Water Act 404(b)(1) alternatives analysis submitted to U.S. Army Corps Engineers for the TMV Project shows avoidance of 99 percent of the federally jurisdictional wetland areas and avoidance of 97 percent of the State and Federal jurisdictional waters overall.

Annual Reports

In addition to the assessment of impacts to vegetation communities, status of lands added to the open space system, status of implementation of avoidance and minimization measures, and expenditure of funds will be documented in annual reports. Annual reports will provide at minimum the following information:

- A summary of impacts to each Covered Species and/or its modeled suitable habitat as a result of Covered Activities in the previous year (based on assessment of impacts to vegetation communities), including quantified permanent impacts resulting from Covered Activities and a qualitative description of impacts from non-permanent Covered Activities, as appropriate.

- A summary of the quantified cumulative permanent impacts to each Covered Species and/or its modeled suitable habitat as a result of Covered Activities since issuance of the permit.

- A summary of the lands added to the open space system, including Established Open Space, TMV Planning Area Open Space, and Existing Conservation Easement Areas.

- A description of any TUMSHCP amendments proposed or approved during the prior year.

- A description of any clerical corrections made to the TUMSHCP during the prior year.

EFFECTIVENESS MONITORING

Overall, the effectiveness monitoring program will assess the biological conditions in the open space system resulting from implementation of the TUMSHCP and provide any information needed to implement an adaptive management strategy. Habitat conservation objectives are established for each of the Covered Species based on the amount of modeled suitable habitat that will be included in Established Open Space, TMV Planning Area Open Space, and Existing Conservation Easement Areas. Effectiveness monitoring may include landscape-level vegetation community mapping updates using aerial photography to assess whether the general habitat acreages are in balance with those identified in the conservation plan in this section. Selective on-the-ground monitoring in certain areas may be required to assess whether native vegetation communities are being invaded by exotic species and thus reducing habitat values for Covered Species.

Several goals relate to Planwide Activities, such as cattle grazing, human recreation, film production, roads, and utilities. A component of effectiveness monitoring will be to monitor whether the objectives related to these goals are being met. For example, where seasonal cattle exclusions are implemented to protect riparian/wetland resources, periodic monitoring of these resources will be conducted to evaluate whether the exclusions occurred and their effectiveness in protecting riparian/wetland resources. Similarly, trail use will be monitored to determine whether unauthorized activity is occurring in open space areas and what measures can be implemented to reduce such activities, such as closures, increased patrols, and signage.

Effectiveness monitoring will be linked to the categories of avoidance and minimization measures identified in Section 7.2 of the TUMSHCP. The following is a description of the various categories of effectiveness monitoring:

Baseline Surveys – Establishment of Resource Baseline in Open Space Areas

The purpose of the baseline surveys is to establish the resource baseline from which effectiveness monitoring can be measured in the open space. Baseline surveys have been completed for the TMV Planning Area Open Space. For the remaining Covered Lands, existing data will be compiled and augmented as necessary for habitat supporting Covered Species. Substantial

baseline data exist for the Covered Lands, including vegetation mapping, soils mapping, topographic information, species occurrence data, and other information. Existing data will be used as much as possible to establish the resource baseline. This information will be augmented as needed to assemble a database sufficient to implement the compliance monitoring and reporting requirements outlined in Section 7.3.1 of the TUMSHCP. The established resource baseline will be described and documented in the first annual report following permit issuance.

Activities Associated with Commercial and Residential Development Activities

Surveys Prior to Grading
Surveys prior to grading will identify which areas require avoidance monitoring (i.e., areas where impacts to Covered Species can be avoided). Species may be monitored together (i.e., species that have overlapping breeding seasons and habitat) to avoid redundancy. Survey reports will be prepared and used as a tool to monitor the effectiveness of surveys done prior to grading, and this information will be included in the annual report.

Relocation
Relocation activities prior to construction are proposed for several species. These activities involve relocation of certain covered reptile and amphibian species to suitable open space areas if they are located during surveys done prior to grading with the purpose of avoiding direct injury of mortality. The project biologist will make reasonable efforts to capture and relocate any observed individuals to suitable habitat that is the closest distance to the disturbance area from where the individuals were removed. Any relocation activities would be undertaken with the appropriate Service/CDFW authorizations and in conformance with guidance of the Tejon Staff biologist. Relocation activities, if any, will be documented and, if appropriate, monitored for effectiveness by, for example, walkover surveys of relocation areas to observe whether habitat conditions remain favorable for the relocated species and, if possible, observe the species' presence. Information on relocations, if any, will be included in the annual report.

Avoidance Monitoring
Avoidance monitoring measures include additional monitoring efforts that occur during construction following identification of Covered Species in proximity to Covered Activities that may affect the species. The effectiveness of avoidance monitoring will be documented for each monitoring activity to assure, for example, that species toward which additional monitoring efforts are directed during construction are protected. Such monitoring may include avoidance during construction of an observed plan population, for example. Monitoring reports will be included in the annual reports referenced.

Annual Reports
With regard to effectiveness monitoring, the annual reports will provide at minimum a description of the monitoring and management actions carried out during the prior year, including the following:

- Species specific data and information about who collected the data and the frequency, timing, and duration of data collection.
- A description of the data analysis and results.
- Synthesis/integration of the year's monitoring and management results with previous years as applicable (e.g., analyzing apparent trends).
- Identification of any significant problems or successes with the program that may alter the monitoring and management program approach.
- Suggested changes/revisions to the monitoring and management program, if any, based on the points listed above.
- Documentation of changed or unforeseen circumstances that occurred during the previous reporting year and how they were addressed.
- Discussion of triggers for adaptive management and how they were implemented.

Other Inclusions
In addition to the information gathered as described above, maps, photographs and other visual aids that would support the collected data shall also be included in the annual reports. The annual report shall include the name(s) of any individuals who gathered information and their role(s) in compiling the annual report.

Timing
The TUMSHCP does not identify the date by which annual reports with the aforementioned Compliance and Effectiveness monitoring information must be submitted to the Service. The Service requires the annual report to be submitted to the Ventura Fish and Wildlife Office by January 31 of each year any ITP is in effect. The reports should be addressed to the attention of the Field Supervisor.

DISPOSITION OF DEAD OR INJURED SPECIMENS

General

As part of any incidental take statements provided above and pursuant to 50 CFR 402.14(i)(1)(v), upon locating a dead or injured individual of the wildlife species covered by the ITP, initial notification within three working days of its finding must be made by telephone and in writing to the Ventura Fish and Wildlife Office (805-644-1766). The report must include the date, time, location of the carcass, a photograph, cause of death or injury, if known, and any other pertinent information.

Care must be taken in handling injured animals to ensure effective treatment and care, and in handling dead specimens to preserve biological material in the best possible state. Injured animals must be transported to a qualified veterinarian. Should any treated animal survive, the Service should be contacted regarding the final disposition of the animals.

The Service has arrangements with several institutions able to receive injured or dead specimens. Upon notification that a dead or injured animal has been found on the Covered Lands, the Applicant must notify the Ventura Fish and Wildlife Office, as described above, which will provide instructions at the time as to where the animal should be taken.

California Condor

If an injured or dead California condor is found, or a mortality signal is detected, within 24 hours the Applicant must contact: the Ventura Fish and Wildlife Office at the telephone number above; the Service's California Condor Recovery Program at (805) 644-5185; and the Service's Office of Law Enforcement at the telephone numbers below. The Applicant must provide (or make available) the following information: the date and time of the finding or incident (if known), location of the condor, a photograph, cause of injury or death (if known), and other pertinent information. The Service's California Condor Recovery Program staff will respond, assess the injury, and determine the next course of action. If a dead condor is found, the carcass must be left in place and secured, to the degree possible, to deter scavengers. The Service will provide further direction at the time of, or as as possible soon after, such notification is made.

The Service's Office of Law Enforcement Contacts are:

Resident Agent in Charge Erin Dean (Torrance, California)
Telephone: (310) 328-1516 or (714) 493-3212
Email: erin_dean@fws.gov

Resident Agent in Charge Rebecca Roca (Sacramento, California)
Telephone: (916) 569-8488 or (916) 616-3072
Email: rebecca_roca@fws.gov

In the event the Applicant is unable to reach either of the above Service Office of Law Enforcement contacts, the finding should be reported to Assistant Special Agent in Charge Dan Crum at (916) 414-6660 or (916) 396-9513).

REINITIATION NOTICE

This concludes formal consultation on the Service's proposed response to TRC's application for an ITP under section 10(a)(1)(B) of the Act. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded (does not apply to plants or critical habitat); (2) new information

reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, the exemption issued pursuant to section 7(o)(2) will have lapsed and any further take would be a violation of section 4(d) or 9. Consequently, we recommend that any operations causing such take cease pending reinitiation.

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