

TEJON RANCH CONSERVANCY

Ranch-wide Management Plan



VOLUME 2:
Conservation Activities and
Best Management Practices



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ACKNOWLEDGMENTS

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LIST OF ACRONYMS AND ABBREVIATIONS

AVAQMD	Antelope Valley Air Quality Management District
BACI	Before-After-Control-Impact
BMPs	Best Management Practices
Board	Board of Directors
BOPE	blowout prevention equipment
CAL FIRE	California Department of Forestry and Fire Protection
CDFW	California Department of Fish and Wildlife (since 2011); formerly the California Department of Fish and Game (DFG)
Conservancy	Tejon Ranch Conservancy
CUPA	Certified Unified Program Agency
DFA	Designated Farm Area
DOGA	Designated Oil and Gas Area
DOGGR	California Department of Oil, Gas, and Geothermal Resources
DPR	California Department of Parks and Recreation
DUA	Designated Use Area
EKAPCD	Eastern Kern Air Pollution Control District
ESA	federal Endangered Species Act
GIS	Geographic Information System
I-5	Interstate 5
ITP	Incidental Take Permit
PLM	Private Lands Wildlife Enhancement and Management Area
PM-10	particulate matter less than 10 microns in diameter
Ranch	Tejon Ranch
Ranch-wide Agreement	Tejon Ranch Conservation and Land Use Agreement
RAPPS	Reasonable and Prudent Practices for Stabilization
RDM	residual dry matter
RWMP	Ranch-wide Management Plan
RWQCB	Regional Water Quality Control Board

SAP	Scientific Advisory Panel
SJVAPCD	San Joaquin Valley Air Pollution Control District
SR	State Route
TMV	Tejon Mountain Village
TRC	Tejon Ranch Company
TR-OC	Tejon Ranch Operations Committee
TU MSHCP	Tehachapi Uplands Multiple Species Habitat Conservation Program
USFWS	U.S. Fish and Wildlife Service
VDE	visual dust effects
WDRs	Waste Discharge Requirements
WCB	California Wildlife Conservation Board



The Tejon Ranch Conservancy (Conservancy) is an independent nonprofit organization formed by Audubon California, Endangered Habitats League, Natural Resources Defense Council, Planning and Conservation League and Sierra Club (the Resource Groups) to work collaboratively with the Tejon Ranch Company (TRC) to implement the Tejon Ranch Conservation and Land Use Agreement (Ranch-wide Agreement). (A summary of the Ranch-wide Agreement is provided in Volume 1, Appendix A of this Ranch-wide Management Plan [RWMP].) The objective of the Ranch-wide Agreement is to maintain the bulk of the Tejon Ranch in its unaltered condition and, as appropriate, enhance and restore natural resource values. The Conservancy's mission was established by the Ranch-wide Agreement:

The mission of the Tejon Ranch Conservancy is to preserve, enhance, and restore the native biodiversity and ecosystem values of the Ranch and Tehachapi Range for the benefit of California's future generations. The Conservancy will work collaboratively with the Tejon Ranch Company to promote the long-term science-based stewardship of the Ranch and to provide for public enjoyment through educational programs and public access.

The Ranch-wide Agreement requires that the Conservancy prepare a RWMP to articulate its stewardship vision and strategies for the Conserved Lands (Figure 1-1) at Tejon Ranch. In September 2009, the Conservancy adopted the Interim RWMP (Tejon Ranch Company 2009), which was prepared by TRC in cooperation with the Conservancy (Tejon Ranch Company 2009). The Interim RWMP described TRC's Ranch Uses (i.e., TRC's Reserved Rights that are subject to Best Management Practices [BMPs]) and associated BMPs. This Initial RWMP (hereafter RWMP) is the first prepared by the Conservancy, and it builds on the Interim RWMP by incorporating the Conservancy's baseline research and monitoring to guide the development of additional BMPs for Ranch Uses and Conservation Activities. Subsequent revisions of the RWMP will occur at least every 5 years, or more frequently if new information dictates such a revision.

This RWMP consists of four volumes:

- **Volume 1, *Natural Community Descriptions***, summarizes information on the conservation significance, resources, and land uses of Tejon Ranch; reviews the scientific literature on the ecology, desired conditions, and potential land management strategies to achieve these conditions; and presents conceptual models that describe assumptions, uncertainties, and management hypotheses for high-priority ecosystems at Tejon Ranch.
- **Volume 2, *Conservation Activities and Best Management Practices*** (this volume), provides the specific management strategies and BMPs that the Conservancy and TRC will implement. Volume 2 also describes the adaptive management structure and process that will be used to implement Conservation Activities and BMPs in the context of the Conservancy's conservation goals and objectives. Volume 2 is supported by several technical appendices that provide recommendations on weed management (Appendix A), grazing management (Appendix B), and wildlife management (Appendix C) practices, along with the regulatory context for Designated Use Areas (Appendix D).
- **Volume 3, *Public Access Plan***, discusses opportunities and constraints for public access programming on Tejon Ranch.
- **Volume 4, *Summary of Agency Review***, summarizes the reviewable aspects of the RWMP that will enable the U.S. Fish and Wildlife Service (USFWS) to evaluate compliance with the provisions of the Tehachapi Uplands Multiple Species Habitat Conservation Plan (TU MSHCP) and federal Endangered

Species Act (ESA), and the California Wildlife Conservation Board (WCB) to evaluate compliance with conservation easement conditions in the Acquisition Areas. Volume 4 will summarize all TU MSHCP BMPS and include a Grazing Management Plan, Integrated Pest Management Plan, and Fuel Management Plan for Covered Lands as described in the TU MSHCP.

Structure of RWMP Volume 2, *Conservation Activities and Best Management Practices*

This volume of the RWMP builds on information and conceptual models presented in Volume 1, *Natural Community Descriptions*. As such, relevant literature, technical rationales, conceptual models, and species scientific names that were presented in Volume 1 are not repeated in this document. The structure of this Volume 2 is as follows:

- Section 1, “Introduction,” provides an overview of this volume as part of the four-volume RWMP and in the context of the planning process for Tejon Ranch as a whole. This section also provides background on the Ranch-wide Agreement, including a discussion of the various Management Standards that govern the Conservancy’s ability to modify activities on the Ranch (i.e., Ranch Uses) to enhance conservation values or reduce environmental impacts. The relationship between the RWMP, the TU MSHCP, and WCB-funded conservation easements is also described.
- Section 2, “Tejon Ranch Adaptive Management Framework,” describes the adaptive management structure and process for implementing the Ranch-wide Agreement. The Ranch-wide Agreement embraced adaptive management as the approach for implementing stewardship activities on Tejon Ranch, and an adaptive management approach has been integrated into this Initial RWMP. For adaptive management to be effective at Tejon Ranch, the Conservancy and TRC must continue and institutionalize the current high level of collaboration that was envisioned in the Ranch-wide Agreement.
- Section 3, “Conservation, Enhancement, and Restoration Activities,” discusses Conservation Activities identified by the Conservancy, organized by its conservation goals and objectives. The Conservancy’s conservation goals and objectives focus on natural communities, landscapes, watersheds, and focal species that are of highest conservation priority or for which the Conservancy has sufficient information to guide its stewardship activities. Some natural communities discussed in Volume 1 are not specifically discussed in Volume 2 because of a current lack of knowledge; these natural communities will be incorporated into subsequent 5-year revisions of the RWMP as the Conservancy builds its understanding of the status and condition of additional natural communities of the Ranch.

This RWMP identifies a targeted set of Conservation Activities. Since implementation of Conservation Activities is dependent on Conservancy resources, some of these activities may not be implemented in the next 5 years. Following approval of the Initial RWMP by the Conservancy Board of Directors, Conservancy staff will prepare annual implementation plans to guide stewardship activities on a year-to-year basis.

- Section 4, “Best Management Practices,” lists BMPs that TRC will implement to reduce potential environmental impacts from Ranch Uses to Conserved Lands and to help achieve the Conservancy’s conservation goals.
- Section 5, “Adaptive Management Monitoring and Reporting,” discusses adaptive management monitoring approaches for Conservation Activities. Specific monitoring methodologies will be developed as part of implementation plans for Conservation Activities. A general reporting schedule is also presented.

1.1 RANCH-WIDE AGREEMENT BACKGROUND

The Ranch-wide Agreement sets forth the specific goals, parameters, and approval process for the RWMP (refer to RWMP Volume 1 for more details). The references to the Ranch-wide Agreement are summarized in this RWMP for convenience and are not intended to modify language of the Ranch-wide Agreement. In accordance with the Ranch-wide Agreement, the RWMP shall:

1. Identify and assess the Conservation Values of the Conservation Easement Area and opportunities for protection, enhancement and restoration of those Conservation Values.
2. Establish sustainable strategies for the stewardship of the Conservation Easement Area with appropriate provision for both the protection of the Conservation Values of the Conservation Easement Area and the continued use of the Conservation Easement Area for the Reserved Rights.
3. Establish reasonable and economically feasible conservation goals and objectives for the Conservation Easement Area including with regard to the following:
 - a. Promotion and restoration of native biodiversity and ecosystem values.
 - b. Protection and enhancement of natural watershed functions and stream and aquatic habitat quality.
 - c. Maintenance of healthy, diverse native forests.
 - d. Protection of human life and property, public safety, and natural resource values from wildfire, recognizing that fire is a natural ecological process.
 - e. Protection and appropriate restoration and interpretation of significant historic and cultural resources.
 - f. Protection of scenic vistas and rare visual resources.
4. Achieve the RWMP goals and objectives through the establishment of BMPs for permitted uses of the Conservation Easement Area. This can be accomplished by identifying appropriate Conservation Activities, monitoring programs, and research that are necessary to further the conservation purpose, consistent with reasonable detail set forth in the RWMP, consistent with the Long-term Stewardship Standard, and providing flexibility to implement BMPs and Conservation Activities in an adaptive fashion to achieve the RWMP conservation goals and objectives, all in accordance with the applicable Management Standard.
5. Provide opportunities for significant, well managed public access through a Public Access Plan.
6. Establish environmental education and outreach programs, including maintaining relationships with local Native American groups.

BMPs are practices and procedures established in the RWMP that apply to the exercise of Ranch Uses, other than the Core Activities on the Conserved Lands. These BMPs are (a) based on the best available scientific information; (b) feasible, both economically and technologically; and (c) reasonable and practicable methods to reduce or minimize adverse impacts to natural resources and Conservation Values resulting from those activities that are subject to BMPs. BMPs must also be consistent with applicable Management Standards and, with respect to the Long-Term Stewardship Standard (discussed below), reasonably necessary to achieve such Management Standard. Within the Oil and Gas, Mining, and Farming Designated Use Areas (DUAs) and the Water Bank Area, BMPs are presented but priority is given to TRC's economic use of those DUAs. BMPs in this RWMP are supplemental to the discussion of Ranch Uses (i.e., Reserved Rights) in Exhibit M of the Ranch-wide Agreement. Exhibit M of the Ranch-wide Agreement describes the basis of TRC's Reserved Rights and should be referenced by those seeking to fully understand Reserved Rights and TRC's performance and practice of them.

Conservation Activities are activities that are determined to be necessary to further the Conservation Purpose (essentially to protect, enhance, and restore the Conservation Values), are consistent with the Long-Term

Stewardship Standard, and are consistent with reasonable detail set forth in the RWMP. Conservation Activities shall be carefully coordinated with TRC's use of the Easement Property and then-existing leases, easements, and other agreements. Conservation Activities include the following, as described in more detail in the Ranch-wide Agreement and Conservation Easements:

- Vegetation planting and management
- Animal control
- Signage
- Fencing
- Weed and nonnative plant control
- Wetlands and stream course restoration

Conservation Activities also include other programs or activities to restore or enhance the Conservation Easement Area (which may be undertaken with Grantor's prior consent). The Conservancy is responsible for obtaining any permits necessary and ensuring that all Conservation Activities are undertaken consistent with all laws.

Conservancy Conservation Activities and TRC BMPs are intentionally complementary in this RWMP. This demonstrates the collaboration necessary to achieve the desired outcome. In general, Conservancy Conservation Activities can be thought of as investments in enhancement or restoration of conservation values. TRC's BMPs are intended to help achieve an improvement in conservation values or to reduce adverse environmental impacts. Close coordination between the Conservancy and TRC, as described in Section 2, "Adaptive Management Framework," is essential to the success of this RWMP and the conservation vision of the Ranch-wide Agreement.

1.1.1 RWMP MANAGEMENT STANDARDS

As noted above, the Ranch-wide Agreement establishes a series of Management Standards that govern the extent of the Conservancy's mandate to set management practices (BMPs and Conservation Activities) affecting TRC's activities on the Ranch (i.e., the Ranch Uses). The Management Standards and the management practices under them describe measures and practices to maintain and enhance conditions on Tejon Ranch.

For Conserved Lands, the relevant management standard in perpetuity, following the adoption of the Initial RWMP, is the Long-term Stewardship Standard, which contains specific Management Standards for each of the DUAs of Oil and Gas, Farming, Mining, and the Water Bank Area.

Long-term Stewardship Standard

The Long-Term Stewardship Standard governs the establishment of BMPs on the following Ranch Uses:

- ranching and livestock management
- wildlife management
- filming
- fuel management
- construction of new or replacement fences or the removal of fencing
- signage
- TRC's private recreational uses,
- design and construction of power generation facilities serving existing or reasonably anticipated uses on the Conserved Lands
- expansion of new Incidental Ranch Facilities outside of the Disturbance Areas

- installation of infrastructure serving the Designated Use Areas

The Long-term Stewardship Standard contains the following guidelines:

1. The Long-Term Stewardship Standard shall be at least as protective as the Interim Stewardship Standard (that governed the preparation of the Interim RWMP).
2. The continued economic use of the Conserved Lands, as a whole, will be respected.
3. Over time the goal is that the native biodiversity and ecosystem values of the Conserved Lands will be enhanced.
4. High-priority areas of particular sensitivity identified in the RWMP will be the focus of the Conservancy's Conservation Activities, and in such areas, the Conservation Purpose will take precedence over economic uses.
5. The enhanced biological and physical conditions resulting from previously approved Conservation Activities within such areas will be maintained.
6. Conservation Activities shall be carefully coordinated with TRC's use of the Conserved Lands and then-existing leases, easements, and other agreements.

Oil and Gas Area Standard

TRC retains the right to use the 15,400-acre Designated Oil and Gas Area (DOGA) for the drilling, exploration, development and extraction of oil, gas and hydrocarbons by any subsurface drilling and extraction methods, including related surface uses. However, TRC shall perform all these activities in accordance with BMPs established for these uses in the RWMP, provided such BMPs are consistent with the Oil and Gas Area Standard.

The Oil and Gas Area Standard applies to the establishment of BMPs in the RWMP, and the subsequent implementation of such BMPs for oil, gas, and hydrocarbon extraction-related uses permitted in the DOGA as described above. Under the Oil and Gas Area Standard, drilling, exploration, development and extraction of oil, gas and hydrocarbons and related surface uses; expansion or construction of new Incidental Ranch Facilities within the DOGA; and maintenance, repairs, replacement, and relocation of existing fences and erection, repair, replacement, and relocation of new fences within the DOGA shall be subject only to BMPs that do not substantially adversely affect TRC's economic use of the DOGA.

Farm Area Standard

TRC retains the right to use the 2,800 acres of Designated Farm Areas (DFAs) for commercial and non-commercial farming purposes. TRC shall perform all such activities in accordance with BMPs established for such uses in the RWMP, provided such BMPs are consistent with the Farm Area Standard.

The Farm Area Standard applies to the establishment of BMPs in the RWMP, and the subsequent implementation of such BMPs for farming-related uses in the Designated Farm Areas. Under the Farm Area Standard, farming and related activities permitted in the Designated Farm Areas; expansion or construction of new Incidental Ranch Facilities within the Designated Farm Areas; and maintenance, repairs, replacement, and relocation of existing fences and erection, repair, replacement, and relocation of new fences within the Designated Farm Areas shall be subject only to BMPs that do not substantially adversely affect Owner's economic use of the Designated Farm Areas.

Mining Area Standard

TRC retains the right to use the 2,975 acres of Designated Mining Areas for the exploration for, development of, and the removal or extraction of any mineral or non-mineral substance by any surface or subsurface mining or extraction method. TRC shall perform all such activities in accordance with BMPs established for such use in the RWMP, provided such BMPs are consistent with the Mining Area Standard.

The Mining Area Standard applies to the establishment of BMPs in the RWMP, and the subsequent implementation of such BMPs for mineral extraction-related uses in the Designated Mining Areas. Under the Mining Area Standard, exploration, development and removal or extraction of minerals and non-mineral substances; expansion or construction of new Incidental Ranch Facilities within the Designated Mining Areas; and maintenance, repairs, replacement, and relocation of existing fences and erection, repair, replacement, and relocation of new fences within the Designated Mining Areas shall be subject only to BMPs that do not substantially adversely affect Owner's economic use of the Designated Mining Areas.

Water Bank Area Standard

The Water Bank Area Standard applies to the establishment of BMPs and the subsequent implementation of such BMPs for the design, construction and maintenance of Infrastructure serving the Water Bank Area Uses (groundwater banking uses, farming uses and/or renewable power generation uses conducted in the Designated Water Bank Area) for the 820-acre Water Bank Area. Under the Water Bank Area Standard, the design, construction and maintenance of Infrastructure serving Water Bank Area Uses shall be subject only to BMPs that do not substantially adversely affect Grantor's economic use of the Designated Water Bank Area.

1.1.2 RELATIONSHIP BETWEEN TEHACHAPI UPLANDS MULTIPLE SPECIES CONSERVATION PROGRAM AND RWMP

On April 30, 2012, USFWS issued an incidental take permit (ITP) under the federal Endangered Species Act in association with the TU MSHCP, which covers a portion of the Conserved Lands consisting of 141,886 acres, called the "Covered Lands" (Figure 1-1). The permit and the TU MSHCP require review and approval by USFWS of the Conservancy's RWMP as pertains to the Covered Lands under the permit. TU MSHCP Covered Lands include the 28,534 acres in the Tejon Mountain Village (TMV) planning area and 113,352 acres of Conserved Lands outside of TMV. After permit approval and during the permit term, the portion of each RWMP (and any proposed amendment to it) related to the Covered Lands will be reviewed and approved by USFWS. The review is limited to the geographic area covered by the permit and is specifically intended to provide USFWS the right to ensure consistency with the TU MSHCP, any Conservation Easements recorded pursuant to the permit, and the federal Endangered Species Act. Accordingly, USFWS has retained a perpetual right of review and approval over the Conservancy's Public Access Plan in Covered Lands.

1.1.3 CALIFORNIA WILDLIFE CONSERVATION BOARD REVIEW OF RWMP

As a condition of the \$15.7 million grant to the Conservancy that funded the purchase of conservation easements over the White Wolf, Old Headquarters, Michener Ranch, Bi-Centennial, and Tri-Centennial Acquisition Areas (Figure 1-1), WCB retained a right of review of the Conservancy's RWMP for those areas. The conservation easements covering the Acquisition Areas contain specific provisions for the review by WCB of the Reviewable Aspects (the portions of the RWMP that apply to the areas covered by WCB-funded acquisitions) of the Conservancy's RWMP. The WCB review is meant to ensure that the RWMP at least maintains the baseline conditions present in these areas at the time of these acquisitions.



The RWMP presents Conservation Activities and BMPs to achieve conservation goals and objectives for Conserved Lands on Tejon Ranch and to reduce potential environmental impacts of Ranch Uses. The Long-term Stewardship Standard of the Ranch-wide Agreement explicitly provides for the science-based enhancement of Conservation Values in the Conserved Lands over time, while respecting TRC's continued economic uses in the Conserved Lands as a whole. These two fundamental elements of the Ranch-wide Agreement have the potential to generate conflict between the Conservancy and TRC, and this adaptive management framework articulates the structure and process through which these elements will be balanced.

Adaptive management is an ongoing cycle of learning and adapting management strategies based on the learning to achieve explicit conservation goals (Holling 1978, Walters 1986). The adaptive management process has several key elements:

- acknowledgment of uncertainties in the understanding of ecosystems
- deliberate design of ecosystem management to increase the ability to learn about ecosystems and their responses to management
- requirement for monitoring to assess the outcomes of management experiments and trials
- continual incorporation of the knowledge gained from these experiments back into an understanding of the target ecosystems
- modification of natural resource management policies to incorporate learning gained from management experiments

Adaptive management is the objective means by which the Conservancy can develop the knowledge to inform its stewardship activities (i.e., Conservation Activities) and refine BMPs, but by its very nature such an approach will result in errors (e.g., unsupportable management hypotheses or ineffective BMPs). Lee (1993) suggested that *bounded conflict* (i.e., the pragmatic application of politics) enables the adaptive management process to proceed by restraining conflict over unavoidable errors. Conservation success at Tejon Ranch requires an implementation policy framework that embraces the nature of adaptive management while pragmatically evaluating the political and economic boundaries established by the Ranch-wide Agreement to work through potential conflicts over the unavoidable errors that will arise. The adaptive management framework, described here, is the policy structure by which the Conservancy and TRC will implement and assess Conservation Activities and BMPs for the Conserved Lands of Tejon Ranch.

In adaptive management, conceptual models are developed to document management hypotheses and areas of uncertainty; adaptive management strategies are then designed and implemented to evaluate these hypotheses and uncertainties, and finally, research and monitoring generate information that may suggest revisions to conceptual models and management hypotheses or to specific management approaches in a continuous, iterative process (Figure 2-1). Conceptual models, management hypotheses, and uncertainties are described in RWMP Volume 1, *Natural Community Descriptions*. Adaptive management strategies (i.e., Conservation Activities) to evaluate management hypotheses and uncertainties are presented in this volume.

The Conservancy will implement Conservation Activities and develop and evaluate BMPs for TRC's Ranch Uses in an adaptive fashion, explicitly recognizing the uncertainties in its knowledge of Tejon Ranch ecosystems. Therefore, management will be implemented in a manner that improves the Conservancy's understanding of

these ecosystems and their responses to management, and modifies ecosystem management practices and policies to incorporate learning gained from adaptive management monitoring. An important facet of this adaptive management framework is coordinating and integrating the Conservancy's work and knowledge into TRC's ranch operations. This entails translating the information generated by the adaptive management program into BMPs, and monitoring BMP compliance and effectiveness, as well as resource condition trends.

General roles in the Conservancy's adaptive management framework are indicated here and depicted in Figure 2-1:

Board of Directors – The Tejon Ranch Conservancy Board of Directors (Conservancy Board) is the ultimate decision-making authority in the adaptive management and RWMP approval process. The Conservancy Board approves conservation goals (which set the direction of the Conservancy's stewardship) and the RWMP. The Conservancy Board also has the responsibility to evaluate and reassess the Conservancy's stewardship program based on the results of monitoring and other new information. The Conservancy Board formed the Stewardship Committee to serve as the interface between Conservancy staff and the Conservancy Board on stewardship and adaptive management issues. The Stewardship Committee works with Conservancy staff to provide regular updates and policy recommendations to the Conservancy Board.

Staff – Tejon Ranch Conservancy staff advises and provides recommendations to the Conservancy Board throughout the adaptive management process. Conservancy staff has the lead role in developing conceptual models (as seen in Volume 1 of this RWMP); developing BMPs (as seen in this volume); identifying and implementing Conservation Activities; and monitoring, assessing, and communicating results.

Science Advisory Panel – The Tejon Ranch Conservancy Science Advisory Panel (SAP) provides Conservancy staff with expertise, technical reviews, and recommendations on science and stewardship activities. The SAP informs the development of conservation goals and policies and provides advice on the implications of different goals and policies on natural resources of Tejon Ranch but does not establish conservation goals or set policies.

Tejon Ranch Operations Committee – The Tejon Ranch Operations Committee (TR-OC) comprises senior staff from TRC (e.g., Ranch Operations, Farming, GIS, Science staff) and the Conservancy (e.g., Executive Director, Conservation Science Director, Public Access Coordinator, Conservancy Science Program staff) with expertise relevant to the specific issues under discussion. This is the forum for coordinating and implementing the Conservancy's adaptive management program and ensuring that information generated from the adaptive management program is translated appropriately into effective and practicable BMPs that are then incorporated into Ranch operations and practices. The TR-OC will meet at least quarterly to coordinate Conservancy and TRC prioritization and planning, Conservation Activity and BMP implementation, identify new threats to Conservation Values and implementation issues, among other responsibilities. Any issues that cannot be resolved by the Operations Committee will be brought to the Conservancy Board for resolution.

The RWMP describes Conservancy Conservation Activities and BMPs for all of TRC's Ranch Uses. Once the RWMP is approved, the Conservancy and TRC will implement the RWMP within the adaptive management framework.

The RWMP describes BMPs to be implemented by TRC. TRC will ensure that all appropriate supervisors of Ranch Operations staff receive copies of the BMPs, fully understand their requirements, effectively communicate these requirements to relevant Ranch Operations staff, and monitor implementation of BMPs. As required by the Ranch-wide Agreement, TRC will incorporate BMPs into relevant leases. TRC will monitor BMP compliance and effectiveness and will summarize and communicate the results at least annually to the Conservancy through the Operations Committee.

The Ranch-wide Agreement provides a process for enforcing TRC's compliance with the RWMP. The Conservancy and TRC will coordinate on BMP implementation through the TR-OC. If the Conservancy believes that TRC has not complied with its RWMP obligations, including appropriately and effectively implementing BMPs, then the Conservancy will bring this issue to the TR-OC for discussion and resolution. If the TR-OC is unable to resolve the issue, the non-compliance matter will be elevated to the Conservancy Board for resolution. If the Conservancy Board cannot resolve the non-compliance matter, the Conservancy shall deliver a written notice to TRC detailing the alleged compliance failure. TRC and the Conservancy shall meet within 14 days to discuss the written notice of alleged non-compliance and attempt to agree on appropriate corrective actions. If TRC and the Conservancy are unable to reach a mutually satisfactory solution to the non-compliance matter within 30 days, the Conservancy may deliver a Notice of Breach to TRC and demand corrective action to cure the non-compliance matter in accordance with the relevant provisions of the Ranch-wide Agreement. In addition, the Ranch-wide Agreement also provides TRC with a process for addressing disputed BMPs.

Conservancy staff will implement the RWMP by prioritizing Conservation Activities (including basic research and monitoring) within an implementation timeline and during annual planning cycles. Annual work plans require Conservancy Board approval. The Conservancy and TRC will meet early each calendar year to discuss annual science, stewardship, and public access plans as approved by the Conservancy Board. Additionally, the Conservancy will communicate to TRC its intent to implement a Conservation Activity identified in approved annual plans in accordance with the 30-day notice required by the Ranch-wide Agreement. Ongoing implementation of Conservation Activities will be coordinated with TRC through the TR-OC.

Conservation Activities will be designed and monitored to gauge effectiveness and build knowledge. However, the study design and monitoring approach will depend on the specific uncertainties, management questions, and complexity of desired responses associated with each Conservation Activity. Monitoring is discussed further in Section 5, "Adaptive Management Monitoring and Reporting," of this volume and will be detailed in project-specific work plans. At least annually, Conservancy staff will summarize implementation of Conservation Activities and BMPs, effectiveness of these measures, and relevant resource condition trends to the Conservancy Board and TRC, and that information will be incorporated into the adaptive management process.

Conservation Activities that are effective will be continued. If deemed ineffective or as new information or uncertainties are identified, Conservation Activities will be adapted, conservation goals reassessed, or conceptual models refined. When monitoring results are clear enough to suggest policy, operational, or practice changes to Ranch Uses consistent with the appropriate management standard, new BMPs will be developed or existing BMPs modified. Conservancy staff will bring recommended BMPs to the TR-OC for review. If adopted by the TR-OC, BMPs will be incorporated into a future revision of the RWMP. BMPs adopted by the Conservancy Board will be implemented by TRC and incorporated into relevant TRC leases as required by the Ranch-wide Agreement. If a BMP proposed by the Conservancy is rejected by TRC, the rationale for rejection (e.g., lack of sufficient justification, economic impacts) will be discussed by the TR-OC and a BMP will be sought that achieves the desired conservation outcome while addressing TRC concerns. If a compromise BMP cannot be developed by the TR-OC, the Conservancy's proposed BMP and TRC's rationale for rejection will be brought to the Stewardship Committee of the Conservancy Board, which will propose a recommended solution to the full Board.

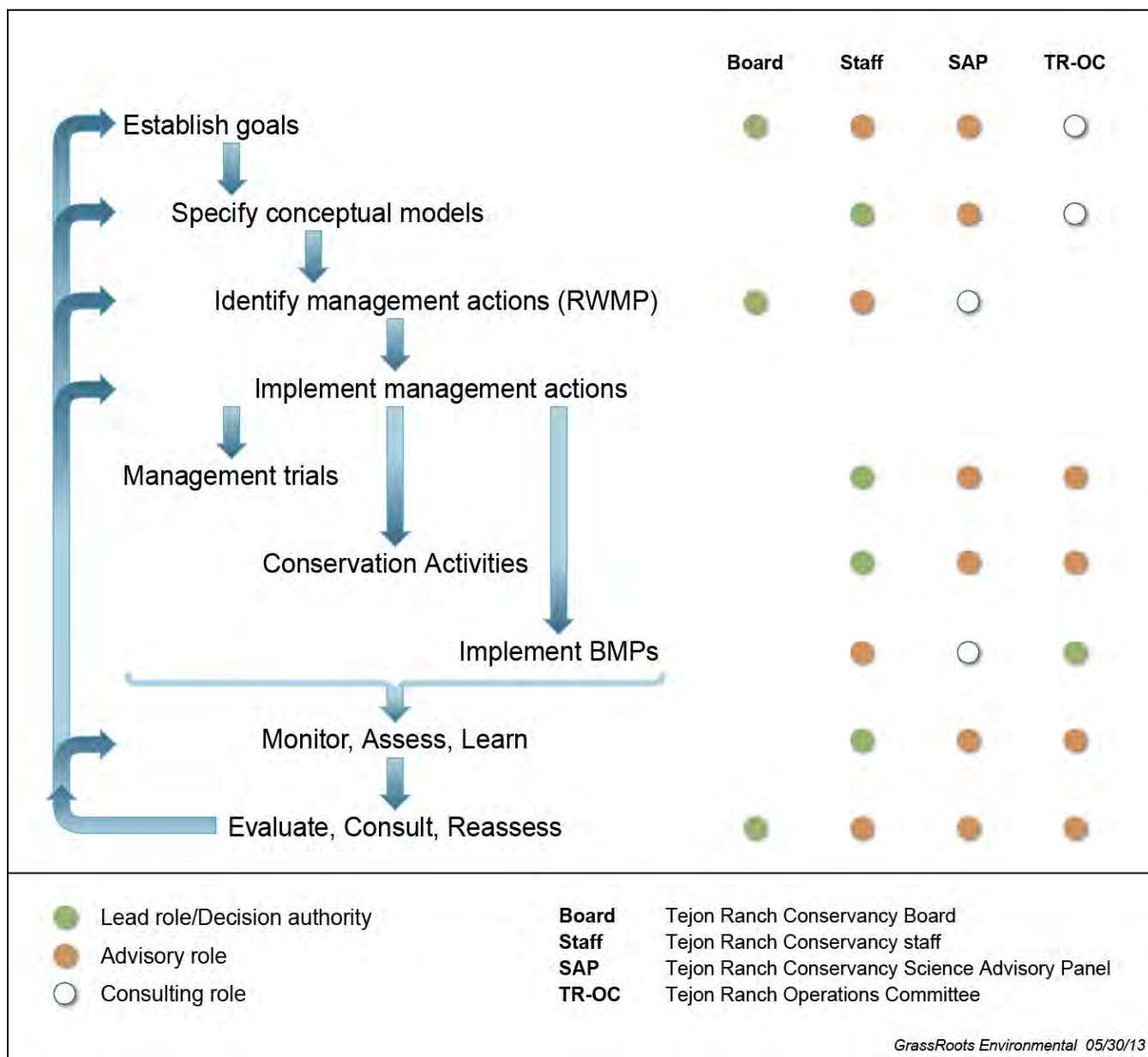


Figure 2-1 Tejon Ranch Adaptive Management Process and Roles



A critical step in the adaptive management process is establishing clear goals and objectives for the management program. Goals and objectives set the orientation and direction of the management program and serve as the basis for evaluating the effectiveness of management actions and the need to adjust resource management policies. Different ecosystem management programs employ different terminologies for their goals and objectives. For the Conservancy's RWMP, the following terminology is used:

- **Goals** are broad general statements of the Conservancy's aspirations (e.g., Goal NC-1).
 - **Objectives** are specific statements of the Conservancy's desired outcomes (e.g., Objective NC-1.1).

The Conservancy's proposed conservation, enhancement, and restoration activities (Conservation Activities) are structured around its conservation goals and objectives. BMPs to be implemented by TRC may also contribute to achieving conservation goals and objectives, but BMPs are identified by Ranch Use or topical area (e.g., invasive species management) in Section 4 of this volume. The Conservancy will implement the best practices embodied in TRC BMPs applicable to the Conservation Activity. Conservation Activities proposed for TU MSHCP Covered Lands will be coordinated with the Tejon Ranch Staff Biologist to ensure compliance with all TU MSHCP provisions and BMPs. General performance measures for each Conservation Activity are described in Section 5 of this volume, but quantitative performance measures will be developed as part of implementation plans for specific Conservation Activities. It is important to recognize that, within the adaptive management framework, conservation goals and objectives may be revised and reconsidered as the Conservancy improves its understanding of Tejon Ranch ecosystems. Thus, the goals and objectives presented in this volume have guided the development of this RWMP but will be revisited as part of the adaptive management process in future revisions.

Conservation goals and objectives translate the Conservancy's general biodiversity conservation mission into specific objectives for high-priority natural communities, watersheds, landscapes (groupings of ecosystems), and focal species. Public access goals and objectives are discussed in Volume 3, the Public Access Plan. In addition, the TU MSHCP established conservation measures for Covered Species, which are described in the TU MSHCP (Dudek 2013); these are addressed briefly in Section 4 of this volume and described in more detail in Volume 4 of this RWMP.

The Conservancy's management planning orientation is generally focused on natural communities, and the Conservancy believes that by maintaining, enhancing, and restoring natural communities it will benefit the suite of plant and animal species that are part of these communities. However, some species-specific Conservation Activities are warranted, either to reduce the adverse effects of nonnative species (e.g., feral pigs) or to enhance high-priority species populations. Furthermore, other Conservation Activities are directed at processes that operate across multiple natural communities (e.g., affecting entire watersheds and landscapes).

As noted above, Conservation Activities are funded by the Conservancy, and despite the thoughtful long-term funding arrangements (through transfer fees) established by the Ranch-wide Agreement for the life of this RWMP, the Conservancy will need to generate private and public support to initiate many of the studies and stewardship activities detailed here. The Conservancy has enjoyed significant support from individuals, agencies, and foundations, and this support has allowed development of its current level of understanding of conservation priorities, but this RWMP contains an extensive set of recommendations that necessitate increased emphasis on resource development to enable their successful accomplishment. Thus, some Conservation Activities described in this Initial RWMP may not be implemented in the next 5 years.

3.1 NATURAL COMMUNITIES

Four natural communities have been identified as priorities by the Conservancy: Antelope Valley grasslands, San Joaquin Valley grasslands, riparian and wetlands habitats, and oak woodlands. Collectively, these communities represent approximately 80% of the Conserved Lands, have very high conservation values, and are potentially most affected by TRC's Ranch Uses of ranching and wildlife management (i.e., hunting). The Conservancy's conservation goals focus on maintaining and enhancing ecosystem functions and the overall conditions of major natural communities to promote diverse, functioning, and resilient ecosystems on Tejon Ranch. However, to focus the Conservancy's management efforts on practical actions that can produce measurable responses, this section identifies conservation targets (specific plant and animal species or groups of species) believed to be associated with ecosystem composition, structure, functions, and processes that benefit a wide range of species within each natural community or that have specific habitat requirements that are regionally in decline. In the following subsections, conservation goals and objectives are identified for each high-priority natural community and Conservation Activities are described to achieve these goals and objectives.

3.1.1 ANTELOPE VALLEY GRASSLANDS

The Conservancy's conservation goal for Antelope Valley grasslands is as follows:

- ***Goal NC-1: Maintain and enhance the habitat quality and function of Antelope Valley grassland ecosystems and the native plant and animal species that characterize them.***

Background

The Antelope Valley supports grasslands with the highest native cover on Tejon Ranch, with relatively high cover of both native grasses and forbs. Grassland environmental sites appear to be associated with landforms of distinct geologic origins and soil properties. As described in Volume 1, Site 6 is associated with recent alluvial deposits, Site 9 with older alluvial terraces, and Site 7 with steeper slopes underlain by granitic rock. The cover of native species at these environmental sites is fairly stable from year to year; however, nonnative annual grasses appear to be favored in some years. The distribution and drivers of grassland types and inter-annual variations in composition in this life zone are not well understood and merit further investigation.

Antelope Valley grasslands provide habitat for the southernmost herd of pronghorn in California. Pronghorn fawn in the spring and rely on vegetative cover to conceal the fawns from predators. Native grasses and shrubs may provide fawning cover, and native forbs are an important component of pronghorn diets. The Conservancy assumes that high-quality pronghorn habitat also supports other species of conservation interest such as burrowing owls and American badgers. Pronghorn, native grasses, and native forbs are conservation targets for the Antelope Valley grasslands.

Portions of the Antelope Valley have a high cover of nonnative grasses (e.g., cheat grass) in some years and invasive nonnative forbs (e.g., shortpod mustard). These nonnative plant species may depress native plant abundance and alter fire regimes to favor nonnative plants. The Conservancy believes that these nonnative, invasive plant species may adversely affect conservation targets. Weed management recommendations are provided in Appendix A, and high-priority Conservation Activities are discussed below.

Livestock grazing has the potential to adversely affect conservation targets in this natural community. Livestock grazing can alter plant species composition, reducing the abundance of native grasses, which can also decrease habitat quality for pronghorn by reducing vegetative cover for fawns. Livestock can also potentially disturb females and young during fawning. However, properly managed livestock grazing can be compatible with maintaining conservation targets in Antelope Valley grasslands, and grazing can potentially be used to enhance habitats. Grazing management recommendations are provided in Appendix B, and high-priority Conservation Activities are discussed below.

The Conservancy's conservation objectives for Antelope Valley grasslands and Conservation Activities to achieve these goals are described below.

- **Objective NC-1.1:** Continue to characterize plant/soil associations in Antelope Valley grasslands.

Conservation Activity NC-1.1. Monitor plant/soil associations in Antelope Valley grasslands. The Conservancy will continue monitoring Antelope Valley grasslands to better understand plant/soil associations and the factors (e.g., weather, livestock grazing) that drive changes in composition and habitat quality. In Antelope Valley grasslands, understanding of the distribution of environmental sites and vegetation composition and dynamics is poorly quantified. The research focus in the Antelope Valley is to expand the existing grassland monitoring program to better refine environmental site descriptions and better understand potential for sites to provide habitat for native plants and pronghorn in the area. The Conservancy is monitoring 21 Antelope Valley grassland plots in 2013 (Figure 3-1), including four new plots and four plots at the western end of the valley that were not included in the current ecological site model.

Plot monitoring will include soil chemical and phytolith analyses. Phytoliths are microscopic structures of silica that are found in the tissues of some plants, such as grasses. Phytolith shape can be diagnostic of some plant taxa; for example, native perennial bunchgrasses have phytolith shapes that distinguish them from nonnative annual grasses. They are resistant to decay and, thus, can reside in the soil for long periods. Phytolith analyses have been used to understand whether grasses, and specifically native perennial bunchgrasses, were an important component of vegetation communities prior to European settlement. The Conservancy will use phytolith analyses to help understand what vegetation types, based on their historical occurrence, have potential to occur in the Antelope Valley grasslands.

- **Objective NC-1.2:** Establish an invasive plant species monitoring program.

Conservation Activity NC-1.2. Monitor invasive plants in Antelope Valley grasslands. The Conservancy will develop a plant monitoring program for priority invasive species in the Antelope Valley. Invasive plants of concern in the Antelope Valley include shortpod mustard, yellow star-thistle, and cheat grass. The distribution and status of relatively widespread invasive nonnative species such as cheat grass can be effectively monitored with grassland plots (Figure 3-1), within which invasive plant cover is quantified. Relatively localized invasive species, such as shortpod mustard and yellow star-thistle, will require more focused surveys and mapping efforts. The Conservancy has developed an invasive plant species database for portions of the Antelope Valley, including Conserved Lands within Los Angeles County and the Bi-Centennial and Tri-Centennial Acquisition Areas. The Conservancy will expand monitoring and mapping efforts in portions of the Antelope Valley grasslands outside of these areas. The Conservancy will maintain a database of all known noxious weed infestations on the Conserved Lands, areas that have been treated, and the success of those treatments.

- **Objective NC-1.3:** Reduce the extent of nonnative plant species, such as cheat grass and shortpod mustard, and increase the extent of native grassland species.

Conservation Activity NC-1.3. Develop a strategic control plan for invasive plant species in the Antelope Valley. A weed management strategy has been prepared for portions of Tejon Ranch (Appendix A) and provides recommendations on control and management approaches for high-priority species. For a species such as shortpod mustard, which is most abundant in the western Antelope Valley, management will likely entail preventing its expansion into unoccupied areas to the east. Yellow star-thistle is fairly localized in its distribution, and complete eradication of this species is the Conservancy's goal. Cheat grass is widely distributed in the Antelope Valley and appears to expand during wet winters. Eradication of cheat grass is likely not feasible, but cheat grass can be controlled as needed with herbicides and, potentially, through managed grazing.

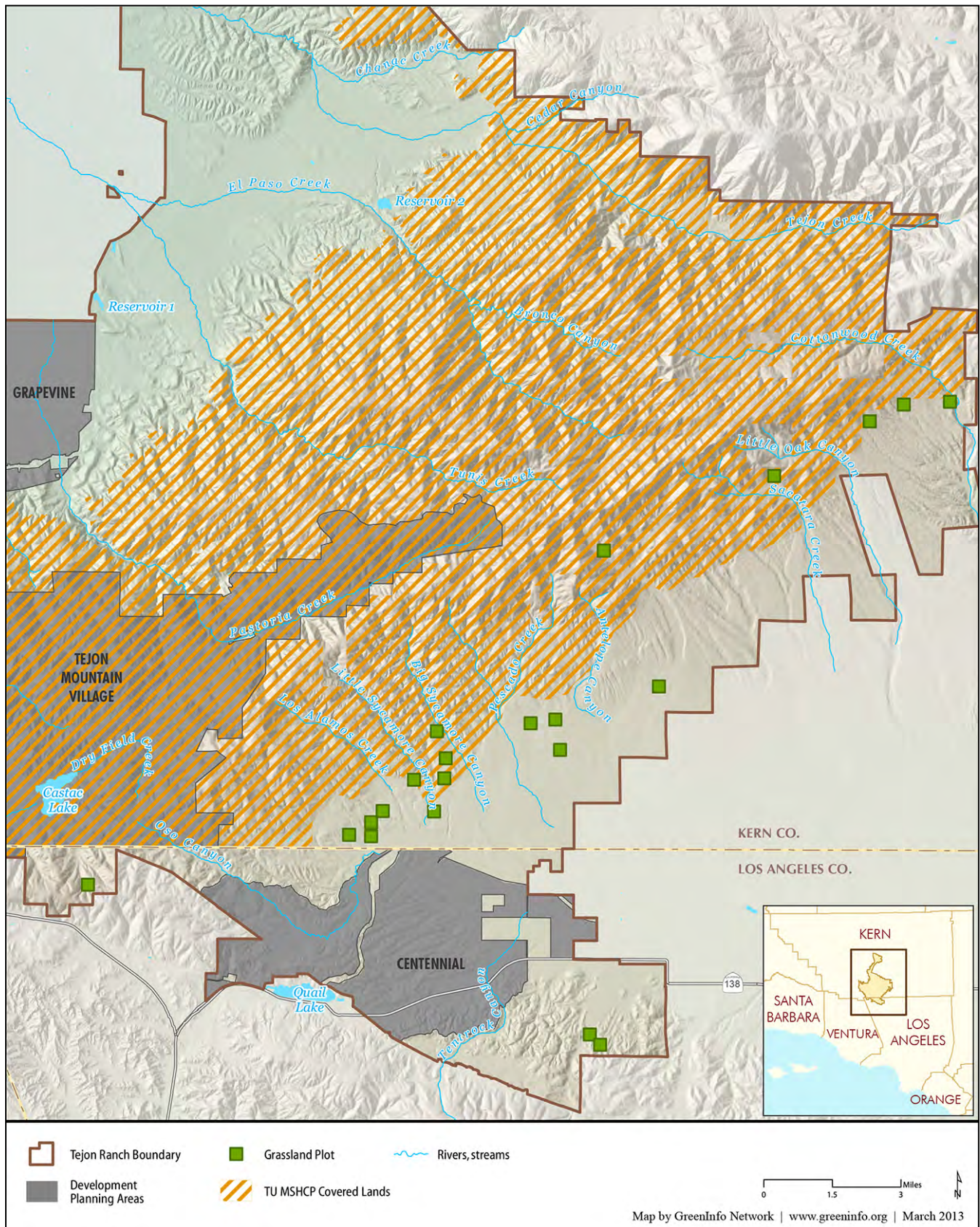


Figure 3-1 Distribution of Antelope Valley Grassland Plots to Be Sampled in 2013

- **Objective NC-1.4:** Manage Antelope Valley grasslands to benefit populations of target species, such as pronghorn, burrowing owl, and badger.

Conservation Activity NC-1.4(a). Develop and implement pronghorn habitat enhancements.

Between 1985 and 1987, 97 pronghorn were relocated to Tejon Ranch from the Modoc Plateau with a herd management objective of 150-200 individuals (described in Section 11 of Appendix C [Kunkel 2013]). Between 1995 and 2010, the minimum pronghorn herd size on Tejon Ranch fluctuated between 28 and 46 individuals, and in 2011 the pronghorn herd on the Ranch was estimated to be 37 individuals. Of note, fawn: doe ratios appeared to decline significantly from 2008 to 2010. It is hypothesized that the low survival of pronghorn fawns may be related to various factors, including lack of sufficient cover for newborn fawns, disturbance of fawning females by livestock, coyote predation, and low rainfall (in some years).

The Conservancy will implement enhanced monitoring of the Tejon Ranch pronghorn population to better understand their status and distribution on the Ranch and to identify conditions that may be limiting their population. Using this information and botanical data for the grassland monitoring plots (Conservation Activity NC-1.1), the Conservancy will develop and evaluate standards for residual dry matter (RDM) and vegetation height applicable to grazing management in Antelope Valley grassland. These standards will be used to achieve multiple goals, including enhancing native plant species and enhancing pronghorn habitat. Based on the results of this work, the Conservancy will work with TRC to implement grazing management trials to evaluate management prescriptions that may enhance pronghorn habitat, native plant species, and other target species. For example, the Conservancy hypothesizes that rotating livestock into pastures with low suitability for pronghorn fawning during the spring fawning season may reduce potential disturbance to fawning females and improve fawn survival. Implementing this grazing management practice will likely require improving the availability and distribution of water for livestock, particularly in the southeast portion of Tejon Ranch (Figure 3-2).

Conservation Activity NC-1.4(b). Modify fences to enhance pronghorn movements. Pronghorn generally attempt to move under barbed-wire fencing rather than move between the strands or jump over the fence. The Conservancy will enhance the ability of pronghorn to move through suitable habitat by replacing the lower strands on barbed-wire fences with smooth wire in key fence segments in the Antelope Valley (Figure 3-3).

Conservation Activity NC-1.4(c). Study habitat associations for badger and burrowing owl. For badger and burrowing owl, current conditions are hypothesized to be favorable, but the Conservancy will continue to study habitat associations with respect to the structure of the Antelope Valley grasslands to ensure that favorable conditions can be maintained for these and other grassland species.

Conservation Activity NC-1.4(d). Cap open vertical pipes. Birds and other wildlife can enter open vertical pipes and become trapped and die. The Conservancy will identify open vertical pipes and retrofit them with caps to prevent entry by wildlife.

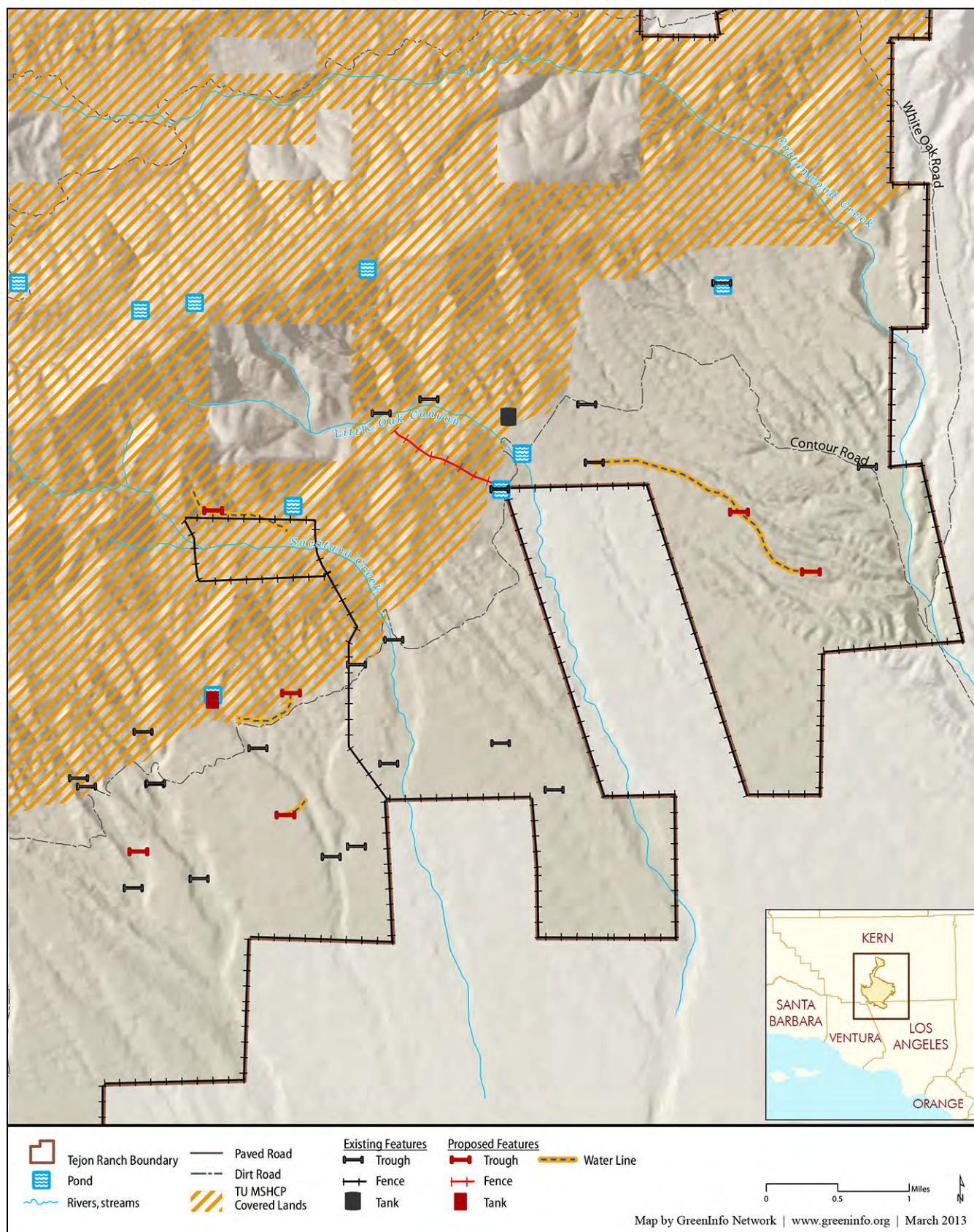


Figure 3-2 Proposed Ranching Infrastructure in the Antelope Valley

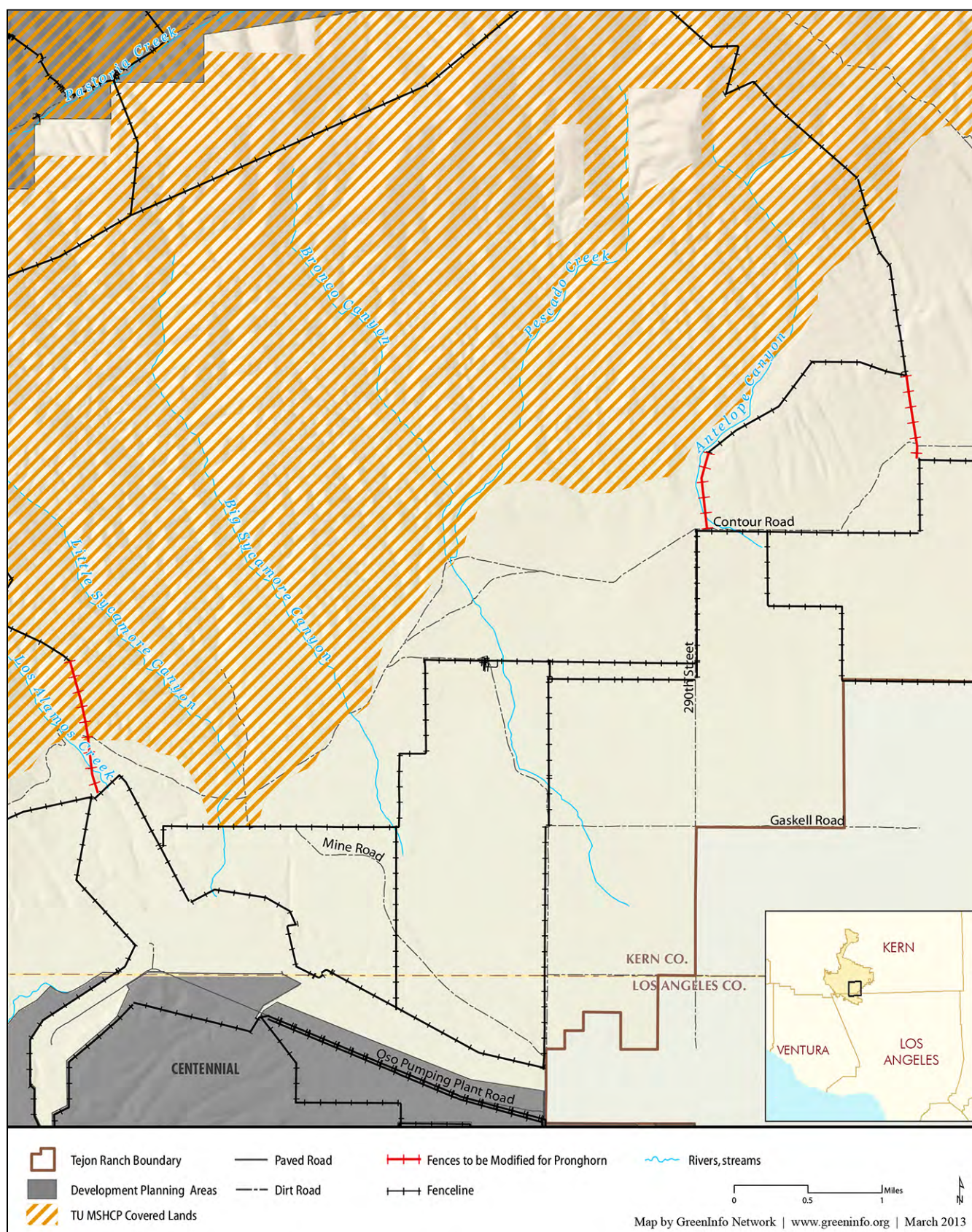


Figure 3-3 Fences Proposed to Be Modified to Improve Pronghorn Passage

3.1.2 SAN JOAQUIN VALLEY GRASSLANDS

The Conservancy's conservation goal for San Joaquin Valley grasslands is as follows:

- *Goal NC-2: Maintain and enhance the habitat quality and function of San Joaquin Valley grassland ecosystems and the native plant and animal species that characterize them.*

Background

San Joaquin Valley grasslands are dominated by nonnative annual grasses, and native grasses are virtually absent at all environmental sites. However, some environmental sites support a significant cover of native forbs in some years. It is unclear what the distribution and abundance of shrubs may have been in these communities prior to European settlement. As described in Volume 1 of this RWMP, grassland environmental sites are associated with distinct landforms that have differing slopes, soil textures, chemistry, and geologic origins. Site 1 is on higher elevations of the Tehachapi Mountain foothills. Site 2 is located on recent alluvium in the lowest elevations of the life zone. Site 3 is at the base of the foothills on moderately old alluvial fans. Site 4 comprises older terrace formations exposed in isolated areas along the base of the Tehachapi Mountain foothills, such as the Tejon Hills. Site 5 is less well defined but is associated with soils on rocky granitic outcrops.

Although highly variable from year to year, Site 2 supports native forbs (as do Sites 4 and 5). Shrubs are most abundant in Site 4 grasslands.

High fall and early winter rainfall appears to favor nonnative annual grasses at the expense of native forbs. Environmental sites that support high cover of native forbs also support populations of special-status wildlife (e.g., San Joaquin kit fox, blunt-nosed leopard lizard, and burrowing owl) and special-status and endemic plant species (e.g., Comanche Point layia, Tejon poppy, and cottony buckwheat), which are conservation targets in this life zone. The Conservancy hypothesizes that forb-dominated grasslands provide an open habitat structure favored by these species and that dense cover of nonnative annual grasses results in reduced habitat quality for these species. Invasive nonnative plant species such as Saharan mustard, yellow star-thistle, Medusa head, and Russian thistle have established in some of the environmental sites supporting native forbs and endemic plant species. In particular, the Tejon Hills, a regionally significant core area for a number of special-status and endemic plant species, have undergone a substantial invasion of Saharan mustard. These invasive plant species can reduce habitat quality and ecosystem functions, as well as forage quality for livestock. Weed management recommendations are provided in Appendix A, and high-priority Conservation Activities are discussed below.

The Conservancy considers livestock grazing a potential management tool to maintain low annual grass biomass at environmental sites with high cover of native forbs. Specifically, livestock grazing may be able to reduce annual grass biomass and prevent the accumulation of thatch, which can depress germination of native annual forbs. Plant biomass in rangeland systems is often measured using RDM as a metric. RDM is the remaining above-ground plant biomass at the end of the grazing season, before the beginning of fall rains that trigger new annual plant growth. Low RDM conditions are hypothesized to occur when forbs are abundant and annual grass cover is low; such conditions may provide higher quality habitat for San Joaquin Valley conservation targets. Grazing management recommendations are provided in Appendix B, and high-priority Conservation Activities are discussed below.

Environmental Sites 1 and 3 are dominated by nonnative annual grasses, resulting in high RDM conditions. These sites are unlikely to support San Joaquin Valley conservation targets that require low plant biomass conditions. However, these environmental sites do support significant populations of native geophytes, which are conservation targets. While the Conservancy does not fully understand the population dynamics of these geophyte species, they appear to be at least tolerant of high annual grass cover. In addition, feral pigs can be a significant consumer of at least some geophyte species. The Conservancy has no specific management hypotheses for annual grass-dominated sites but needs to develop a better understanding of the population dynamics of native geophytes and the potential effects of feral pigs on these species.

The Conservancy's conservation objectives for San Joaquin Valley grasslands and Conservation Activities to achieve these goals are described below.

- **Objective NC-2.1:** Continue to characterize plant/soil associations in San Joaquin Valley grasslands.

Conservation Activity NC-2.1. Monitor plant/soil associations in San Joaquin Valley grasslands. The Conservancy will continue monitoring grasslands to better understand plant/soil associations and the factors (e.g., weather and livestock grazing) that drive changes in composition and habitat quality. In San Joaquin Valley grasslands, the research focus will be to continue refining the understanding of the dynamics of environmental sites that support high native plant cover and/or special-status species, and to help identify adaptive management strategies that enhance native species. The Conservancy is monitoring 27 San Joaquin Valley grassland plots in 2013 (Figure 3-4), including six new plots in the Tejon Hills, to better characterize grassland types that support endemic plants. To allow resources to be allocated to environmental sites with the highest native species potential, 15 plots in environmental sites 1 and 3 that were sampled from 2010 to 2012 will not be sampled in 2013. Plot monitoring will include soil chemical and phytolith analyses.

- **Objective NC-2.2:** Manage San Joaquin Valley grasslands to benefit target species, such as San Joaquin kit fox, blunt-nosed-leopard lizard, and burrowing owl.

Conservation Activity NC-2.2(a). Modify grazing intensity and timing in selected pastures to improve habitat for target grassland species. Pastures that support environmental site 2 grasslands have the potential to support populations of San Joaquin Valley target species. The Conservancy will work with TRC and grazing lessees to modify the intensity and timing of grazing in selected pastures supporting low-elevation San Joaquin Valley grasslands with the goal of improving habitat for target grassland species that favor low plant cover. Candidate pastures for habitat enhancement include White Wolf South, Kohlmeier, Comanche Strip, Comanche Trap, Little Globe, Alamo Solo, Tejon Field, and Lower Aqua Blanca (Figure 3-5). In these pastures, grazing management would ideally target conditions consisting of RDM of less than 500 pounds per acre, vegetation height less than 12 inches, and ample areas of bare ground (less than 50% vegetative cover).

Conservation Activity NC-2.2(b). Provide new infrastructure to facilitate grazing management. The Conservancy will work with TRC to develop new ranching infrastructure to facilitate grazing management to enhance conditions for San Joaquin grassland target species (Figure 3-5). Additional livestock water will be required in some of the pastures targeted for enhancement to facilitate increased livestock use of those pastures and reduce annual grass biomass. A new fence is also proposed to divide the Alamo Solo pasture to facilitate grazing management.

Conservation Activity NC-2.2(c). Use an adaptive approach to grazing management. Grazing management to enhance habitat for target grassland species will be implemented in an adaptive fashion by correlating habitat condition variables and population responses of target species to grazing management changes. This approach will allow the Conservancy to evaluate the efficacy of the management prescriptions (as described in Appendix B). The Conservancy has initiated baseline surveys for San Joaquin kit fox to document their distribution and is planning on initiating baseline surveys for blunt-nosed leopard lizard in 2013. The Conservancy has been documenting the distribution and abundance of special-status and endemic plant populations that can also be used to assess responses to management approaches.

Conservation Activity NC-2.2(d). Explore alternative RDM mapping techniques. RDM is considered to be an important habitat quality metric, and measuring across large areas such as Tejon Ranch can be labor intensive. The Conservancy will explore techniques to improve the efficiency and practicality of RDM mapping by testing available technologies, including remote sensing.

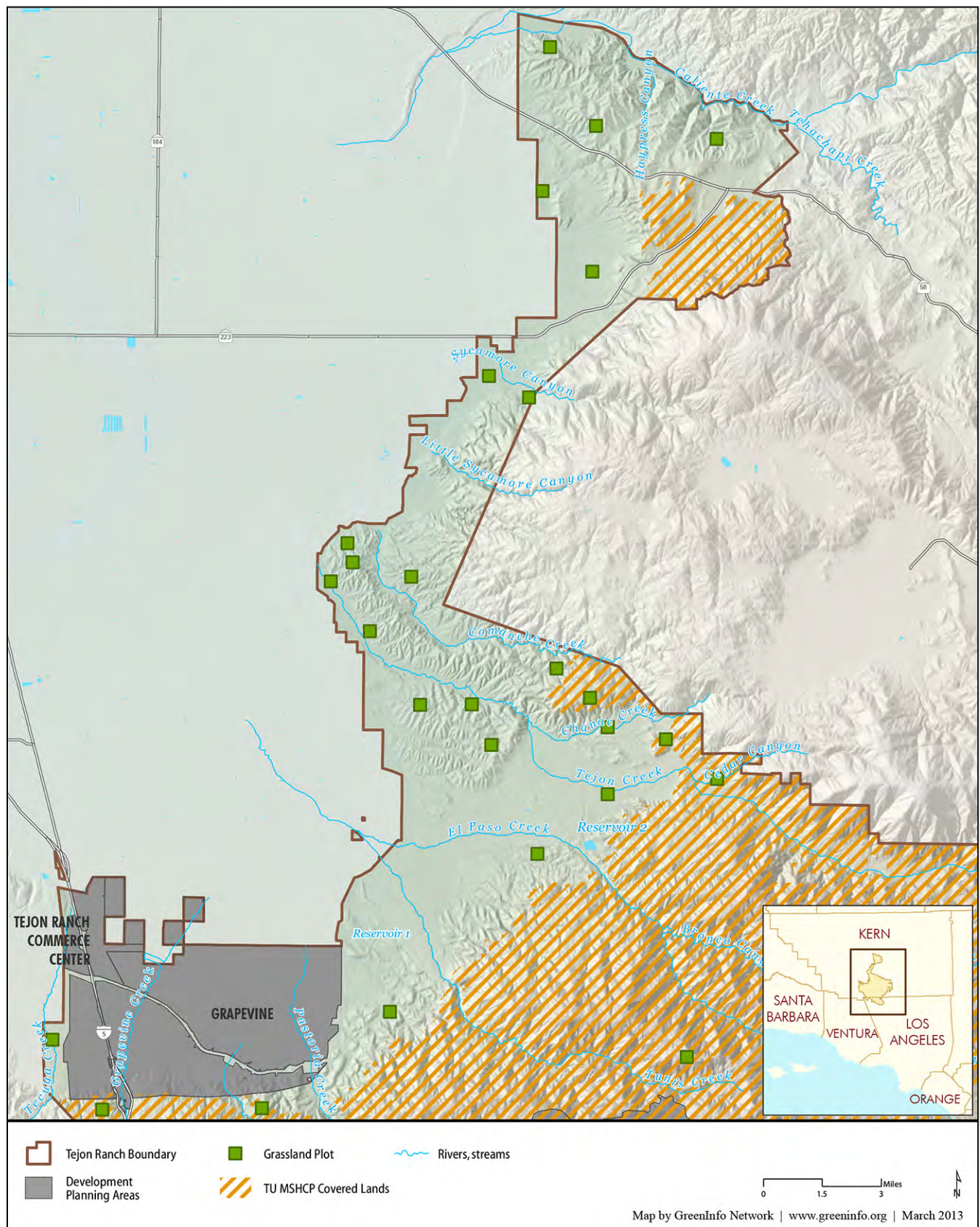


Figure 3-4 Distribution of San Joaquin Valley Grassland Plots to Be Sampled in 2013

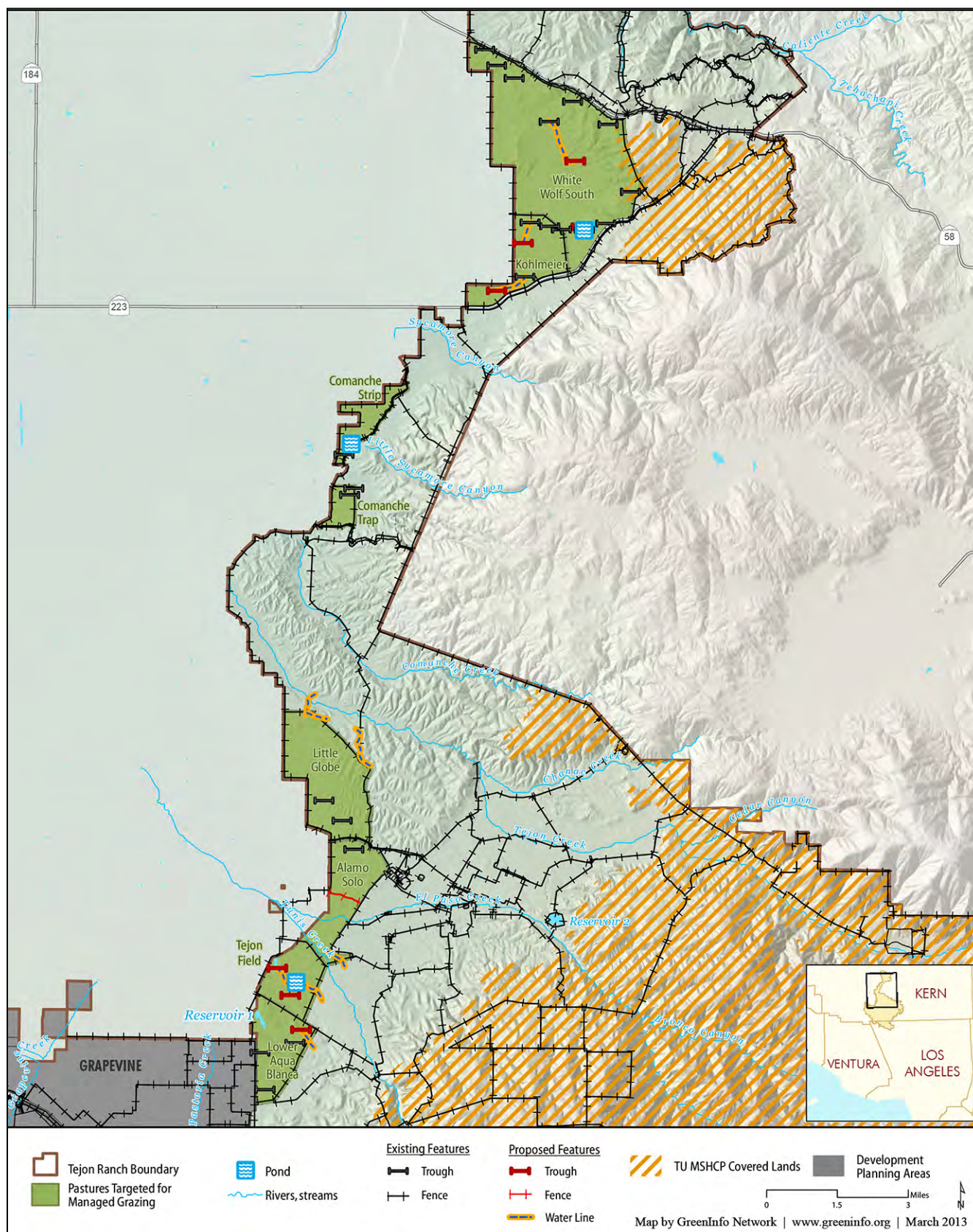


Figure 3-5 Proposed Ranching Infrastructure in the San Joaquin Valley

Conservation Activity NC-2.2(e). Cap open vertical pipes. Birds and other wildlife can enter open vertical pipes and become trapped and die. The Conservancy will identify open vertical pipes and retrofit them with caps to prevent entry by wildlife.

- **Objective NC-2.3:** Characterize the historic, native San Joaquin Valley plant and animal communities.

Conservation Activity NC-2.3(a). Investigate the composition and structure of historic San Joaquin Valley grasslands. As discussed under Objective NC-2.1, the Conservancy will continue monitoring San Joaquin Valley grasslands to better understand plant/soil associations and the factors (e.g., weather patterns) that drive changes in composition and habitat quality. As feasible, the Conservancy will continue to investigate hypotheses on the composition and structure of San Joaquin Valley grasslands prior to European settlement. Phytolith analyses may provide an indication of the extent and composition of grasslands many hundreds or thousands of years ago. The Conservancy is also compiling available data on historic vegetation communities (e.g., data collected by the Wieslander Vegetation Type Mapping project in the 1930s and available historic photographs) that may be useful in assessing historic conditions.

Conservation Activity NC-2.3(b). Inventory native species in San Joaquin Valley grasslands. The Conservancy will also continue to inventory native plant and animal species of San Joaquin Valley grasslands to better understand their distribution and abundance and their relationship to desired conditions. The Conservancy has initiated San Joaquin kit fox and special-status plant surveys to document the distribution of these species on Tejon Ranch and is planning on initiating baseline surveys for blunt-nosed leopard lizard in 2013.

- **Objective NC-2.4:** Restore native San Joaquin Valley plant and animal communities as desired and appropriate.

Conservation Activity NC-2.4(a). Modify intensity and timing of grazing to improve habitat for conservation targets. As discussed under Objective NC-2.2, the Conservancy will work with TRC and grazing lessees to modify the intensity and timing of grazing in selected pastures that support low elevation San Joaquin Valley grasslands, with the goal of improving habitat for selected grassland conservation targets favored by low plant cover. Candidate pastures include White Wolf South, Kohlmeier, Comanche Strip, Comanche Trap, Little Globe, Alamo Solo, Tejon Field, and Lower Aqua Blanca (Figure 3-5). If the results of San Joaquin kit fox monitoring suggest that coyote predation may be limiting kit fox populations, the Conservancy may also install artificial San Joaquin kit fox burrows to improve habitat quality by increasing the availability of escape dens. This Conservation Activity can help to reduce predation of kit foxes by coyotes if coyote predation is determined to be a limiting factor on kit fox population abundance.

Conservation Activity NC-2.4(b). Develop an invasive plant monitoring program for the San Joaquin Valley and implement strategic control of invasive plant species. Invasive plants of concern in the San Joaquin Valley include Saharan mustard, Russian thistle, yellow star-thistle, and medusa head. Weed management recommendations are provided in Appendix A, and high-priority Conservation Activities are discussed below. Priority will likely be given to eradicating species that have relatively localized distributions, such as yellow star-thistle.

3.1.3 RIPARIAN AND WETLAND HABITATS

The Conservancy's conservation goal for riparian and wetland habitats is as follows:

- *Goal NC-3: Enhance and restore riparian and wetland ecosystems.*

Background

Riparian and wetland habitats support a disproportionately high level of biodiversity relative to the area they occupy. These communities occupy the interface between aquatic and terrestrial habitats, and they provide connections between upper and lower elevations of the landscape. The Conservancy has conducted relatively little work to quantify the composition and structure of riparian and wetland systems at Tejon Ranch. Lower elevation riparian vegetation communities, particularly in the San Joaquin Valley, are typically woodlands with multiple vertical layers. Riparian communities at higher elevations and in some Antelope Valley drainages may lack an overstory tree canopy. Wet meadows and spring-fed or seep wetlands are variable but are dominated by low-growing herbaceous species with little to no overstory. Conservation targets for riparian systems include ground-nesting and understory-nesting bird species and other riparian-associated wildlife, such as ground-dwelling reptiles and amphibians (herpetofauna) because of the potential adverse effects of feral pigs and livestock grazing.

The Conservancy's observations suggest that riparian and wetland systems on Tejon Ranch exhibit the poorest conditions of any habitats on the Ranch. Poor conditions are particularly evident in perennially wet habitats, often within low-elevation stream reaches and springs on the Ranch. These conditions appear to be a result of excessive grazing of vegetation and trampling of stream channel bottoms, channel banks, springs, and wet meadows by cattle; rooting and predation by feral pigs; and invasion by aggressive nonnative plant species, such as salt cedar and various thistles. The relative impacts of livestock and feral pigs in these systems are not well understood. Poor habitat condition may limit populations of conservation targets, adversely affect diversity of native plant species, and increase the susceptibility of these systems to invasion by nonnative plant species. In particular, reduced cover in the riparian understory appears to have eliminated habitat for some conservation targets, and feral pig predation on ground-dwelling species (possibly exacerbated by reduced vegetative cover) is thought to have potentially serious adverse effects to the populations of these species.

The Conservancy hypothesizes that disturbance of riparian and wetland habitats can be reduced and physical structure can be improved by reducing livestock grazing intensity, particularly during summer and fall, and reducing the abundance of feral pigs or their access to these systems. Grazing management recommendations are provided in Appendix B, and priority Conservation Activities are discussed below. Reducing populations of invasive plant species will require targeted control efforts. Weed management recommendations are provided in Appendix A, and priority Conservation Activities are discussed below.

The Conservancy's conservation objectives for riparian and wetland ecosystems and associated Conservation Activities to achieve these goals are described below.

- Objective NC-3.1: Complete a baseline characterization of riparian and wetland systems.

Conservation Activity NC-3.1. Develop site descriptions for San Joaquin Valley riparian and wetland areas. The drivers of riparian and wetland habitat composition and structure at Tejon Ranch are not well understood. The Conservancy will develop environmental site descriptions for riparian and wetland areas. Specifically, the Conservancy is helping to sponsor a doctoral research project to develop environmental site descriptions for low-elevation riparian habitats in the San Joaquin Valley portion of the Ranch. The results of this field research will serve to record the responses of riparian enhancement approaches in a pilot project on lower Tejon Creek (described in Conservation Activities NC-3.2(a) and NC-3.2(b) below). The Conservancy will characterize riparian and wetland systems in other parts of the Ranch as opportunities arise.

- **Objective NC-3.2:** Restore desired vegetation structure (i.e., the desired amount of riparian vegetation in three dimensions) as appropriate.

Conservation Activity NC-3.2(a). Implement livestock operational modifications to enhance riparian habitat. The Conservancy hypothesizes that excessive dry-season livestock grazing in riparian and wetland systems can degrade desired vegetation structure and adversely affect conservation targets. Riparian grazing intensity can be reduced by changing grazing management regimes in pastures that support riparian and wetland habitats or by physically excluding livestock from these habitats with fences. The Conservancy will collaborate with TRC and its lessees on operational modifications to reduce dry-season grazing intensity in pastures supporting riparian and wetland habitats. As part of a pilot riparian enhancement trial, the Conservancy is targeting low-elevation San Joaquin Valley riparian systems associated with Tejon, Chanac, El Paso, and Tunis Creeks (Figure 3-6) to assess the effects of modifying grazing regimes on riparian ecosystem condition. The Conservancy is targeting two pastures, Monte and Creek Field (Figure 3-6), for livestock operational modifications that would exclude summer and fall grazing. Because riparian areas are also attractive to feral pigs and the relative effects of livestock and pigs on riparian systems are not well understood, small-scale pig exclosures are proposed to be incorporated into the study design for this project, including within these two pastures.

Conservation Activity NC-3.2(b). Install riparian fencing in areas where livestock operational modifications are not feasible, and develop new water sources where needed. For some systems, livestock operational modifications to protect riparian and spring-fed wetlands are not considered feasible because of the large size of the supporting pastures and the manner in which the pastures are used in the overall management of livestock on the Ranch. When operational modifications are not practicable, the Conservancy will work with TRC and its lessees to install fencing to manage livestock grazing in riparian and wetland habitats. Fencing riparian areas may also require development of new water sources in adjacent uplands for livestock. As part of the pilot riparian enhance project described in Conservation Activity NC-3.2(a), the Conservancy is proposing to install approximately 7.8 miles of new fence along lower Tejon and Chanac Creeks (Figure 3-7) to allow better management of livestock in riparian habitats associated with these stream reaches. Installation of the new riparian fencing will require development of additional livestock water sources in the adjacent uplands to provide adequate water for livestock when access to these streams is restricted (Figure 3-7).

Conservation Activity NC-3.2(c). Add or relocate water troughs where appropriate to replace streams, springs, or ponds as livestock water sources. In some areas of Tejon Ranch, streams, springs, and ponds serve as the primary source of water for livestock. This results in excessive grazing pressure and physical disturbance in these systems. The Conservancy will collaborate with TRC to add water troughs where appropriate to replace streams, springs, or ponds as livestock water sources. In addition, the Conservancy will work with TRC to relocate livestock troughs that are in close proximity to streams and springs. The Conservancy has identified 28 troughs that are within 700 feet of major streams that will be evaluated for relocation (Figure 3-8). As discussed in Conservation Activities NC-3.2(a) and NC-3.2(b), reaches of lower Tejon Creek and Chanac Creek are being targeted for an initial pilot riparian enhancement project (Figure 3-7), including development of new off-stream livestock water sources and riparian fencing. The Amargo Spring at Comanche Point is an example of a spring that is currently being maintained as a water source for livestock. The Conservancy will work with TRC to install a spring box, piping, and new trough to replace this and other high-priority springs as livestock water sources. Each identified spring will be fenced to protect the source from disturbance by livestock and feral pigs. The outlets of any flow-through troughs will be lined with rock or concrete to reduce erosion, improve water quality, and provide water for wildlife. Water troughs will be equipped or retrofitted with wildlife “escape ramps” that allow wildlife that fall into the trough to climb out.

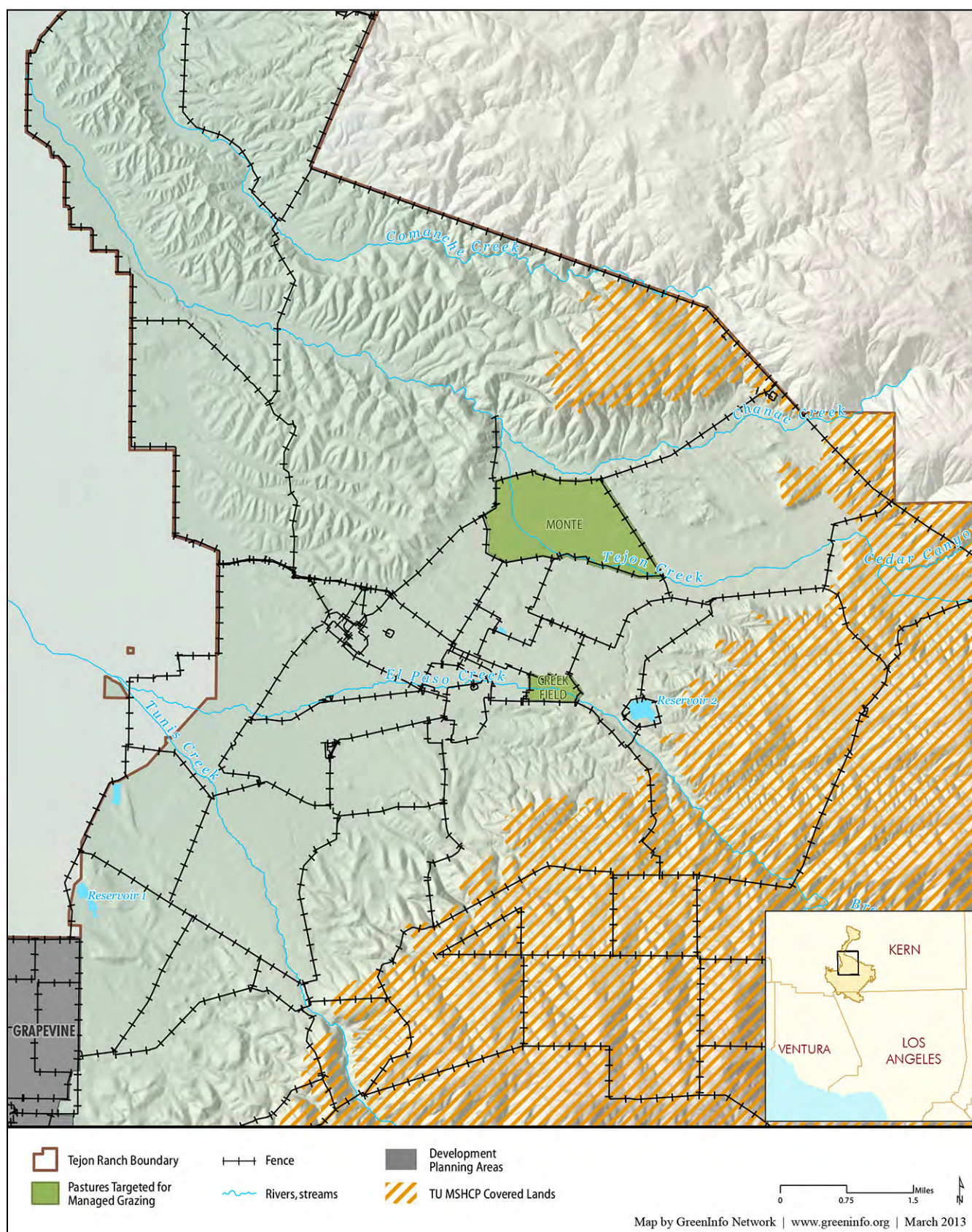


Figure 3-6 Pastures Targeted for Managed Grazing to Enhance Riparian Conditions

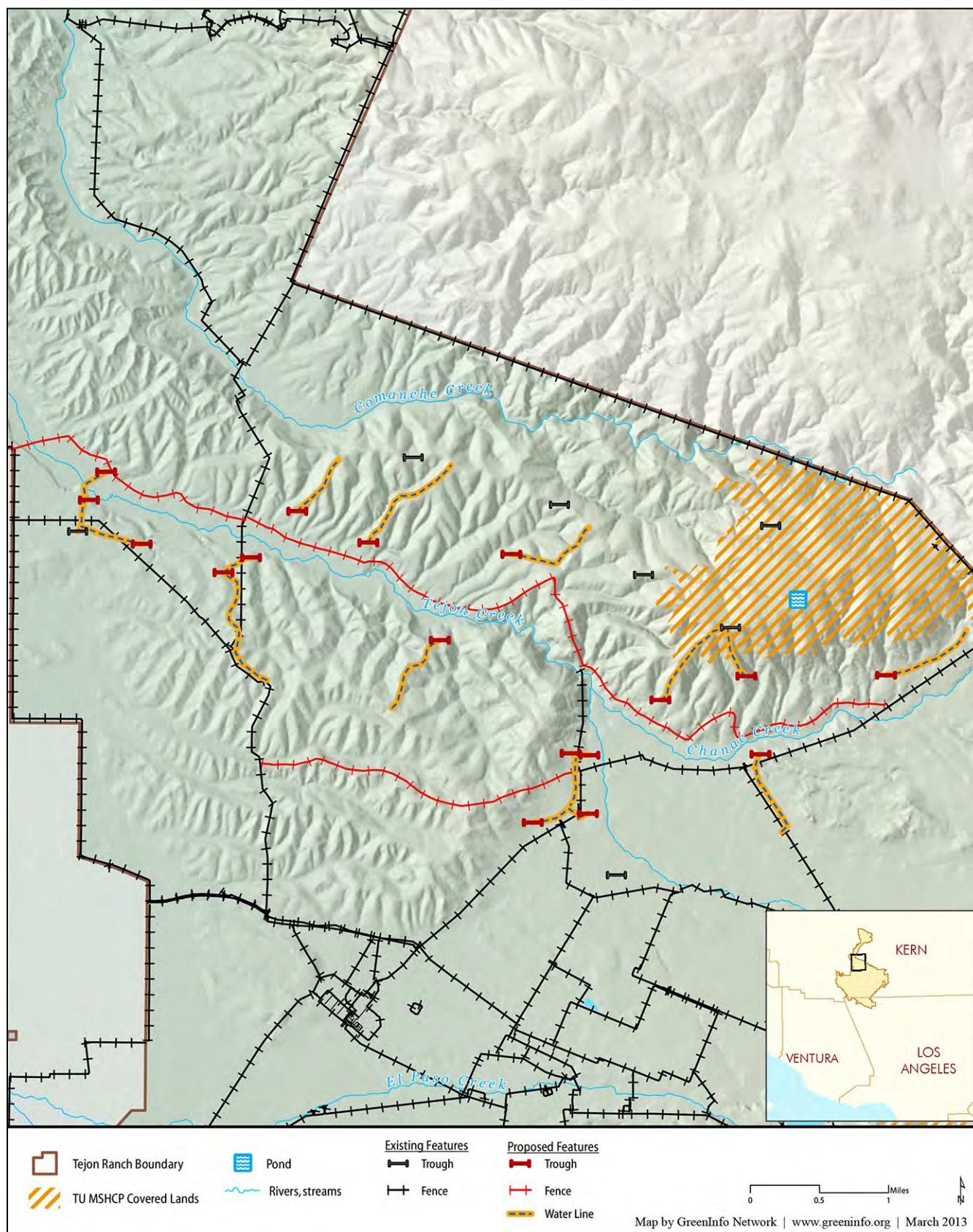


Figure 3-7 Proposed Ranching Infrastructure Improvements for Tejon Creek Pilot Enhancement Project

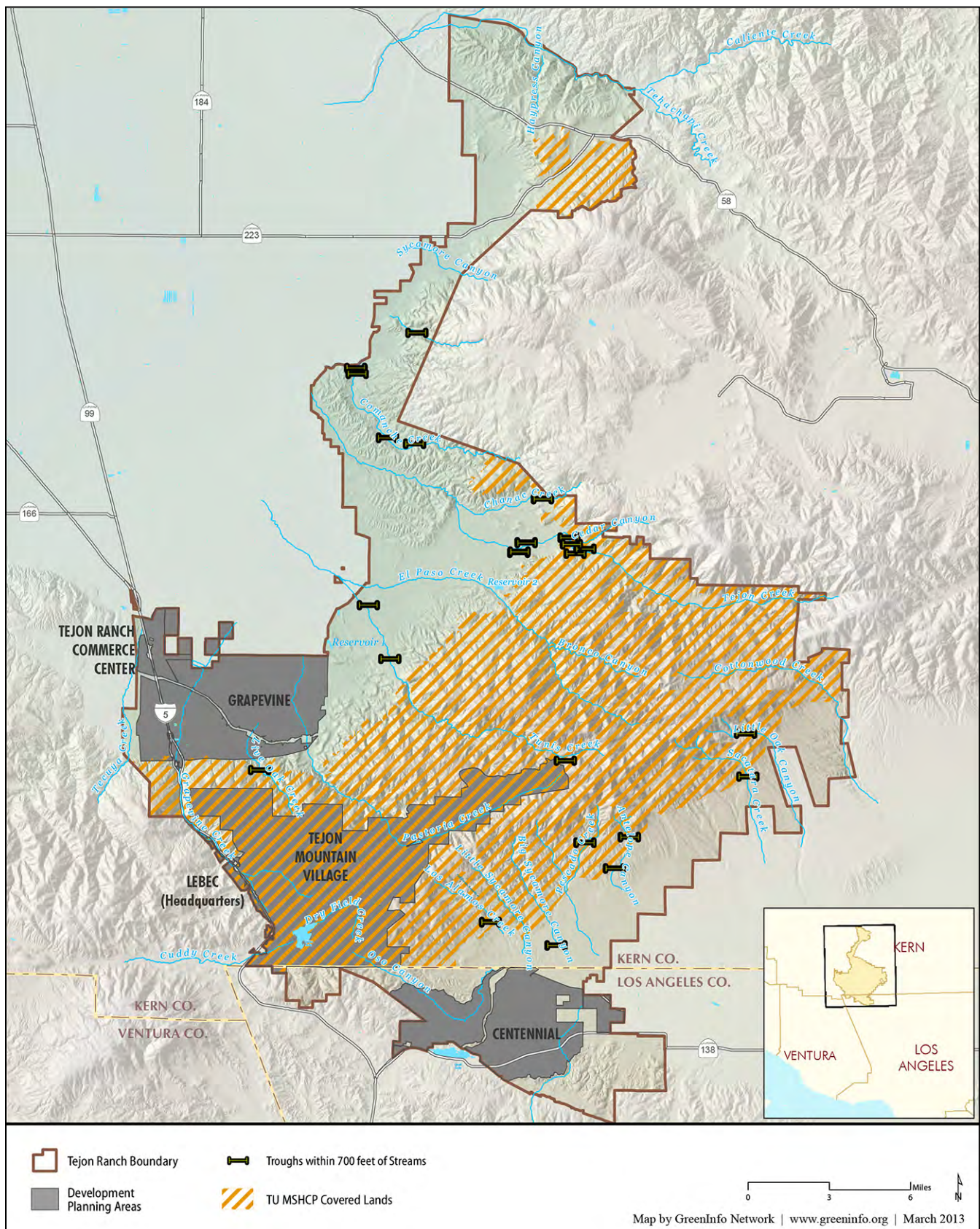


Figure 3-8 Cattle Troughs Near Major Streams That Will Be Considered for Relocation

- **Objective NC-3.3:** Reduce populations of noxious nonnative species, such as salt cedar, perennial pepperweed, and giant reed, and promote native vegetation in treated areas.

Conservation Activity NC-3.3(a). Develop and invasive plant monitoring program. The Conservancy will monitor the distribution of invasive plant species and implement strategic control of these species. To date, the Conservancy has developed an invasive plant species database for the five Acquisition Areas and the Conserved Lands within Los Angeles County. The Conservancy will expand monitoring and mapping efforts outside of these areas. The Conservancy will maintain a database of all known noxious weed infestations on the Conserved Lands, identify areas that have been treated, and track the success of those treatments.

Conservation Activity NC-3.3(b). Remove salt cedar and giant reed from targeted areas. Control of salt cedar in lower Tejon and Chanac Creeks has been underway since 2011 and will continue until eradication is achieved. Removal of salt cedar in Comanche and Caliente Creeks is also a priority. A small patch of giant reed near the Indian Schoolhouse in Tejon Canyon has also been targeted for removal.

- **Objective NC-3.4:** Increase the overall extent of native riparian and wetland plant species in riparian habitats.

Conservation Activity NC-3.4. Implement adaptive riparian enhancement. As discussed in Conservation Activities NC-3.2(a) and NC-3.2(b), the Conservancy will initiate a pilot riparian enhancement project for several low-elevation stream reaches in the San Joaquin Valley. The Conservancy believes that passive enhancement (i.e., removing the primary factors degrading these habitats) will result in improved riparian and wetland conditions without resorting to active restoration (i.e., planting native vegetation). Active riparian/wetland restoration will take place only if passive enhancement approaches (e.g., fencing and livestock management to reduce grazing intensity) are found to be ineffective. The efficacy and practicality of livestock and feral pig management as riparian vegetation enhancement strategies will be evaluated through vegetation monitoring in the proposed pilot riparian enhancement project (Appendix B).

- **Objective NC-3.5:** Increase populations of wetland and riparian target species.

Conservation Activity NC-3.5(a). Monitor wildlife responses to riparian enhancement. The Conservancy hypothesizes that passive restoration of riparian habitats, including reducing the impacts of feral pigs in these systems, will enhance habitat conditions for wetland and riparian animal species such as ground-nesting birds, understory-nesting birds, and herpetofauna. In 2012, the Conservancy initiated riparian bird monitoring in reaches of lower Tejon and Chanac Creeks to provide baseline information from which to evaluate the responses of conservation targets to the pilot riparian enhancement project discussed above. This effort is being expanded in 2013 to El Paso and Tunis Creeks. In addition, the Conservancy is proposing to initiate a herpetofauna monitoring program along these stream reaches in 2013, also as a way of evaluating the responses of conservation targets to riparian management prescriptions.

Conservation Activity NC-3.5(b). Cap open vertical pipes. Birds and other wildlife can enter open vertical pipes and become trapped and die. The Conservancy will identify open vertical pipes and retrofit them with caps to prevent entry by wildlife.

3.1.4 OAK WOODLANDS

The Conservancy's conservation goal for oak woodlands is as follows:

- *Goal NC-4: Maintain, and enhance, as appropriate, the extent and diversity of oak woodlands.*

Background

Oak woodlands at Tejon Ranch are diverse and include deciduous woodlands dominated by blue and valley oaks; live oak woodlands dominated by canyon live and interior live oaks; mixed hardwood and conifer forests dominated by black oak and/or white fir; and scrub oak habitats dominated by Brewer's oak, shrubby interior live oak, California scrub oak, and John Tucker oak. The Conservancy has sponsored research on oak habitats dominated by blue, valley, and black oaks. These oak habitats appear to be well stocked on Tejon Ranch relative to oak habitats in other parts of California (i.e., the basal area of these species is relatively high on Tejon Ranch). While significant oak regeneration is apparent in several specific areas of Tejon Ranch (e.g., Catskins area in the upper Cottonwood Creek watershed), survival of oak seedlings and saplings, particularly of the deciduous oaks, may be too low in other parts of the Ranch to maintain a stable oak population over the long term. The understories of blue and valley oak woodlands are strongly dominated by nonnative annual grasses with very low shrub cover. Black oak-dominated woodlands have a more diverse understory with a much lower proportion of grass and higher proportion of shrubs, as well as greater proportions of leaf litter and downed wood. The Conservancy has little information on the characteristics of live oak and scrub oak habitats.

Blue, valley, and black oak woodlands also support diverse wildlife communities. Cavity-nesting bird species such as acorn woodpecker, violet-green swallow, oak titmouse, and western bluebird are abundant on Tejon Ranch. Mule deer and many other mammal species (e.g., bobcat, mountain lion, gray fox) use oak woodlands extensively. Cavity-nesting birds and mule deer, understory plant communities, and the oaks themselves are conservation targets.

Feral pig activity is apparent in most of the oak woodlands on Tejon Ranch. Pigs root extensively under oaks and consume large numbers of acorns when they fall to the ground in the fall. Feral pig predation may adversely affect ground-dwelling and ground-nesting wildlife species, and pigs may compete strongly with species such as mule deer for acorns. Long-term livestock grazing and feral pig rooting may also reduce the diversity of the oak understory plant community. Grazing management recommendations are provided in Appendix B, and high-priority Conservation Activities are discussed below. Nonnative European starlings, also a common cavity-nesting species on Tejon Ranch, have been implicated in the decline of native cavity-nesting birds as a result of competition for nest sites, but such competition has not been documented as being significant on Tejon Ranch.

The Conservancy's conservation objectives for oak woodlands and Conservation Activities to achieve these objectives are described below.

- **Objective NC-4.1:** Continue to develop complete baseline characterization of oak woodland systems.

Conservation Activity NC-4.1. Develop site descriptions for oak woodland types. The Conservancy has information on the composition and structure of blue, valley, and black oak-dominated habitats on Tejon Ranch. However, information on the factors that produce the observed composition and structure are not well understood, and no quantitative information is available for other oak habitats. The Conservancy will continue to develop environmental site descriptions for oak woodland types to better understand the factors controlling species associations and driving changes in composition and habitat quality. The Conservancy is sponsoring a Master's research project in 2012 and 2013 to assess the distribution, suitable climate envelope, and fire ecology of Brewer's oak habitats as a means of expanding knowledge of one of the least understood oak habitats on the Ranch.

- **Objective NC-4.2:** Restore and increase diversity of understory plants (shrubs and herbs) as appropriate.

Conservation Activity NC-4.2. Implement grazing management trials that may increase understory plant diversity. Understory plant communities in blue and valley oak woodlands exhibit low diversity and are dominated by nonnative annual grasses. The Conservancy hypothesizes that the long history of livestock grazing and more recent proliferation of feral pigs on Tejon Ranch may have reduced the biodiversity of understory plant communities. The Conservancy will implement grazing management trials to explore these potential effects and to identify potential management strategies to increase understory plant diversity.

- **Objective NC-4.3:** Enhance recruitment for declining tree species.

Conservation Activity NC-4.3. Install tree shelters to protect oak seedlings and saplings from herbivores. Deciduous oak populations on Tejon Ranch appear to be in slow decline. Seedlings of deciduous oaks are commonly observed, but in many areas of the Ranch they do not appear to survive to the sapling stage. Quantitative data on regeneration of live oak or scrub oak woodlands have not been developed, but live oak saplings can be commonly observed. Myriad factors have been identified as potentially limiting oak regeneration, and managing or excluding livestock grazing alone is not considered an effective management approach (particularly given the presence of feral pigs) for improving survival of seedlings and saplings to adult oaks. Physical protection of oak seedlings and saplings from herbivores with tree shelters or wire mesh “Vaca cages” is considered the most cost-effective method of increasing survival. Research sponsored by the Conservancy has suggested that, to reduce the decline of blue, valley, and black oaks, tree shelters should be installed at densities of 3.43 per acre, 0.08 per acre, and 0.66 per acre, respectively, assuming that the tree shelters must be left in place for 5 years to achieve adequate survival. The Conservancy will install tree shelters in strategic locations to improve seedling and sapling survival, particularly for blue and valley oaks.

- **Objective NC-4.4:** Maintain and enhance populations of oak woodland wildlife species.

Conservation Activity NC-4.4(a). Implement management trials to assess impacts of feral pig predation on wildlife species in oak woodland communities. The Conservancy hypothesizes that, in addition to consuming vast quantities of acorns, feral pigs may be responsible for depressing wildlife populations in oak woodlands, particularly through predation on ground-nesting birds and herpetofauna, but also potentially through competition with species that rely on acorns, such as mule deer. The Conservancy will implement management trials to assess the influence of feral pig predation on the wildlife species using oak woodland communities. Management trials will likely use physical exclusion of feral pigs from areas with pig-proof fencing, but could include depressing pig numbers through increased harvest rates.

Conservation Activity NC-4.4(b). Evaluate effects of European starlings on cavity-nesting birds. European starlings can potentially depress populations of cavity-nesting bird species, such as purple martin, by competing for cavities. However, the Conservancy has no evidence that starlings are depressing populations of cavity-nesting bird species at Tejon Ranch. The Conservancy will undertake research and monitoring to assess the distribution, abundance, and potential negative effects of European starlings on cavity-nesting birds on Tejon Ranch.

Conservation Activity NC-4.4(c). Cap open vertical pipes. Birds and other wildlife can enter open vertical pipes and become trapped and die. The Conservancy will identify open vertical pipes and retrofit them with caps to prevent entry by wildlife.

3.2 WATERSHEDS

Watersheds provide important ecosystem processes that drive stream geomorphology; water quality and sediment regimes; surface water–groundwater interactions; and the distribution, composition, and structure of riparian and wetland habitats. The Conservancy has limited quantitative information concerning hydrologic regimes and watershed functions for much of Tejon Ranch. However, the Conservancy has established watershed conservation goals and objectives, which are described below. Watershed conservation goals have been identified for three characteristics of watersheds: hydrologic regimes, sediment regimes, and channel dynamics. Conservation Activities are focused on gathering information to characterize watershed conditions, functions, and processes that will inform management in the future.

3.2.1 HYDROLOGIC REGIMES

The Conservancy's conservation goal for hydrologic regimes is as follows:

- *Goal W-1: Maintain and restore natural hydrologic regimes and surface-groundwater connections.*

Background

Watersheds that are contained within Tejon Ranch (e.g., the El Paso Creek, Tunis Creek, Big Sycamore Canyon, and Sacatara Canyon watersheds) have few human modifications that would alter watershed hydrologic regimes. Human modifications that do exist include dirt ranch roads, some human structures (e.g., hunting cabins, houses of in-holders), stream diversions in the lower reaches of Tejon Creek and El Paso Creek, and scattered groundwater wells at lower elevations of the Ranch. In addition, vegetation cover can be altered by livestock grazing and feral pig rooting, which can affect runoff patterns, water quality, and ultimately the hydrologic regimes of streams.

The Conservancy's conservation objectives for hydrologic regimes and Conservation Activities to achieve these objectives are described below.

- **Objective W-1.1:** Characterize hydrologic regimes and surface water–groundwater dynamics.

Conservation Activity W-1.1. Investigate hydrologic regimes and surface water–groundwater dynamics. The Conservancy has insufficient information from which to characterize the hydrologic regimes of watersheds on Tejon Ranch, groundwater dynamics, and the connections of surface water and groundwater. The Conservancy will conduct investigations of hydrologic regimes and surface water–groundwater dynamics in watersheds on the Ranch. The studies will allow potential impacts to Conservation Values from expanded groundwater extraction activities to be monitored and assessed.

- **Objective W-1.2:** Maintain and enhance, as appropriate, surface water and groundwater dynamics supporting riparian and wetland systems.

Conservation Activity W.1-2. Maintain and enhance surface water and groundwater dynamics based on proposed investigations. As specified in the Ranch-wide Agreement, no New Surface Water Diversions are permitted in Conserved Lands, except the possible relocation of the uppermost existing diversion in El Paso Creek and other diversions for which TRC holds existing permits. Within the TU MSHCP Covered Lands, the location of such relocated weir structure diversions is subject to USFWS review and approval. TRC will avoid changes to or expansion of groundwater extraction practices that would cause significant groundwater-related impacts to Conservation Values. Within the TU MSHCP Covered Lands, water diversion activities are also restricted by the TU MSHCP, so that there will be no significant expansion of surface water 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 TU MSHCP. As informed by the hydrologic investigations described in Measure W-1.1, the Conservancy will implement measures to maintain and enhance, as appropriate, surface water and groundwater dynamics supporting riparian and wetland systems.

3.2.2 SEDIMENT REGIMES

The Conservancy's conservation goal for sediment regimes is as follows:

- ***Goal W-2: Restore natural sediment regimes in watersheds.***

Background

Although watersheds within Tejon have few human modifications, the Conservancy's anecdotal observations suggest that streams are carrying high sediment loads. Elevated rates of hillslope and streambed erosion that may contribute excess sediment to streams may be associated with livestock grazing and feral pig rooting. The Tehachapi Mountains are also known to be still rapidly uplifting, with many landslide features, and they may have naturally high rates of sediment transport to streams.

The Conservancy's conservation objectives for sediment regimes and Conservation Activities to achieve these objectives are described below.

- **Objective W-2.1:** Characterize sediment regimes across watersheds.

Conservation Activity W-2.1. Investigate sediment dynamics and relative contributions from natural sources, anthropogenic sources, and wildlife-related land cover changes. The Conservancy has no information from which to characterize the sediment regimes of watersheds on Tejon Ranch. The Conservancy will conduct investigations of sediment dynamics to characterize the existing sediment regimes and the relative contributions of natural sources, anthropogenic contributions (e.g., roads) and contributions from land cover changes associated with livestock grazing and feral pig activity.

- **Objective W-2.2:** Evaluate road/stream interactions and prioritize actions to reduce erosion and sediment production.

Conservation Activity W-2.2. Evaluate the contribution of road crossings to stream sediment, and identify erosion/sediment-reduction measures. A potential anthropogenic source of sediment to streams is crossings of streams by ranch roads. The Conservancy will evaluate road crossings of streams on the Ranch to assess their potential contributions to sediment loads. The Conservancy will then prioritize actions to reduce erosion and sediment production associated with road crossings of streams, such as installing culverts at stream crossings. Section 4.3 in this volume of the RWMP contains several road management BMPs intended to help mitigate potential impacts from the road network on Tejon Ranch.

- **Objective W-2.3:** Reduce excess erosion from hillslopes and streambeds.

Conservation Activity W-2.3. Establish standards to protect range condition and productivity. Livestock grazing practices that remove vegetative ground cover can increase rates of hillslope erosion and increase sediment loads in streams. Working with TRC, the Conservancy is establishing RDM or other standards as a BMP for the livestock grazing operations at Tejon Ranch. These RDM standards are targeted at protecting range condition and productivity, including soil protection to minimize erosion potential. RDM standards are discussed further in Section 4.5.1 below.

3.2.3 CHANNEL DYNAMICS:

The Conservancy's conservation goal for channel dynamics is as follows:

- ***Goal W-3: Restore natural channel dynamics.***

Background

Stream channel dynamics can be important drivers of riparian structure and function. Ensuring natural stream dynamics, and restoring such dynamics where needed, is important to maintaining high-quality riparian and stream habitats. The Conservancy has no quantitative information on stream geomorphology and channel dynamics, but anecdotal observations suggest that some stream channels may be unnaturally incised, which can reduce connectivity of the stream to its historic floodplain.

The Conservancy's conservation objectives for channel dynamics and Conservation Activities to achieve these objectives are described below.

- **Objective W-3.1:** Characterize stream geomorphic conditions and dynamics.

Conservation Activity W-3.1. Conduct investigations of stream geomorphology. The Conservancy has no information from which to characterize the geomorphology and dynamics of streams on Tejon Ranch. The Conservancy will conduct geomorphological investigations to evaluate stream reaches that may no longer exhibit natural dynamics. For example, as discussed in Section 3.1.3, the Conservancy is initiating baseline characterizations of riparian plant communities, hydrology, and geomorphology on five low-elevation San Joaquin Valley stream reaches.

- **Objective W-3.2:** Restore geomorphic and hydrologic processes where desired and appropriate.

Conservation Activity W-3.2. Maintain and enhance channel geomorphological dynamics to support riparian structure and function. As informed by the geomorphological investigations described in Conservation Activity W-3.1, the Conservancy will implement measures to maintain and enhance as appropriate channel geomorphological dynamics that are important to support riparian structure and function.

3.3 LANDSCAPES

Landscapes are groupings of natural communities or ecosystems that are repeated at larger spatial scales. Thus, landscapes have properties or functions that cross boundaries of natural communities or watersheds and that help support and maintain Conservation Values. The Conservancy has identified three attributes of landscapes that it considers to be of particular importance to maintaining conservation values at Tejon Ranch: functional diversity (the variety of species' traits or roles present in the landscape), connectivity, and fire regimes. In the following sections, conservation goals and objectives are identified for each of these landscape features and Conservation Activities are described to achieve these goals and objectives.

3.3.1 FUNCTIONAL DIVERSITY

The Conservancy's conservation goal for landscape functional diversity is as follows:

- ***Goal L-1: Promote functional diversity and resiliency of landscapes to change.***

Background

Landscapes with higher species diversity and food web complexity tend to be more resilient to change, for example in response to changing climates. The Conservancy has not attempted to document functional diversity at Tejon Ranch, but will continue to work to achieve the objectives below.

- **Objective L-1.1:** Continue to identify and describe ecological sites.

Conservation Activity L-1.1. Develop site descriptions for Tejon Ranch ecosystems. Developing a better understanding of the diversity, distribution, and interrelationships of natural communities across the landscape will allow for more informed stewardship. The Conservancy will continue to develop environmental site descriptions for the range of ecosystems at Tejon Ranch. These investigations will allow the Conservancy to better understand the composition and structure of these systems, the factors controlling species associations and driving changes in composition and habitat quality, and their current conditions.

- **Objective L-1.2:** Increase populations of target plant and animal species as appropriate.

Conservation Activity L-1.2. Enhance habitat for conservation targets. Multiple Conservation Activities to enhance habitat for conservation targets have been described above. For example, the Conservancy has proposed Conservation Activities to increase populations of target species in San Joaquin Valley grassland (Conservation Activities NC-2.2(a) and NC-2.2(b)), Antelope Valley grassland (Conservation Activities NC-1.4(a) and NC-1.4(b)), riparian/wetland habitats (Conservation Activities NC-3.2(a) and NC-3.2(b)), and oak woodland (Conservation Activities NC-4.2 and NC-4.3). Other systems will be targeted as future information suggests a need and as opportunities arise.

3.3.2 CONNECTIVITY

The Conservancy's conservation goal for connectivity is as follows:

- ***Goal L-2: Maintain and enhance, as appropriate, connectivity for native species.***

Background

Landscape connectivity is a significant Conservation Value for Tejon Ranch and is explicitly identified as such in the Ranch-wide Agreement and in conservation easements. However, empirical data characterizing connectivity for any particular species are lacking. Connectivity can be considered at two scales: within Tejon Ranch and between Tejon Ranch and adjacent habitats. Connectivity between Tejon Ranch and adjacent habitats is probably restricted for some species (i.e., many terrestrial vertebrates) by major highways (including Interstate 5 (I-5), State Route [SR] 58, and SR 138) and California Aqueduct canals, although many birds, flying insects, and some plants are not likely to be affected by these human-made features. Culverts and road crossings under these features do exist and provide opportunities for passage for some species.

In general, connectivity within Tejon Ranch is relatively high, but removing physical obstacles and barriers and enhancing habitats can improve connectivity for some species. For example, certain fence designs or old, downed barbed-wire fencing can impede movement of some wildlife, and some species may not move through certain types of human land uses (e.g., residential development or agricultural areas).

The Conservancy's conservation objectives for connectivity and Conservation Activities to achieve these objectives are described below.

- **Objective L-2.1:** Identify and evaluate features and activities that currently reduce landscape connectivity for target species.

Conservation Activity L-2.1. Investigate factors impairing connectivity for target species. Features that promote landscape connectivity are species-specific. For example, mule deer will readily jump over a barbed-wire fence, but pronghorn will only cross under or through the fence. Thus, the design of the fence may reduce connectivity for pronghorn but not mule deer. The Conservancy will continue to investigate connectivity of key target species and evaluate factors that may be impairing connectivity. In 2012, the Conservancy facilitated the collection of genetic samples of blunt-nosed leopard lizards on

Tejon Ranch that are being used by researchers to conduct a range-wide genetic assessment of the species populations. Information such as this can be used to assess whether connectivity between populations of specific species appears to be restricted.

- o **Objective L-2.2:** Enhance connectivity for target species.

Improving the quality of wildlife habitats or removing specific impediments to wildlife movement can improve connectivity for those species. The Conservancy has identified several habitat enhancement projects that may enhance connectivity across habitats on Tejon Ranch. These Conservation Activities are described below.

Conservation Activity L-2.2(a). Enhance habitat structure of San Joaquin Valley grasslands.

Enhancing low-elevation San Joaquin Valley grasslands on Tejon Ranch can improve connectivity for species such as San Joaquin kit fox and blunt-nosed leopard lizard. As has been discussed previously, the Conservancy hypothesizes that grassland habitats for these species can be enhanced through managed grazing to maintain low biomass conditions. Enhancing grassland habitat structure for these species should facilitate movement through what are currently areas of lower quality habitat.

Conservation Activity L-2.2(b). Evaluate predation pressure on San Joaquin kit fox by coyotes and install artificial escape burrows if warranted. High predation risk can also reduce connectivity for some species. For example, San Joaquin kit fox can be subject to predation by coyotes, which may reduce their movement through areas of high predation risk. Predation risk can potentially be reduced when an adequate number of escape burrows are present. As predation pressure is documented, the Conservancy may install artificial kit fox escape burrows to improve habitat quality for kit fox, thereby improving connectivity functions.

Conservation Activity L-2.2(c). Enhance riparian habitats through managed grazing and based on results of the pilot riparian enhancement project. Riparian habitats often serve as travel corridors for wildlife, and enhancing riparian habitats can facilitate use of these habitats for various species of wildlife, particularly between lower and higher elevation areas on Tejon Ranch. Enhancing riparian habitats will improve connectivity for many wildlife species that travel along riparian corridors. As discussed previously, the Conservancy is proposing to enhance riparian habitats through managed grazing involving livestock operational modifications, installing new riparian fencing and upland water supplies for livestock, and controlling feral pig abundance in riparian areas. A pilot riparian enhancement project is being proposed in the lower reaches of Tejon, Chanac, El Paso, and Tunis Creeks (Appendix B), and the results of this project will inform enhancement approaches in other riparian systems.

Conservation Activity L-2.2(d). Remove downed wire and other obstacles. Downed barbed-wire fence and other obstacles may impair movement or entangle wildlife. The Conservancy will remove downed wire and other obstacles across the Ranch to reduce the potential for adverse effects. Initial areas targeted for removal of downed wire are Monte Field, Canyon del Gato Montes, and Lopez Flats.

Conservation Activity L-2.2(e). Modify fences to enhance pronghorn movements. As discussed in Conservation Activity NC-1.4(b), pronghorn will not jump barbed-wire fences but will easily move under the bottom strand if it is high enough off the ground to allow unimpeded passage. The Conservancy will enhance the ability of pronghorn to move through suitable habitat by replacing the lower strands on key barbed-wire fences with smooth wire and ensuring the bottom strand is at least 19 inches above ground level. Fences targeted for retrofitting are shown in Figure 3-3. Also, Section 4.5.5 of this RWMP provides fencing BMPs targeted at making fences more “wildlife friendly.”

Conservation Activity L-2.2(f). In addition, as opportunities arise, the Conservancy will seek to partner with appropriate agencies (e.g., California Department of Transportation and California High Speed Rail Authority) to install wildlife crossing structures or otherwise enhance wildlife connectivity (e.g., removing median barriers on SR 58 or enlarging culverts on I-5) across major roadways.

3.3.3 FIRE REGIMES

The Conservancy's conservation goal for fire regimes is as follows:

- ***Goal L-3: Manage fire regimes to minimize risk of severe or irreversible impacts to native species and ecosystems.***

Background

Fire regimes for most systems on Tejon Ranch show significant departure from regimes present prior to European settlement. Many systems have experienced fewer fires than are thought to have occurred prior to European settlement; however, the size and frequency of human-caused fires have been increasing in recent decades, and areas along highways (e.g., I-5) have particularly high frequencies of fires. Management to achieve pre-European settlement fire regimes (e.g., introducing prescribed fires) may be feasible but could have unpredictable and adverse impacts if not applied in habitats with physical structure and fuel loads conducive to the management effort. Developing a better understanding of vegetation structure and fuel loads, particularly in forested systems on Tejon Ranch, will be a necessary prerequisite to implementing prescribed burns on Tejon Ranch. The presence of invasive nonnative plants (e.g., salt cedar, cheat grass) in some habitats may also increase fuel loads and fire intensity and may contribute to altered fire regimes.

The Conservancy's conservation objectives for fire regimes and Conservation Activities to achieve these objectives are described below.

- **Objective L-3.1:** Continue to assess structure, composition, and fuel loads of natural communities.

Conservation Activity L-3.1. Develop site descriptions for ecosystems, especially stand structure of conifer and mixed conifer forests. The Conservancy will continue to develop environmental site descriptions for ecosystems at Tejon Ranch. These descriptions will help the Conservancy to better understand the composition and structure of these communities, the factors controlling species associations and driving changes in composition and habitat quality, and how current conditions inform fuel loading and the need for treatment. In particular, documenting the stand structure of conifer and mixed conifer forests is a high priority.

- **Objective L-3.2:** Implement a program to eradicate nonnative plant species (e.g., tamarisk and cheat grass) that can alter fire regimes.

Conservation Activity L-3.2. Monitor distribution of invasive plant species and implement control of these species. The Conservancy will monitor the distribution of invasive plant species and implement strategic control of these species. Control of salt cedar in lower Tejon and Chanac Creeks is underway and will continue until eradication is achieved. A small patch of giant reed in Tejon Canyon is targeted for removal. Cheat grass is widely distributed in the Antelope Valley and appears to expand during wet winters. Eradication of cheat grass is likely not feasible, but cheat grass can be controlled with herbicides and, potentially, through managed grazing.

- **Objective L-3.3:** Monitor the effects of fire suppression and livestock grazing (as a fuel management tool) on natural communities.

Conservation Activity L-3.3. Monitor fuel loads and coordinate with TRC on fuel treatment plans. The ongoing fire suppression policies in effect at Tejon Ranch (described in Objective L-3.4) are considered appropriate, and livestock grazing appears to reduce fuel loads in many habitats. However, to ensure that the effects of these management actions do not degrade ecological conditions, the Conservancy will monitor fuel loads, vegetation structure, and recruitment of oaks and other tree species. The Conservancy will coordinate with TRC on any fuel treatment plans.

- Objective L-3.4: Continue existing fire suppression policies.

Conservation Activity L-3-4. Continue existing fire suppression policies. Fires on Tejon Ranch are immediately suppressed by fire response agencies. The Conservancy will work with TRC and the relevant response agencies to continue existing fire suppression policies until evidence supports changing these policies.

3.4 FOCAL SPECIES

The Conservancy's conservation goal for focal species is as follows:

- ***Goal FS-1: Promote viable populations of native wildlife species playing important ecological roles.***

Background

Wildlife species can affect the structure and function of ecosystems through ecological interactions such as predation, competition, and herbivory. In particular, predators and large herbivores are known to be especially important in structuring ecosystems. A number of nonnative animals, including feral pig, red fox, and European starling, have become established on the Ranch and may exert strong negative effects on native wildlife species. Feral pigs are abundant at Tejon Ranch and their effects are thought to be pervasive and adverse for a wide variety of wildlife and plants. The Conservancy considers the negative effects of feral pigs to be the biggest threat to Conservation Values on Tejon Ranch. At the same time, the Conservancy has little empirical information on the abundance or interactions of wildlife species on the Ranch, particularly in response to the increasing feral pig population. In addition, the level of harvest of various wildlife species by TRC hunting clients and lessees, and the effects of such harvest, is not well quantified. A detailed assessment of key wildlife species on Tejon Ranch and management recommendations are provided in Appendix C. High-priority Conservation Activities are discussed below.

- Objective FS-1.1: Develop a better understanding of the relative ecological importance of wildlife species to Tejon Ranch ecosystems.

Conservation Activity FS-1.1. Improve wildlife monitoring and harvest reporting. The Conservancy will work with TRC to improve wildlife monitoring and hunter harvest reporting at Tejon Ranch. In hunter orientations, TRC will emphasize the need for hunters to accurately report animals harvested within designated hunting areas on Tejon Ranch. The data will be compiled at the end of the spring and fall seasons and shared with the Conservancy no later than September 1 and March 1, respectively. The Conservancy will be exploring potential monitoring approaches for various wildlife species in 2013 and will work with TRC to incorporate these techniques into existing wildlife monitoring efforts as appropriate.

- Objective FS-1.2: Characterize the population ecology and dynamics of important native and nonnative wildlife species.

Conservation Activity FS-1.2(a). Collect information on feral pig populations to support development of a management strategy. Feral pigs are considered the biggest threat to Conservation Values on Tejon Ranch but little is known about their population size, reproduction and survival rates, territory sizes, movement patterns, or diet or about the relationship of these factors to the level of ecological damage they cause. The Conservancy does not believe that complete eradication of pigs from the Ranch is feasible at this time. However, the Conservancy hypothesizes that damages to Ranch ecosystems from pigs are directly related to their abundance and that depressing their abundance, either by increasing mortality or by excluding them from specific areas, may reduce ecological damages to an acceptable level. The Conservancy is initiating research in 2013 to determine the population abundance and distribution of feral pigs on Tejon Ranch and the ecological damages they cause. The Conservancy is also developing a feral pig population model to evaluate the effects of different harvest rates on

population abundance. This information will be used to inform development of a management strategy for this species.

Conservation Activity FS-1.2(b). Assess population status and trends of key wildlife species. The Conservancy is also proposing to enhance wildlife population monitoring of key species at Tejon Ranch and is exploring alternative methodologies in 2013. Using these monitoring data and improved harvest information generated by TRC, the Conservancy will assess population status and trends of key wildlife species.

- **Objective FS-1.3:** Develop a management strategy for feral pigs.

Conservation Activity FS-1.3(a). Develop a feral pig management strategy. As discussed in Conservation Activity FS-1.2(a), the Conservancy is initiating research on the population abundance and distribution of feral pigs on Tejon Ranch and the ecological damages they cause. The Conservancy will collaborate with TRC to use this information to develop a comprehensive feral pig management strategy to reduce the environmental damages caused by feral pigs to acceptable or lowest practical levels.

Conservation Activity FS-1.3(b). Collaborate with TRC and other organizations to pilot innovative management strategies for feral pigs. The Conservancy wishes to collaborate with TRC and other organizations to pilot innovative management strategies for feral pigs that may inform a management strategy on Tejon Ranch and in other parts of California.

- **Objective FS-1.4:** Manage predator species to maintain their ecological effects on food webs.

Conservation Activity FS-1.4. Implement wildlife management BMPs to reduce overall harvest of predator species and develop wildlife management plans for these species. The Conservancy recognizes the important role that predator species play in structuring food webs but has little information on the populations of these species on Tejon Ranch. As described in Conservation Activities FS-1.2(a) and FS-1.2(b), the Conservancy is exploring potential wildlife monitoring methods on Tejon Ranch to improve its understanding of these species. Wildlife management BMPs described in Section 4.5.2, including the suspension of hunter harvest of all predators on nearly 20% of the Conserved Lands, are expected to reduce the overall harvest of predators at Tejon Ranch. Additionally, the Conservancy will use information on species populations and hunter harvest to work with TRC to develop wildlife management plans for predator species to ensure that their ecosystem functions are maintained.

- **Objective FS-1.5:** Manage game species to maintain sustainable populations and to promote biodiversity.

Conservation Activity FS-1.5. Develop wildlife management goals, objectives, and strategies for harvested species. The Conservancy will collaborate with TRC to make use of hunter effort, harvest, and population monitoring data to develop explicit wildlife management goals, objectives and strategies for harvested species. Development of management goals and strategies will be prioritized for feral pig, mule deer, Rocky Mountain elk, and pronghorn. Predators are discussed under Focal Species Objective FS-1.4.



The Ranch-wide Agreement requires that the Conservancy identify BMPs to reduce environmental impacts to resources in Conserved Lands that may result from Ranch Uses. BMPs are derived from recommended best practices for weed management (Appendix A), grazing management (Appendix B), wildlife management (Appendix C), and Designated Use Areas (Appendix D). The BMPs listed below are the highest priority BMPs and have been developed by the Conservancy in cooperation with TRC. These BMPs will be implemented by TRC as described in the Adaptive Management Framework presented in Section 2 of this volume following approval of the RWMP by the Conservancy Board, unless a specific timeline for implementation is included in the particular BMP. Given the vast size of the Conserved Lands, this RWMP recognizes that TRC and the Conservancy must meet regularly and prioritize implementation of the BMPs presented below (e.g., invasive plant control), with the understanding that the intent of many BMPs is to phase in and institutionalize the particular practice at Tejon Ranch. However, many other BMPs will be implemented immediately across the relevant areas of the Ranch. It is not the Conservancy's intent to usurp any regulatory rulemaking or permitting authority; if conflicts occur, all laws and permits will take precedent over BMPs. Where relevant, BMPs required by the TU MSHCP are included below.

Some of TRC's Ranch Uses subject to BMPs are conducted under lease arrangements. As provided by the Ranch-wide Agreement, BMPs identified in the RWMP are required to be incorporated into existing leases. One year before updating the RWMP (or subsequent RWMP updates), the Conservancy will notify TRC of its intent to do so. In turn, TRC will provide the Conservancy with a list of leases covering any portion of the Conserved Lands with a term that will expire within the following 6 years and any new or amended leases TRC expects to enter into within the following 6 years. At the time of each 5-year update of the RWMP, TRC will incorporate BMPs from the approved RWMP update into relevant leases on this list. TRC will ensure that BMPs incorporated into these leases will be implemented in good faith. In addition, the TU MSHCP requires TRC to require in all future leases, to the extent allowed by law and applicable contracts, that lessees abide by all applicable terms of the TU MSHCP when engaging in Covered Activities on the Covered Lands.

4.1 COMPLIANCE MONITORING AND REPORTING

Information sharing is a critical component of the adaptive management process. Ensuring that BMPs are being implemented is a necessary component in evaluating their practicability and assessing their effectiveness.

BU CM-1: TRC will conduct compliance monitoring of BMPs and annually summarize the results for incorporation into the adaptive management process via the Operations Committee. The Operations Committee will meet annually in the fall of each year to review and discuss planning for the following year.

4.2 GENERAL BMPs FOR TU MSHCP COVERED LANDS

Activities on the TU MSHCP Covered Lands (Figure 1-1) are managed by both overarching measures, discussed in this section, and activity-specific measures, discussed under each specific Ranch Activity below that are required by the TU MSHCP and the Permit. In addition, the plans required for the Covered Activities, such as the Grazing Management Plan, Fuel Management Plan, and Integrated Pest Management Plan, are found in Volume 4. The Public Access Plan is provided in Volume 3. The following general BMPs apply throughout the TU MSHCP Covered Lands:

BMP TU MSHCP-1: TRC will develop a condor educational curriculum, prepare condor educational materials and implement a training program, such as printed brochures or other media, that will include information concerning the life history of the California condor, where condors may occur on Tejon Ranch,

and prohibited behaviors related to condors (such as pursuit, capture, and harassment of individual condors and other direct interaction with condors).

BMP TU MSHCP-1a The information shall also identify types of micro-trash that could be ingested by condors and describe measures to eliminate micro-trash at and near all construction sites, recreational areas, outdoor filming projects, roads, and back-country areas where human presence occurs.

BMP TU MSHCP-1b The educational 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.

BMP TU MSHCP-1c Through the Public Access Plan, TRC will provide TRC guests, contractors, film crews, residents, licensees, and visitors, particularly those engaging in recreational activities in Covered Lands that could put them in close proximity to condors, with educational information regarding acceptable activities in open space areas, including recreational activities, pet restrictions, and wildlife restrictions (including prohibition on collecting individuals).

BMP TU MSHCP-1d Project land managers will be empowered to take action to prevent any such activity that would pose a threat to condors.

BMP TU MSHCP-1e This measure will be included in implementation documentation as appropriate.

BMP TU MSHCP-2: TRC will require lessees, workers, filming crews, TRC staff, and anyone accessing Conserved Lands 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 USFWS-approved Tejon Ranch Staff Biologist. Documentation describing this prohibition will not list such behaviors in detail, but will provide examples and will authorize the USFWS-approved Tejon Ranch Staff Biologist, in consultation with USFWS, to respond to changing California condor behaviors, human activities, and other conditions in Conserved Lands with whatever restrictions are deemed necessary to provide the protection intended.

BMP TU MSHCP-3: TRC will hire a USFWS-approved Tejon Ranch Staff Biologist who will 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 within the lands covered by the TU MSHCP. The USFWS-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 issued a scientific permit by USFWS under Section 10(a)(1)(A) of the federal ESA and permitted to do so by applicable Federal and State law. Handling of California condors is the responsibility of USFWS. The USFWS-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:

BMP TU MSHCP-3a Perform the monitoring and reporting responsibilities of TRC described in the TU MSHCP.

BMP TU MSHCP-3b Perform the enforcement responsibilities of TRC described in the TU MSHCP.

BMP TU MSHCP-3c 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 USFWS, 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 to be distributed to such persons.

BMP TU MSHCP-3d Monitor use of the Condor Study Area by adjacent homebuyers and lessees and facilitate communication and coordination among USFWS, 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.

BMP TU MSHCP-3e Conduct educational programs and disseminate educational materials concerning the California condor to homebuyers and visitors to any mountain development.

BMP TU MSHCP-3f Coordinate with TRC's Wildlife Management Operation on implementation of the hunter education and enforcement program regarding the lead-ammunition ban and condor protection.

BMP TU MSHCP-3g Assist USFWS with assessment and implementation methods to discourage California condors' use and visitation of human communities and dwellings on the Covered Lands. The USFWS-approved Tejon Ranch Staff Biologist will contact USFWS immediately if habituation behavior by California condors is witnessed or reported and will assist USFWS, as necessary and as requested by USFWS, by providing additional monitoring of condors determined to be exhibiting behaviors with the potential to result in habituation, and/or of areas within Covered Lands determined to be attractive to condors. The discouragement measures, including hazing, will be implemented by USFWS, in consultation with TRC. The USFWS-approved Tejon Ranch Staff Biologist will not undertake any hazing activity under this paragraph unless and until he/she has applied for and received a scientific permit from USFWS under ESA Section 10(a)(1)(A) that covers such activity, and any incidental take that may result, and USFWS and TRC have determined that he/she may do so in accordance with all applicable Federal and State laws (including approval for inclusion in a Memorandum of Understanding—if and to the extent required—between USFWS and the California Department of Fish and Wildlife (CDFW) that allows such interactions with California condors despite their status as a Fully Protected Species under state law).

BMP TU MSHCP-3h Assist in communications with USFWS regarding potential violations of the TU MSHCP, ESA, or any recorded conservation easement or Covenants, Codes, and Restrictions.

BMP TU MSHCP-4: TRC will prohibit the intentional feeding of bald eagles on the Covered Lands.

BMP TU MSHCP-5: TRC will coordinate with the Conservancy to determine if active golden eagle nest sites (primary and/or alternate) are observed in a focal area for Public Access activities; an analysis will be prepared to identify the primary nest and establish its viewshed. Because golden eagles typically build primary and alternate nests in relatively 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 that applied to the primary nest site. A complete viewshed analysis will be conducted for the primary nests determined to be in active use.

BMP TU MSHCP-6: 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.

BMP TU MSHCP-7: TRC will restrict trail use in Covered Lands between 0.25 and 0.5 mile from an active primary or alternate golden eagle nest during the nesting season (February 1 through June 1). Trail use may be allowed during the nesting season, if the project biologist or USFWS-approved Tejon Ranch Staff Biologist has determined that the nest has become inactive and trail use would not affect nesting golden eagles.

4.3 INVASIVE SPECIES

Invasive species are one of the leading conservation challenges facing TRC and the Conservancy. Invasive species have the potential to cause a range of systemic negative effects, such as outcompeting or predating native vegetation and wildlife species, reducing habitat quality, changing fire regimes, and altering nutrient cycles. Operations associated with Ranch Uses have the potential to introduce new unwanted species and exacerbate existing invasive species problems. Additionally, operations directly associated with invasive species management activities on the Ranch have the potential to introduce novel species and spread established invasive species to new locations. The following BMPs will help to preserve Conservation Values and mitigate these potential impacts during invasive species management activities on the Ranch and will be coordinated with Conservation Activities related to invasive species: Section 3.1.1, Objectives NC-1.2 and NC-1.3; Section 3.1.2, Objective NC-2.4; Section 3.1.3, Objective NC-3.3; Section 3.1.4, Objective NC-4.4; and Section 3.4, Objective FS-1.3. Control of invasive species in the TU MSHCP Covered Lands and related BMPs are found in the Integrated Pest Management Plan in RWMP Volume 4.

BMP IS-1: TRC will coordinate with the Conservancy and, as appropriate, local weed management districts to control invasive plant species on Ranch lands. This will require determining the location and extent of populations of invasive species, developing and implementing a prioritized control strategy, and minimizing impacts to non-target species. TRC is responsible for all development areas and Designated Use Areas; areas around buildings and incidental ranching infrastructure, hunting cabins, and Designated Water Bank Area; and roads maintained by TRC. TRC and the Conservancy will work together to prioritize areas of TRC responsibility for which TRC and the Conservancy will focus their respective invasive plant control efforts for these areas of TRC responsibility.

BMP IS-2: TRC will coordinate with the Conservancy and, as appropriate, other state and federal agencies to control invasive animal species. As a first step, TRC will collaborate with the Conservancy to develop and implement a comprehensive feral pig management strategy to quantify and reduce damage to natural resources caused by feral pigs to acceptable or lowest practical levels.

BMP IS-3: TRC will minimize the potential for dispersal of invasive plant species by vehicles by communicating the locations of existing infestations to operations staff and avoiding driving off-road or parking on the side of the road in infested areas. TRC operations staff will avoid constructing new roads, fire lines, or other projects that disturb soil through existing invasive plant populations and avoid dispersing soil from those areas to unaffected areas.

BMP IS-4: TRC will prohibit the release of nonnative animal species other than the release of pheasant (or other nonnative species subject to the approval of the Conservancy) for hunting purposes, and those introduced specifically for the purpose of biological control of specific noxious species.

BMP IS-5: TRC will monitor the presence of invasive plant species within all development areas and Designated Use Areas; around buildings and incidental ranching infrastructure, hunting cabins, and Designated Water Bank Area; and along roads maintained by TRC and will prioritize and focus eradication efforts on any newly discovered invasive species locations before they become widespread and too damaging and costly to manage.

BMP IS-6: TRC will use an integrated pest management approach in the control of invasive species, including utilizing biological, mechanical, chemical, and other accepted control methods.

BMP IS-7: TRC will ensure that appropriate safety equipment is used for herbicide applications and that applicators have had proper safety training.

BMP IS-8: TRC will ensure that weeds that have been cut or removed from the ground are left in place to avoid dispersing seeds and plant parts to non-infested areas, unless the weed biomass is considered a fire

hazard to structures or is otherwise aesthetically unpleasing. Weed biomass that must be placed out of sight will be placed in another infested area immediately nearby. If weed biomass must be removed from the site to a designated disposal area, TRC will ensure that propagules are secured in a tarp (without holes or rips) and then carried to a vehicle. Biomass should be properly wrapped to prevent plant parts from blowing away in transit, and vehicles carrying weed biomass will be inspected prior to leaving the site to ensure that no plant parts are resting on the bumpers, tailgates, or other exposed areas.

4.4 ROADS MAINTENANCE

Tejon Ranch has an extensive road network of approximately 2,000 miles, of which only approximately 50 miles are paved. TRC informally classifies unpaved roads as major, minor, and in a small number of cases, “4x4 Only.” The road network serves to support TRC’s ranch operations and those activities of its lessees, guests, and third parties, including interior property owners and the Conservancy. Additionally, in the instance of wildfire outbreak on the Ranch, the road network can serve as a mineral fuel break system and network of access for firefighting. Multiple entities maintain roads on Tejon Ranch, including utility easement holders and local and state fire response agencies.

While fundamental to this working ranch’s operation, activities associated with road maintenance activities on Tejon Ranch have the potential to have adverse effects to soil, water quality, habitat, and riparian resources. Additionally, road management operations have the potential to disturb sensitive wildlife habitat and vegetation, cause erosion and sedimentation, introduce invasive species, and cause fires. The following BMPs will help to preserve Conservation Values and mitigate these potential impacts during road maintenance activities on the Conserved Lands.

BMP R-1: TRC will seek to limit roads to the minimum practicable number, width, and total length consistent with the purpose of Ranch operations, local topography, geology, and habitat to achieve desired goals and objectives for access. See also “Additional BMPs for TU MSHCP Covered Lands.”

BMP R-1a: TRC will use existing roads when practicable.

BMP R-1b: TRC will avoid the creation of temporary roads unless the road can be constructed, operated, and decommissioned without needing specific techniques to avoid, minimize, or mitigate adverse effects to soil, water quality, and habitat resources.

BMP R-1c: In the event a temporary road is constructed, TRC will decommission it and return the land to a natural state when the access is no longer needed.

BMP R-1d: TRC will consult as needed with the Conservancy to consider decommissioning unused roads to reduce cumulative impacts to soil, water quality, and riparian resources on Conserved Lands.

BMP R-2: TRC will plan road networks to minimize waterbody crossings as is practicable to meet necessary objectives.

4.4.1 ROAD OPERATIONS AND MAINTENANCE BMPs

Tejon Ranch has an extensive road network. The maintenance of roads on Tejon Ranch is shared between TRC and easement holders, such as Southern California Edison and Kern County Fire Department. Each of these entities should seek to avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources, and should coordinate with the Conservancy to help achieve watershed conservation goals (e.g., Section 3.2.2, Objective W-2.2, Conservation Activity W-2.2). Road operations and maintenance BMPs include the following:

BMP R-3: When maintaining its roads, TRC will seek to maintain stable road prism, cut, and fill slopes.

BMP R-4: In the event of a road renovation, TRC will design cut and fill slope ratios to reduce soil loss from mass failures.

BMP R-5: For the roads that it maintains, TRC will maintain road surface drainage systems to intercept, collect, and remove water from the road surface and surrounding slopes in a manner that minimizes concentrated flow in ditches and culverts and concentrated flow over fill slopes and road surfaces.

BMP R-6: TRC will maintain roads for minimal disruption of natural drainage patterns and to minimize the hydrologic connection of the road segment or network with nearby water bodies.

BMP R-7: TRC will use suitable structural or nonstructural measures as necessary to avoid or minimize gully formation and erosion of fill slopes at outfalls of road surface drainage structures.

BMP R-8: TRC will, to the extent practicable, use suitable measures to avoid or minimize direct discharges from road drainage structures to nearby water bodies.

BMP R-9: When the landscape allows, TRC will strive to provide sufficient buffer distance at the outfalls of road surface drainage structures for water to infiltrate before reaching the water body.

BMP R-10: As needed, TRC will designate class of vehicle and type of uses suitable for the road segment based on the width, location, waterbody crossings, and road surfaces to avoid or minimize adverse effects to soil, water quality, or riparian resources.

BMP R-11: TRC will use suitable measures to communicate and enforce road use restrictions.

BMP R-12: TRC will maintain the road surface drainage system in a manner that reduces concentrated flow in ditches and culverts and concentrated flow over fill slopes and road surfaces.

BMP R-12a: TRC will clean ditches and catch basins only as needed to keep them functioning.

BMP R-12b: TRC will avoid undercutting the toe of the cut slope when cleaning ditches or catch basins.

BMP R-12c: TRC will use suitable measures to avoid, to the extent practicable, or minimize direct discharges from road drainage structures to nearby water bodies.

BMP R-12d: TRC will use accepted measures such as installation of water bars, rolling dips, and drains, or other suitable measures.

BMP R-13: TRC will continue to grade road surfaces as necessary to maintain the driving surface, although when practicable and cost effective, vegetation may be mowed from roads to allow root structure to reduce erosion.

BMP R-14: TRC will avoid overwidening of roads due to repeated grading over time, especially where sidecast material can encroach on water bodies.

BMP R-15: TRC will remove vegetation from swales, ditches, shoulders, and cut and fill slopes only as necessary when it impedes adequate drainage or vehicle passage or obstructs necessary sight distance.

Road Decommissioning BMPs

Road decommissioning includes a variety of treatments to block the road, revegetate the road surface, restore surface drainage, remove crossing structures and fills, mitigate road surface compaction, reestablish drainageways, remove unstable road embankments, and recontour the road surface to restore natural slopes.

When decommissioning a road, the following BMPs should be employed to avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources.

BMP R-16: In the event of a road decommissioning, TRC will coordinate with the Conservancy to implement measures to close and physically block the road entrance so that motorized vehicles cannot access the road, and TRC will remove the road from Ranch maps.

BMP R-17: In the event of a road decommissioning, TRC will work with the Conservancy to establish effective ground cover on disturbed sites to avoid or minimize erosion and soil loss. Suitable native species and establishment techniques will be used to stabilize and revegetate the site to prevent or control the spread of invasive nonnative species.

BMP R-18: In the event of a road decommissioning, TRC will implement measures to reestablish stable slope contours and surface and subsurface hydrologic pathways.

BMP R-19: TRC will consider decommissioning “problem” roads that need frequent grading and maintenance.

Stream Crossing BMPs

Many Tejon Ranch roads have stream crossings that include culverts, bridges, arched pipes, low-water crossings, vented fords, and permeable fills. Crossings installed and/or maintained by TRC should be designed and installed to provide for flow of water, bed load, and large woody debris; to provide for passage of desired aquatic organisms; and to minimize disturbance to the surface water and shallow groundwater resources. Such crossings should be coordinated with Conservancy Conservation Activities (e.g., Section 3.2.2, Objective W-2.2, Conservation Activity W-2.2). Stream crossing BMPs include the following:

BMP R-20: When constructing, reconstructing, or maintaining stream or creek crossings, TRC will avoid and minimize adverse effects to soil, water quality, and riparian resources.

BMP R-21: TRC will work to locate stream crossings where the channel is narrow, straight, and uniform and has stable soils and relatively flat terrain, to the extent practicable.

BMP R-22: TRC will design the crossing to pass a normal range of flows for the site, but also prevent the restriction of flood flows.

BMP R-23: TRC will obtain all required permits for the work.

BMP R-24: When installing or replacing culverts, TRC will follow the following BMPs to the extent feasible based on site conditions.

BMP R-24a: Align the culvert as close as practicable with the natural stream channel.

BMP R-24b: Cover culvert with sufficient fill to avoid or minimize damage by traffic.

BMP R-24c: Construct at or near natural elevation of the streambed to avoid potential flooding upstream of the crossing and erosion below the outlet.

BMP R-24d: Install culverts long enough to extend beyond the toe of the fill slopes to minimize erosion.

BMP R-24e: Use suitable measures to avoid or minimize water from seeping around the culvert.

BMP R-24f: Use suitable measures to avoid or minimize culvert plugging from transported bed load and debris.

BMP R-24g: Regularly inspect culverts and clean as necessary.

BMP R-24h: Ensure that the culvert is adequately sized.

Equipment Refueling and Servicing BMPs

Many road maintenance activities require the use and maintenance of petroleum-powered equipment in the field. For example, road construction and repair may employ equipment that uses or contains gasoline, diesel, oil, grease, hydraulic fluids, antifreeze, and coolants, which may pose a risk of contaminating soils, surface water, and groundwater during refueling and servicing the equipment. Equipment refueling and servicing BMPs include the following.

BMP R-25: TRC will avoid or minimize adverse effects to soil, water quality, and riparian resources from fuels, lubricants, cleaners, and other harmful materials discharging into nearby surface waters or potentially infiltrating to groundwater resources during equipment refueling and servicing activities.

BMP R-26: TRC will establish temporary refueling and servicing at designated locations, located well away from the riparian areas and water bodies.

Road Storm Damage BMPs

Large storms stress road systems in multiple ways: large volumes of water are transported on road surfaces and through its drainage systems; significant volumes of water and debris are transported through stream crossings; and elevated pore pressures on unstable hillslopes, road cut-slopes, and fill-slopes sometimes generate mass failures. All road drainage systems, stream crossings with culverts, and unstable slopes have the potential to fail during periods of high runoff. Road damage BMPs include the following:

BMP R-27: Monitor road conditions following storm events to detect road failures; assess damage or potential damage to water bodies, riparian resources, and watershed functions; determine the causes of the failures; and identify potential remedial actions at the damaged sites and preventative actions at similar sites.

BMP R-28: Identify precipitation thresholds, as necessary, above which roads should be avoided due to high potential for erosion.

Road Construction and Reconstruction BMPs

In the rare event that TRC needs to construct a new road, temporary and long-term erosion control measures are necessary to reduce erosion and maintain overall slope stability. TRC will implement the following erosion control BMPs.

BMP R-29: TRC will locate new roads to fit the terrain, follow natural contours, and limit the need for excavation. Avoid locations that require extended steep grades, sharp curves, or switchbacks.

BMP R-30: TRC will locate new roads on stable geology with well-drained soils and rock formations that dip into the slope. Avoid hydric soils, inner gorges, overly steep slopes, and unstable landforms to the extent practicable.

BMP R-31: TRC will locate any new roads as far from water bodies as is practicable to achieve access objectives.

BMP R-32: As opportunities arise, TRC will relocate existing routes or segments that are causing, or have the potential to cause, adverse effects to soil, water quality, and riparian resources, to the extent practicable.

BMP R-33: Use state-of-the-art practices for stormwater management and erosion control when constructing or reconstructing roads.

BMP R-34: Use accepted and suitable construction techniques to create stable fills.

BMP R-35: Identify and locate waste areas before the start of operations.

BMP R-36: Avoid road alignments requiring blasting.

BMP R-37: Use suitable measures in consultation with the Conservancy to prevent and control invasive species.

BMP R-38: When reconstructing existing roads, to the degree necessary, provide adequate drainage and avoid disturbing stable road surfaces.

Additional BMPs for TU MSHCP Covered Lands

In addition to the BMPs listed above, in TU MSHCP Covered Lands, TRC will implement the following BMPs listed in the TU MSHCP:

BMP TU MSHCP-8: In TU MSHCP Covered Lands, 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 USFWS. New road construction could occur only if such activities would not significantly impair the conservation value of the affected land. 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. Generally, construction of new roads in TU MSHCP Mitigation Lands to serve development is not permitted, 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 road; it would only be accessed by emergency vehicles or for emergency evacuation and would be subject to the 200-acre permanent ground disturbance limit. Any such new emergency vehicle access road would follow existing Ranch roads to the extent practicable.

BMP TU MSHCP-9: TRC will implement BMPs to protect surface water quality (i.e., pollutants, erosion, dust control, sedimentation) as required by applicable requirements from the federal Clean Water Act, Porter-Cologne Water Quality Control Act, and air districts.

BMP TU MSHCP-10: The installation of infrastructure (and trails) or other ground-disturbing activity in Covered Lands will include efforts to minimize the footprint of, and will use BMPs for the design and installation of, any such infrastructure, including surveys prior to grading, contractor education, staking, and temporary construction fencing.

BMP TU MSHCP-11: To ensure that diseases are not conveyed between work sites by the USFWS-approved Tejon Ranch Staff Biologist or project biologist, the fieldwork code of practice developed by the Declining Amphibian Populations Task Force (2009) will be followed at all times.

BMP TU MSHCP-12: Prior to grading, activities in or immediately adjacent to suitable habitat for Tehachapi slender salamander will be monitored. Exclusion fencing will be erected if appropriate to prevent Tehachapi slender salamanders from entering construction zones.

BMP TU MSHCP-13: In the rare instance of grading in Conserved Lands, TRC will conduct surveys for Tehachapi slender salamanders prior to grading in suitable habitat. The USFWS-approved Tejon Ranch Staff Biologist or project 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 USFWS-approved Tejon Ranch Staff Biologist or project 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.

BMP TU MSHCP-14: TRC will conduct surveys to determine presence or absence of western spadefoot prior to Ranch activities that could adversely affect breeding habitat for western spadefoot, such as eliminating stock ponds.

BMP TU MSHCP-15: In the event of construction in Conserved Lands, the USFWS-approved Tejon Ranch Staff Biologist will monitor construction activities in suitable habitat to ensure avoidance of harm to individuals of any Covered Species and will have the authority to direct the cessation of field activities likely to cause any such harm.

4.5 DESIGNATED USE AREAS

The Ranch-wide Agreement designates 21,175 acres for farming, mineral extraction and oil and gas operations, called the Designated Use Areas (DUAs), within the matrix of Conserved Lands that are subject to this RWMP. The DUAs include four Designated Farming Areas on nearly 2,800 acres, three Designated Mining Areas on 2,975 acres, and a single Designated Oil and Gas Area on 15,400 acres. These uses are core businesses for TRC, and under the Ranch-wide Agreement's mandate for planning, economic uses take precedence over the improvement of Conservation Values in these areas. As a first step in understanding these land uses and with an eye toward respecting the importance of these economic uses, the Conservancy commissioned a report concerning the regulatory framework for the use of these land uses (Appendix D). The report provides an overview of how farming, mining, and oil and gas operations are conducted in the Ranch's DUAs; examines the legal and regulatory framework for each of these land uses; and recommends BMPs that enable economic uses to continue while fostering protection of Conservation Values. Recommended BMPs are largely drawn from regulatory requirements and industry standards but also include measures to address specific concerns within the DUAs and to minimize impacts to surrounding Conserved Lands. One of the mining DUAs (the La Liebre Mine) is within TU MSHCP Covered Lands, and mining is not a Covered Activity under the TU MSHCP, so no TU MSHCP BMPs are applicable to this section. No other DUAs are within TU MSHCP Covered Lands.

BMPs Applicable to All DUAs

BMP A-1: Operations by any person or entity engaged in farming, mining, or oil and gas exploration and production in the DUAs will comply with all applicable laws, regulations, and permitting conditions, including site-specific plans and practices required by government agencies.

BMP A-1a: The absence of a BMP addressing a specific legal or regulatory requirement shall not be taken as authorization from TRC or the Conservancy not to comply with that requirement.

BMP A-1b: Subject to the provisions of the Ranch-wide Agreement and the applicable conservation easement regarding access and inspections, TRC or Conservancy may inspect any operation in a DUA to ensure compliance with these BMPs.

BMP A-1c: If any operation in a DUA fails to comply with BMP A-1, the Conservancy shall have the right to work with TRC to enforce compliance to the extent permitted under, and in accordance with, the applicable provisions of the Ranch-wide Agreement and the applicable conservation easement.

BMP A-2: Operations in the DUAs will provide the Company with all public documents related to their efforts to obtain environmental regulatory permits for their operations and any required reporting in compliance with obtained permits for their operations within a DUA to the extent such regulation relates to the protection of Conservation Values ("Regulatory Documents").

BMP A-2a: Already-existing Regulatory Documents (physical or digital files) will be provided to TRC within 180 days of the date of the RWMP adoption.

BMP A-2b: New Regulatory Documents will be provided to TRC within 90 days of generation or receipt.

BMP A-2c: TRC will maintain a copy of all Regulatory Documents until the activity for which the documents were filed or granted has ceased. For example, a copy of Regulatory Documents for mines will be maintained until reclamation is complete.

BMP A-2d: TRC will provide Regulatory Documents to the Conservancy within a reasonable time following request.

BMP A-3: Subject to the practicability under existing lease terms and for all new leases, operations in the DUAs will remove their equipment from the Ranch when it is no longer in regular use. Equipment that is (1) left in a DUA, (2) not in regular use (taking into account custom and practice in the applicable operation), and (3) not removed by its owner within 180 days after such equipment ceases to be in regular use may be deemed abandoned.

BMP A-3a: New operations will have provisions on the prompt removal of retired or unused equipment.

BMP A-3b: TRC may permit the Conservancy or others to clean up and remove abandoned and derelict equipment when lease terms do not convey the authority to compel its removal by the Operator, provided that TRC has determined that such clean up and removal is permitted under the applicable lease and other relevant documents and under all applicable laws, regulations, and other requirements (not solely limited to those related to the protection of Conservation Values) and that such entry and activity by the Conservancy is performed in accordance with all applicable provisions of the Ranch-wide Agreement and applicable conservation easement.

BMP A-3c: TRC retains sole and absolute discretion on the disposition of removed equipment.

BMP A-4: Operations in the DUAs will comply with all applicable federal, state, and CUPA regulations and permitting requirements for waste generators. [CUPA is the Certified Unified Program Agency (either the Kern County Environmental Health Services Department or the Los Angeles County Fire Department).]

BMP A-4a: Prior to removal from the Ranch, regulated wastes will be stored and labeled in accordance with federal, state, and CUPA requirements (U.S. Environmental Protection Agency 2011).

BMP A-4b: Those hired to transport or dispose of regulated wastes will be licensed transporters or licensed Treatment, Storage, and Disposal facilities for the relevant type of waste. 40 CFR § 262.

BMP A-4c: In the management of hazardous, universal, or other regulated wastes, Operators will be guided by these general principles: (1) avoid or minimize storage in surface impoundments; (2) avoid or minimize contact with surface water, runoff, or groundwater; (3) avoid or minimize contact with any wild animal or plant; and (4) avoid disposal on Conserved Lands of the Ranch.

BMP A-5: Operations in the DUAs will be performed in a manner to avoid leaks of antifreeze, oil, and other petroleum products from equipment.

BMP A-5a: Equipment will be maintained in good condition to avoid leakage, and any observed leaks of antifreeze, oil, and other petroleum products will be promptly repaired.

BMP A-5b: Maintenance and repair of equipment will be performed in a manner to avoid spillage and will not be done in areas where spilled fluids could enter wetlands, riparian areas, other surface water or groundwater.

BMP A-5c: New stationary equipment that contains antifreeze, oil, or other petroleum products, such as motors, pumps, generators, and welders, will be positioned over drip pans.

BMP A-6: Operators in the DUAs will coordinate with the Conservancy and TRC to implement measures to prevent the spread of invasive species on RWMP-covered lands. (See Appendix A of this volume.)

BMP A-6a: TRC and the Conservancy will monitor DUAs for particularly noxious or invasive weed infestations.

BMP A-6b: Operators will avoid unnecessary soil disturbance in the course of their work (Cal-IPC 2012).

BMP A-6c: TRC and the Conservancy will coordinate on the control of invasive weeds along access roads, staging areas, and other frequently traversed areas of DUAs (Cal-IPC 2012).

BMP A-6d: Significant increases in invasive plant cover or invasive animal populations within DUAs, or sightings of noxious invasive species not previously spotted on the Ranch, will be reported to TRC and the Conservancy as soon as possible after discovery.

BMP A-6e: If necessary to meet its responsibility under the conservation easements of protecting RWMP-covered lands outside the DUAs, the Conservancy may need to require additional, temporary practices to prevent the outbreak of noxious or particularly invasive weeds from spreading beyond DUA boundaries.

BMP A-7: Operators in the DUAs will maintain and operate vehicles, equipment, and other materials in a manner that minimizes wildfire risk.

BMP A-7a: Catalytic converters in vehicles used on Ranch roads will be maintained to avoid throwing off sparks.

BMP A-7b: Whether or not covered by BMP A-4, BMP A-5, or the BMPs for Oil and Gas Operations, flammable liquids will not be kept in the open.

BMP A-8: Operators will provide training and supervision of their employees, agents, and contractors and request that each comply with all applicable BMPs relevant to their duties.

BMP A-9: All DUA operations will be performed in a manner to avoid take of threatened, endangered, or other special-status species. Those DUA operations subject to voluntary habitat conservation plans adopted in accordance with Section 2086 of the California Fish and Game Code or Title 14, Section 786.0 of the California Code of Regulations will comply with these plans.

BMP A-9a: Regardless of the provisions of voluntary habitat conservation plans, all DUA operations will be performed in a manner to avoid any take of a species designated as “fully protected” under California law. Cal. Fish & Game Code §§ 3511, 3513, 4700, 4800–4809, 5000–5062, and 5515.

4.5.1 FARMING

BMPs Applicable to Water Use

BMP F-1: Agricultural operations will in all cases minimize unnecessary water use.

BMP F-1a: Agricultural operations will utilize the most water-efficient irrigation technology that maintains crop health and meets economic and operational feasibility requirements. This includes fan jet sprinklers and drip systems. This measure is intended to require that irrigation technology be upgraded for efficiency purposes when it is replaced in the normal course of operations.

BMP F-1b: Agricultural operations will continue to use real-time measurements of soil moisture, climate, and crop conditions and adjust irrigation levels accordingly to optimize water use (Tejon Ranch Company 2009).

BMPs Applicable to Pesticide Use

BMP F-2: Agricultural operations will use integrated pest management practices, including but not limited to crop planning, biocontrol, and physical barriers to pests, with the goal of minimizing the need for pesticide application.

BMP F-2a: Agricultural operations will continue to select crop varieties that are resistant to common San Joaquin and Antelope Valley pests. As noted in the Interim RWMP, for example, vineyards will use “grapevine root stalks that are developed and proven to be resistant to common California or Central Valley pests” (Tejon Ranch Company 2009).

BMP F-2b: Biocontrol, such as the introduction of beneficial insects that eat pests, will be used as a substitute for pesticide where possible (including economic feasibility), provided that the introduced species is (1) approved by industry experts, (2) allowed by California Department of Food and Agriculture regulations, and (3) demonstrated not to threaten non-target native species in similar conditions. Biocontrol objectives utilizing a native species, or (as a second-best alternative) promoting a nonnative but noninvasive species already present on the Ranch, are strongly preferred.

BMP F-2c: Agricultural operations will continue to use orchard sanitation techniques, including pruning, limb removal, and poling, to prevent germination of pests (Tejon Ranch Company 2009).

BMP F-2d: Agricultural operations will continue to use restrictive fencing, including but not limited to chicken-wire, grid-style fencing or electric fencing, to protect crops from predatory animals, including feral pigs, where appropriate (Tejon Ranch Company 2009).

BMP F-3: Pesticides will be used in the most efficient and targeted manner possible as determined by a Certified Pest Control Advisor or other appropriately trained personnel (Tejon Ranch Company and Tejon Ranch Conservancy 2009). Where pesticide use is necessary, agricultural operations will comply with all regulations and permitting requirements related to the use of such pesticides.

BMP F-3a: Pesticides will be applied by trained and licensed personnel following California Department of Parks and Recreation (DPR) application procedures.

BMP F-3b: Pesticides will be labeled and used in accordance with the instructions on the label, as well as any additional guidelines established by regulatory authorities or the manufacturer. Cal. Food & Agric. Code § 12973; Cal. Code Regs. Tit. 3, § 6235 et seq.

BMP F-3c: Pesticides will be stored securely in clearly marked areas and will be accessible only to personnel trained in their use.

BMP F-3d: Where pesticide use is necessary, agricultural operations and pesticide applicators will comply with applicable permitting, recordkeeping, and regulatory agency inspection requirements related to the use of such pesticides. These presently include, but are not limited to, obtaining approval from the Kern or Los Angeles County Agricultural Commissioner to apply substances that DPR has

classified as Restricted Materials, filing a Notice of Intent for application of materials for which it is required, reporting relevant applications, and providing open access for regulatory agency inspections.

BMP F-4: Where pesticide use is necessary, agricultural operations will minimize the spatial extent of pesticide use and its effects on non-target species to the extent feasible.

BMP F-4a: Agricultural operations will continue not to use major pesticide sprays except where necessary to maintain crop health (Tejon Ranch Company 2009).

BMP F-4b: Pesticides that target individual species will continue to be used in place of broad-spectrum pesticides where and when possible (Tejon Ranch Company 2009).

BMP F-4c: Within the Designated Farm Areas (DFAs), pesticides will be applied over as small a geographic area as possible given the target population. Application to surfaces on individual plants, if any, will be as localized as possible.

BMP F-4d: Where chemical compounds are used (as opposed to individual elements such as sulfur), to the extent possible, agricultural operations will select pesticides that can reasonably be expected to biodegrade, photodegrade, or otherwise decay into stable, nontoxic components before (1) harming nontarget species within DFAs or (2) leaving DFA boundaries.

BMP F-5: Agricultural operations will refrain from using rodenticide types or application methods that are known to pose a danger to non-target species and will minimize rodenticide use in general.

BMP F-5a: Agricultural operations will continue to use owl boxes and similar structures to attract raptor species that prey on rodents (Tejon Ranch Company n.d.), using rodenticides as a secondary measure to control rodents only where determined necessary to maintain crop health. Rodenticides will be distributed in a manner that does not create risk for non-target sensitive species.

BMP F-5b: In the event that rodenticide use is necessary, agricultural operations will do the following: (1) Select from the registered rodenticides capable of controlling the target population with the lowest potential for bioaccumulation and other harms to non-target species; (2) apply this substance in the minimum amount reasonably necessary, over as small a geographic area as reasonably possible given the target population, to control the target species; (3) frequently monitor application sites and other areas where target animal species are likely to be found; (4) remove any dead or dying rodents; (5) report any evidence of rodenticide spread to a non-target species, including but not limited to non-target rodents and non-target animals that prey on target rodents, to TRC and the Conservancy; and (6) promptly remove any unused rodenticide once the target population is under control.

BMP F-5c: Agricultural operations will not apply rodenticides in or within 100 feet of any body of surface water and will not allow rodenticides to leach, drain, or otherwise spread into groundwater. Rodenticides may only be used near surface water in a modified bait stations that make it difficult for non-target species to gain access.

BMP F-6: Where pesticide use is necessary, agricultural operations will seek to utilize the least toxic pesticide and will strive to avoid using substances or methods that pose a high risk of air and water contamination.

BMP F-6a: Unless deemed necessary by TRC, the use of pesticides classified as toxic air contaminants in Title 3, Section 6860 of the California Code of Regulations will be avoided.

BMP F-6b: The application of dormant insecticides to surface water will be avoided unless necessary to maintain crop health.

BMP F-6c: All RWMP-covered lands outside the DFAs will be treated as “non-target areas” within the meaning of Section 12972 of the California Food and Agriculture Code.

BMP F-6d: Pesticides will not be applied by air unless TRC determines that the application is (1) necessary to maintain crop health and (2) applied in a manner to prevent drift to non-target areas.

BMP F-7: Agricultural operations will be performed in a manner to avoid the waterborne spread of pesticides beyond DFA boundaries.

BMP F-7a: Pesticides will not be mixed or loaded within 100 feet of any body of surface water, including a streambed with intermittent flow, that crosses a DFA boundary or is located outside a DFA.

BMP F-7b: Pesticides will not be mixed or loaded within 100 feet of a well. Cal. Code Regs. Tit. 3, § 6609 (mixing and loading near wells).

BMP F-7c: Pesticide applicators will take appropriate precautions to prevent water contamination from application equipment, including regular maintenance, thorough cleaning, and the use of backflow protection for devices that draw water. Cal. Code Regs. §§ 6608, 6610, 6744.

BMP F-7d: Pesticides will not be applied during rainy conditions.

BMPs Applicable to Air Quality

BMP F-8: Agricultural operations will comply with all applicable San Joaquin Valley Air Pollution Control District (SJVAPCD) and Antelope Valley Air Quality Management District (AVAQMD) Rules and permitting requirements, as applicable, including but not limited to the following:

BMP F-8a: Agricultural operations in the SJVAPCD will prepare Conservation Management Plans detailing specific practices used to reduce emissions of particulate matter less than 10 microns in diameter (PM-10) where required. SJVAPCD Rule 4550.

BMP F-8b: Agricultural operations in the SJVAPCD will submit Fugitive PM-10 Plans for unpaved roads if required to do so by SJVAPCD Rule 8081, and will comply with required dust control measures for off-field agricultural sources where required. SJVAPCD Rules 8011 and 8081.

BMP F-8c: Agricultural operations in the AVAQMD will participate in the registration program for compression ignition engines and will comply with limits on particulate emissions where required. AVAQMD Rules 114, 219, 404, 405.

BMP F-8d: Agricultural operations will refrain from using orchard heaters not approved by the California Air Resources Board, or otherwise prohibited by the local Air Districts.

BMP F-9: Agricultural operations will implement dust control measures to the extent economically feasible. These will be drawn from the SJVAPCD’s Conservation Management Practices Handbook (available online at www.valleyair.org/farmpermits/updates/cmp_handbook.pdf) and the AVAQMD’s Agricultural Guide to Controlling Windblown Sand and Dust (available online at www.avaqmd.ca.gov/Modules/ShowDocument.aspx?documentid=2711), as applicable.

BMP F-10: Agricultural operations in the DFAs will continue to implement a No-Burn Policy for agricultural trimmings and other unused crop material. Wherever possible, Operators will find an appropriate use for this material, including furniture production, mulch, or chipping for co-generation power development, provided that such power development does not impair Conservation Values on other RWMP-covered lands (Tejon Ranch Company 2009).

BMPs Applicable to Water Quality and Fertilizer Use

BMP F-11: Agricultural operations will abide by all applicable Regional Water Quality Control Board (RWQCB) requirements, including but not limited to any current Monitoring and Reporting Program, and will comply with any new, applicable Waste Discharge Requirements (WDRs) that come into force during the life of the RWMP.

BMP F-12: Agricultural operations will implement those WDRs issued by the relevant RWQCB that (1) address water quality issues relevant to the DFAs and (2) are feasible for their operations.

BMP F-13: Agricultural operations will be performed in a manner to avoid the spread of fertilizer nutrients, such as nitrogen (N) and phosphorus (P), into surface water or groundwater beyond DFA boundaries.

4.5.2 OIL AND GAS

BMPs Applicable to Equipment and Operations

BMP OG-1: Oil and gas operations will comply with all applicable legal and regulatory requirements, including but not limited to regulations of the California Department of Oil, Gas, and Geothermal Resources (DOGGR), Tejon Hills and/or Comanche Point Field Rules, and site-specific permit conditions.

BMP OG-1a: DOGGR permits will be obtained for all drilling, production, and injection operations. Cal. Code Regs. Tit. 14, § 1714.

BMP OG-1b: Underground injection wells, if any, will be operated in accordance with the applicable provisions of the Safe Drinking Water Act and will, at a minimum, use the equipment and testing procedures specified in Title 14, Sections 1724.6–1724.10 of the California Code of Regulations.

BMP OG-2: Subject to well spacing and other requirements imposed by law, oil and gas operations will seek to minimize the number of new wells used and the extent of surface disturbance caused by their new development activities in the Designated Oil and Gas Area (DOGA). (The Conservancy recognizes that older leases may be self-perpetuating and therefore limit TRC's ability to implement this BMP.)

BMP OG-2a: Oil and gas operations will comply with Reasonable and Prudent Practices for Stabilization (RAPPS) of Oil and Gas Construction Sites.

BMP OG-2b: All disturbed areas will be kept free of invasive species to the extent feasible (Intermountain Oil and Gas BMP Project 2012).

BMP OG-2c: Well pads and other oil and gas activities will avoid steep slopes (Intermountain Oil and Gas BMP Project 2012).

BMP OG-3: Oil and gas wells will be fitted with casings that seal off and segregate fluids, avoid contamination of groundwater zones, and provide anchorage for blowout equipment. Cal. Code Regs. Tit. 14, § 1722.2.

BMP OG-4: Casing strings and settings will be designed in accordance with applicable requirements of Title 14, Section 1722.2 of the California Code of Regulations. Casing at each interval—conductor, surface, production, and if needed, intermediate—will be designed and cemented in accordance with the applicable requirements of Title 14, Sections 1722.3 and 1722.4 of the California Code of Regulations.

BMP OG-5: Oil and gas operations will use blowout prevention equipment (BOPE) to prevent the uncontrolled flow of any fluid from a well (Cal. Code Regs. § 1722.5); will prepare blowout prevention and control plans if needed (Cal. Code Regs. § 1722(b)); and will immediately report and remedy any major blowout that occurs.

BMP OG-5a: Oil and gas operations will conform to the BOPE classes and additional requirements specified in the Tejon Hills and Comanche Point Field Rules and DOGGR Publication M07 (Blowout Prevention Equipment in California, available at http://www.conservancy.ca.gov/dog/pubs_stats/Pages/instruction_manuals.aspx).

BMP OG-5b: Oil and gas operations will conform to the drilling fluid requirements noted in Title 14, Section 1722.6 of the California Code of Regulations.

BMP OG-5c: Oil and gas operations that operate wells designated as “critical” or “high pressure” by DOGGR, or other wells that pose a risk of blowout, will prepare blowout prevention and control plans where required. Cal. Code Regs. § 1722(b).

BMP OG-5d: Required blowout prevention and control plans will include (1) provisions for training, supervision, and equipment testing to prevent blowouts, (2) provisions for the prompt and thorough cleanup of any contamination; and (3) measures to prevent fluids from a blowout affecting RWMP-covered lands beyond the DOGA.

BMP OG-5e: Per the November 3, 2005 DOGGR Notice to Operators, each drilling rig crew shift will have at least two people, including the driller and derrick operator, with certification from a sanctioned well control school (DOGGR 2005).

BMP OG-6: Oil and gas infrastructure, including but not limited to storage tanks and pipelines, will be maintained in a manner to prevent leaks, spills, and other environmental contamination.

BMP OG-6a: Tanks will be designed, constructed, operated, maintained, and tested in accordance with the applicable requirements of Title 14, Sections 1773-1773.4 of the California Code of Regulations.

BMP OG-6b: Pipelines will be designed, constructed, operated, maintained, and tested in accordance with the applicable requirements of Title 14, Sections 1774-1774.2 of the California Code of Regulations and good oilfield practice, as defined by the American Petroleum Institute, the American Society for Testing and Materials, and the pipeline regulations in Sections 192.1-192.1015 of the Code of Federal Regulations.

BMP OG-6c: Secondary containment structures will be used as required in Title 14, Section 1773.1 of the California Code of Regulations.

BMP OG-6d: Open channels, whether lined or unlined, will not be used to transport oil, water containing oil, wastewater, or other contaminants. Cal. Code Regs. Tit. 14, § 1771 (open unlined channels).

BMP OG-6e: Operators who have not already done so will prepare written preventative maintenance plans, begin conducting monthly equipment inspections, and comply with the applicable maintenance requirements of Title 14, Section 1777 of the California Code of Regulations.

BMP OG-6f: Infrastructure that is leaking will be repaired and all associated contamination remediated in accordance with regulatory requirements.

BMP OG-7: Provided that lease terms may not empower action on this BMP, new lessees and operators may be required to remove selected equipment that is out of service and is not being kept for future use on the DOGA.

BMP OG-7a: Oil and gas infrastructure that is out of service but needed for future operations may be cleaned in accordance with lease terms.

BMP OG-8: Oil and gas operations in the DOGA will develop contingency plans for spills where required and will immediately report and remedy any significant spill that occurs.

BMP OG-8a: All oil and gas operations in the DOGA will develop spill contingency plans. Cal. Code Regs. Tit. 14, § 1722(b).

BMP OG-8b: Spill contingency plans will include (1) all information required by Title 14, Section 1722.9 of the California Code of Regulations, and (2) any additional measures necessary to prevent spills from affecting RWMP-covered lands beyond the DOGA.

BMP OG-8c: Any significant spill will be cleaned immediately by operators or appropriate agencies to the extent required by law.

BMP OG-9: Oil and gas operations will dispose of waste promptly in accordance with the applicable requirements of Section 1775 of the California Code of Regulations.

BMPs Applicable to Air Quality

BMP OG-10: Oil and gas operations will obtain any required permits for all sources of air pollution unless specifically exempted by SJVAPCD Rules, and will comply with all applicable District Rules and site-specific permit requirements.

BMP OG-11: Whether or not they are required to submit dust control plans, new oil and gas operations will implement cost-effective dust control measures, including the following: (1) unpaved roads, bulk materials, and other exposed surfaces will be maintained to minimize dust emissions (SJVAPCD Rules 8011 et seq.); (2) throughout their areas of operations, oil and gas operations will limit visual dust effects (VDE) to 20% opacity; and (3) oil and gas operations will seek to limit VDE created by their activities and their impacts on airsheds in RWMP-covered lands.

BMP OG-12: Oil and gas operations will be performed in a manner to prevent volatilized hydrocarbons, chemical fumes, and other airborne pollutants released by these activities from drifting outside the DOGA.

BMPs Applicable to Water Quality

BMP OG-13: Oil and gas operations will seek to refrain from discharging waste into surface waters or groundwater. Those that dispose of waste on land, including any remaining operators who have sumps, overflow pits, or other surface impoundments, will obtain any required regulatory permits from RWQCB. New operators on Tejon Ranch will be required to seek any required regulatory approval for these discharges.

BMP OG-14: Oil and gas operations on the Ranch will seek to avoid the use of sumps, overflow pits, or other surface impoundments. Instead, waste will be taken to licensed disposal facilities outside the Ranch or, if removal from the Ranch is not feasible, disposed of in accordance with guidance from DOGGR.

BMP OG-14a: New operations will avoid new sumps, overflow pits, or other surface impoundments to the extent practicable.

BMP OG-14b: First-stage sumps will not be used, except where exempted, after January 1, 2013. SJVAPCD Rule 4402.

BMP OG-14c: Where practicable and feasible, existing sumps, overflow pits, and other surface impoundments will be closed, and operators will remove all associated contamination from Ranch lands in accordance with lease terms.

BMP OG-14d: Operators will comply with applicable time limits for the removal of fluids from drilling sumps (30 days after disconnection of drill rig) and operations sumps (14 days after rig removal or completion of operations). Cal. Code Regs. Tit. 14, § 1770(c)–(d).

BMP OG-14e: Closures will be conducted in accordance with agency requirements.

Other BMPs

BMP OG-15: Oil and gas equipment will control noise to the extent practicable to avoid significant or disruptive noise outside the DOGA or to comply with Kern County Ordinance Code § 19.98.050(K).

BMP OG-16: Oil and gas equipment will comply with applicable appearance requirements imposed by the active Kern County Oil and Gas Code, such as the requirement that pumping units be less than 35 feet in height and “painted and kept in neat condition.” Kern County Ordinance Code § 19.98.050(L).

4.5.3 MINING

BMPs Applicable to Surface Mining and Reclamation

BMP M-1: Mining operations will be performed in a manner to minimize soil disturbance and manage erosion.

BMP M-1a: Mining operations will minimize the amount of vegetation and overburden removed in advance of surface mining. Cal. Code Regs. Tit. 14, § 3503(a)(1).

BMP M-1b: Stockpiles of overburden and minerals will be managed to minimize water and wind erosion. Cal. Code Regs. Tit. 14, § 3503(a)(2).

BMP M-1c: Where wind- or waterborne erosion due to mining operations is unavoidable, eroded material will not be allowed to go beyond Designated Mining Area (DMA) boundaries in a manner that impairs habitat values of surrounding Conserved Lands. If necessary to avoid the spread of eroded material outside of DMAs, mining operations will construct erosion control facilities of the types specified in Title 14, Section 3503(a)(3) of the California Code of Regulations.

BMP M-2: Upon completion of the useful life of a DMA and the termination of mining activity, all affected lands will be restored to a condition detailed in the reclamation plan for the mining site. Cal. Code Regs. § 3703(b). The following provisions will apply to the extent that they do not conflict with a duly-permitted mine reclamation plan for a specific mine:

BMP M-2a: During reclamation, grading, and revegetation measures will be designed to minimize erosion and convey uncontaminated surface runoff to natural drainage courses.

BMP M-2b: Reclaimed backfill slopes, if any, will comply with the requirements of site-specific mine reclamation plans or relevant regulations.

BMP M-2c: Reclamation will include re-soiling or, if soil was not present before mining began, the restoration of fine natural materials that were present.

BMP M-2d: During mining operations, soil or other surface materials will be salvaged for reuse during reclamation. Surrounding areas, however, will not be denuded of soil to provide cover during reclamation. Cal. Code Regs. Tit. 14, § 3503(f).

BMP M-2e: During reclamation, coarse hard mine waste will be covered by finer material. If appropriate, soil will then be placed on this surface. Cal. Code Regs. Tit. 14, § 3503(f). Permanent presence of hard mine waste will be avoided.

BMP M-2f: Reclaimed land will be revegetated in a manner similar to the density, cover, and species richness present before the start of mining operations. Where baseline measurements were not taken before the start of mining operations, reclaimed land will be revegetated to the density, cover, and species richness of the most ecologically similar adjacent area of the Ranch, in direct consultation with the Conservancy. Revegetation will be conducted in accordance with the requirements of Title 14, Sections 3503 and 3705 of the California Code of Regulations, including but not limited to the following:

- (1) Revegetation will use native species. Cal. Code Regs. tit. 14, § 3705(g).
- (2) Revegetation will use species with good survival characteristics for the topography, resoiling characteristics, and climate of the mined areas. Cal. Code Regs. Tit. 14, § 3503(g).
- (3) Plants used in revegetation will be capable of self-regeneration without irrigation, fertilizer, pesticides, or other human intervention. Cal. Code Regs. Tit. 14, § 3705(a).
- (4) Irrigation may be used at the planting stage to establish vegetation, provided that the vegetation survives for at least 2 years after the final application of water. Cal. Code Regs. Tit. 14, § 3705(i) and (j).
- (5) Test plots will be used during mining operations to determine appropriate planting procedures, unless this requirement has been specifically waived by the Kern County Air Pollution Control District (KCAPCD). Cal. Code Regs. Tit. 14, § 3705(b).
- (6) Compaction of soil will be eliminated prior to revegetation. Cal. Code Regs. Tit. 14, § 3705(c).
- (7) Invasive plants or other noxious weeds will be managed if they threaten the success of revegetation, threaten to spread to nearby areas, or pose a fire hazard. Cal. Code Regs. Tit. 14, § 3705(k).
- (8) Revegetation will not be deemed complete until the performance standards specified in each mine's Reclamation Plan, or more rigorous standards set by regulation, have been met for at least 2 years after the most recent human intervention. Cal. Code Regs. Tit. 14, § 3705(m).

BMP M-2g: TRC may elect to have access roads reclaimed and, if reclaimed, their revegetation will be subject to the same standards as other areas disturbed by surface mining.

BMP M-3: Mining operations will comply with all requirements in their Conditional Use Permits and Reclamation Plans, including but not limited to those listed in Table 4-1. (Note that the table is provided as a "point in time" set of examples of fairly standard mining operations conditions and may be subject to change by the Kern County Planning Department as the plans for these mines evolve.)

BMP M-4: Where a reclamation plan exists and/or lease terms require, all equipment will be stored in designated areas identified in the Reclamation Plan while the mine is in operation, and will be dismantled and removed from the Ranch prior to mine closure. Cal. Code Regs. Tit. 14, § 3709(a)–(b).

Table 4-1 Selected Conditions for La Liebre and Arvin Pit 2002 Expansion

Conditions	La Liebre	Arvin Pit (2002 Site Expansion)
Conditional Use Permit	<ul style="list-style-type: none"> Slopes in sand pit areas must not exceed 10 feet in depth, and must be finished with slope of 4:1 Leave bottom of sand pits rippled and place “surplus boulders... to create low berms to impede intermittent flows” Finish pits to a slope of 1:1 or existing natural slope, whichever is steeper, except in places where the natural slope is flatter than 1:1, where the outermost 20 feet of excavation shall be finished to a 2:1 slope or the natural slope, whichever is steeper Treat access roads with dust binder or water to control fugitive dust Submit erosion/stream siltation deposition reduction plan to RWQCB 	<ul style="list-style-type: none"> Develop and submit for approval a program to train employees to identify and avoid taking special status species Prior to disturbance, obtain evaluation by trained biologist to identify protected species found on site If San Joaquin kit fox or Tipton kangaroo rat are found after operations start, avoid them until qualified biologist can evaluate site, and immediately notify U.S. Fish and Wildlife Service and California Department of Fish and Game [now Wildlife] Stop work if any archaeological or cultural resources are found Relocate a particular rock containing a Native American pictograph Minimum of 12 inches of topsoil for revegetation Finish pit slopes to final slope of 3:1 (horizontal: vertical) or less Contour waste rock stockpiles to slope of 3:1 or less and revegetate Revegetate disturbed acreage to a minimum of 100% of baseline measurements Treat access roadways with binder or water to control dust Use glare shields to direct light away from adjoining properties and roads Finished depth of the pit may not exceed 150 feet below ground level without separate approved plan to exceed this depth
Reclamation Plan	<ul style="list-style-type: none"> Reseed disturbed areas “at any time operations are interrupted for even a few months” Do not cause any change in pre-mining drainage pattern No topsoil will be salvaged, but post-reclamation surface will consist of sand and gravel (like pre-mining surface), and will be “reseeded to native grasses... currently... on the site” 	<ul style="list-style-type: none"> Grade pit slopes to 3:1 (horizontal: vertical) slope No backfill “other than surplus fines from mining” Decompact areas compacted by equipment, and ensure that other areas are “roughed to form a variety of microsites” Prior to excavation, strip the surface layer (native soils), and stockpile for use in reclamation Monitor for three years after reclamation
<p>Note: These existing conditions are examples of fairly standard mining operations conditions and may be subject to change by the Kern County Planning Department as the plans for these mines evolve.</p> <p>Sources: Tejon Ranch Company 1978; Kern County Board of Zoning Adjustment 1979; Granite Construction Company 1999; Kern County Planning Commission 1999</p>		

BMPs Applicable to Air Quality

BMP M-5: Mining operations will obtain any required permits for all sources of air pollution unless specifically exempted by SJVAPCD or Eastern Kern Air Pollution Control District (EKAPCD) Rules, and will comply with all applicable District Rules and site-specific permit requirements. They will also implement dust control plans where required by applicable District Rules or a site-specific permit to do so.

BMP M-6: Where required, mines in SJVAPCD will obtain an Authority to Construct or Permit to Operate for stationary sources, and register portable equipment used for sand and gravel screening and rock crushing. SJVAPCD Rules 2010 and 2280.

BMP M-6a: Mines in the SJVAPCD will submit and implement Dust Control Plans where required by SJVAPCD to do so. SJVAPCD Rules 8011 and 8021. Those that are required to do so will submit Fugitive PM-10 Management Plans or comply with the dust control and recordkeeping practices required by District Rules.

BMP M-6b: Where required, mines in EKAPCD will obtain an Authority to Construct or Permit to Operate, as appropriate, for stationary equipment. EKAPCD Rules 201 and 202.

BMP M-6c: Where required, mines in EKAPCD will implement the reasonably available control measures for dust specified in EKAPCD Rule 402. Those required to do so will implement either PM-10 monitoring and recordkeeping measures or a Fugitive Dust Emissions Control Plan. EKAPCD Rule 402.

BMP M-7: Whether or not they are required to submit dust control plans, mining operations will implement dust control measures, including the following:

BMP M-7a: Unpaved roads, bulk materials, and other exposed surfaces will be treated with water or a nontoxic stabilizer to minimize dust emissions. SJVAPCD Rules 8011 et seq.

BMP M-7b: Throughout their areas of operations, mining operations will limit VDE to 20% opacity.

BMPs Applicable to Water Quality

BMP M-8: Mining operations will obtain and implement any required regulatory approvals from the appropriate RWQCB. Mining operations will comply with all applicable water quality regulations.

BMP M-8a: Mining operations required to obtain a General Industrial Permit will submit and implement Stormwater Pollution Prevention Plans where required.

BMP M-8b: Mining operations whose wastes come into contact with surface water, runoff or groundwater, or whose operations are otherwise subject to RWQCB regulation, will comply with any applicable RWQCB water monitoring requirements listed in Title 27, Sections 22500 and 20385–20430 of the California Code of Regulations.

BMP M-8c: Mining operations will comply with applicable water quality requirements during reclamation, whether or not those requirements are listed in a particular mine's Reclamation Plan. For example, revegetation may not impair containment of the mining site or produce leachate, and reclamation in general may not significantly increase the quantities of waste constituents in ground or surface water. Cal. Code Regs. Tit. 27, § 22510.

BMP M-8d: Mining operations that discharge to waters of the United States will comply with the applicable monitoring, reporting, and other requirements of Section 122.26 of the Code of Federal Regulations.

BMP M-9: Mining operations will be performed in a manner that avoids compromise of water quality or diminishment of the recharge potential or storage capacity of groundwater aquifers. Cal. Code Regs. Tit. 14, § 3706.

BMP M-10: Mining operations will be performed in a manner to prevent their wastes, including but not limited to overburden, waste rock, and other wastes associated with processing, from compromising water quality. Cal. Code Regs. Tit. 27, §§ 22470(a) and 22480(a).

BMP M-11: Mining operations will be performed in a manner to avoid off-site sedimentation of streams, siltation of groundwater recharge areas, or other off-site disruption of natural drainage patterns.

BMP M-11a: Mining operations will control erosion and sedimentation during all phases of construction, operation, closure, and reclamation. Cal. Code Regs. Tit. 14, § 3706(c).

BMP M-11b: Mining operations will control surface runoff and drainage to prevent off-site erosion, gully, sedimentation, contamination, and other off-site disruptions of natural drainage patterns. Erosion control methods will comply with Title 14, Sections 3706(d)–(g) of the California Code of Regulations.

BMP M-11c: Overburden, if any, will be placed in stable piles that do not restrict drainage.

BMP M-11d: Mining operations will avoid the alteration of natural drainage patterns outside a DMA.

BMP M-12: Mining operations will be performed in a manner to avoid wetland habitat. Cal. Code Regs. Tit. 14, § 3703(c).

BMP M-12a: Avoid storing mining equipment or waste in wetland habitat.

BMP M-12b: Avoid locating new access roads, whether paved or unpaved, in wetland habitat.

BMP M-12c: Given the importance of wetlands to the native biodiversity and habitat of the Ranch, disturbance of any wetlands by surface mining operations will be avoided and/or mitigated.

4.6 OTHER RANCH USES

Other Ranch Uses are TRC's Reserved Rights that occur within the Conserved Lands outside of DUAs. Other Ranch Uses for which the Conservancy can develop BMPs are described below, along with BMPs for those uses.

4.6.1 RANCHING AND LIVESTOCK MANAGEMENT

Tejon Ranch has a long heritage of ranching dating back to its founding by General Beale. Ranching and livestock management is one of TRC's principal Ranch Uses within Conserved Lands and has the potential to affect a wide range of habitats both positively and negatively, thus requiring BMPs to ensure that potential adverse environmental effects are minimized. The distribution of livestock on Tejon Ranch is controlled by available feed, ranching infrastructure (such as fences and water), and mineral distribution.

As discussed above, the Conservancy has also proposed grazing management strategies to enhance Conservation Values in Conserved Lands and the following ranching and livestock BMPs are part of those enhancement strategies. After examining the various means to monitor grazing effects with our advisors, the Conservancy has selected RDM monitoring as the means to assess the effectiveness of the grazing and livestock management BMPs and Conservation Activities. Grazing and livestock management recommendations are provided in Appendix B, and BMPs are presented below. The Grazing Management Plan for the TU MSHCP Covered Lands is located in Volume 4.

BMP R-1: While this has not been an historic monitoring practice on Tejon Ranch, TRC will work with the Conservancy to establish RDM standards for livestock operations to protect rangeland condition. Minimum RDM standards for livestock use have been established for California coastal and foothills annual rangelands (Bartolome et al. 2006, Appendix B), which are applicable to all grasslands on Tejon Ranch except those in the Antelope Valley. These standards vary from 300 pounds per acre on level ground to 600 pounds per acre in steeper terrain or when a greater woody cover is present in dry annual grasslands (Table 4-2). Higher RDM minima are appropriate in oak woodlands (Table 4-3). These standards are considered protective of long-term rangeland productivity and soils but are not targeted at specific Conservation Values. No published standards are available for Antelope Valley annual or perennial-dominated grasslands, so those will need to be developed. Development of RDM standards for the Antelope Valley portion of Tejon Ranch is a Conservancy-led research activity (Section 3.1.1 Objective NC-1.4, Conservation Activity NC-1.4(a)).

Table 4-2 RDM Standards (pounds per acre) for Dry Annual Grasslands				
Percent woody cover	Percent slope			
	0-10%	10-20%	20-40%	>40%
0-25%	300	400	500	600
25-50%	300	400	500	600
50-75%	NA	NA	NA	NA
75-100%	NA	NA	NA	NA
Notes: NA = not applicable to this range type; RDM = residual dry matter.				
Source: The values are originally from Bartolome et al. 2006 and are presented in the Grazing Management Plan, Appendix B				

Table 4-3 RDM Standards (pounds per acre) for Annual Grasslands/Oak Savanna and Woodlands				
Percent woody cover	Percent slope			
	0-10%	10-20%	20-40%	>40%
0-25%	500	600	700	800
25-50%	400	500	600	700
50-75%	200	300	400	500
75-100%	100	200	250	300
Notes: RDM = residual dry matter				
Source: Bartolome et al. 2006.				

BMP R-2: TRC will implement fall RDM monitoring in collaboration with the Conservancy to assess compliance with RDM standards. While there are various techniques for monitoring RDM, we suggest that RDM be evaluated at key locations (areas representative of grazing use for the pasture), including all of the existing 51 permanent grassland plots established by the Conservancy and a subset of the 161 sites visited by Sage Associates (Attachment A of Appendix B). Potential RDM measurements at selected locations could include photos, estimates of RDM, stubble height estimates, and other observations as recommended by Sage Associates.

BMP R-3: TRC will ensure that salt and supplements are not placed adjacent to (within 1/8 mile of) any livestock water source, stream, or wetland/riparian habitat unless physical constraints require it.

BMP R-4: TRC will ensure that any new livestock water sources are not placed adjacent to (preferably not within 1/8 mile of) streams, springs, or wetlands unless physical constraints require it. Springs and wetlands will not be excavated to create new livestock ponds but will have spring boxes and pipe installed to distribute water to troughs located away from the spring. TRC will work with the Conservancy to add water troughs where appropriate to replace streams, springs, or ponds as livestock water sources (Section 3.1.3 Objective NC-3.2, Conservation Activity NC-3.2(c)). Newly developed springs will be boxed and/or fenced to protect the spring source from disturbance by livestock and feral pigs. The outlets of any new flow-through troughs will be lined with rock or concrete to reduce erosion, improve water quality, and provide water for wildlife. All new or retrofitted water troughs will be equipped with wildlife “escape ramps” to allow wildlife that fall into the trough to climb out. These practices, particularly development of new water sources, will be implemented collaboratively with the Conservancy. In accordance with its Private Lands Wildlife Enhancement and Management Area Program (PLM Program), approximately eight existing troughs will be retrofitted with wildlife escape ramps by TRC in 2013–2018.

BMP R-5: TRC will collaborate with the Conservancy on grazing operational modifications to achieve specific Conservancy conservation objectives. These currently include the following:

BMP R-5a: Reduce dry-season grazing intensity in pastures supporting important riparian and wetland habitats (for example, Bull Field, Indian Field, Monte Field, and Secretario Meadow). If operational modifications to protect riparian and wetlands are not feasible, TRC and its lessees will work with the Conservancy to install fencing to protect riparian and wetland habitats (Section 3.1.3 Objective NC-3.2, Conservation Activity NC-3.2(b)). Such fencing would be paid for by the Conservancy.

BMP R-5b: Modify the intensity and timing of grazing in selected pastures supporting low-elevation San Joaquin Valley grasslands with the goal of improving habitat for selected grassland species favored by low plant cover (e.g., San Joaquin kit fox, blunt-nosed leopard lizard, and burrowing owl). Candidate pastures include White Wolf South, Kohlmeier, Comanche Strip, Comanche Trap, Little Globe, Alamo Solo, Tejon Field, and Lower Aqua Blanca (Figure 3-5). In these pastures, management would generally entail grazing to achieve minimum RDM standards rather than managing grazing to exceed them (Section 3.1.2 Objective NC-2.2, Conservation Activity NC-2.2(a)).

BMP R-6: TRC will minimize the use of quads and other vehicles off of ranch roads to move or gather cattle, particularly in the Antelope Valley where disturbance of sensitive desert soils can take many years to restore.

BMP R-7: TRC and the Conservancy will collaborate to develop and implement RDM-based annual review and reporting of livestock use levels and distribution, seasonal animal use and movement, and identification of any needed adjustments of stocking to meet RDM standards and/or other appropriate rangeland metrics as may be established by the Operations Committee through the adaptive management process. This feedback will be incorporated into an annual management plan collaboratively prepared by the Conservancy and TRC. Grazing management requires flexibility and an annual management plan within the overall provisions of the grazing lease is a good way to ensure regular communication among involved parties and flexibility.

BMP R-8: TRC will conduct compliance monitoring of BMPs and annually summarize the results for incorporation into the adaptive management process via the Operations Committee. The Operations Committee will meet annually in the fall to review and discuss RDM monitoring results, implementation and success of BMPs, and Conservation Activities, and coordinate planning for the following year. This information will be reported annually to the Conservancy Board by the Conservancy.

Planning BMPs

The following BMPs are planning principles that will be used by TRC to guide livestock management operations on the Conservation Easement Area:

BMP R-9: With the understanding that livestock breed and type affect level of movement, temperament, and distribution, TRC and its lessees will employ the appropriate type of livestock for Ranch conditions.

BMP R-10: TRC will ensure that the appropriate numbers of livestock are grazed to prevent degradation of natural resource conditions and to maintain the productive capacity of the land. The appropriate numbers may vary due to a variety of factors, including but not limited to terrain, soil types, vegetation community type, and annual precipitation. Grazing levels comparable to the historical average grazing level of approximately 14,500 head of cattle, or equivalent animal units, will continue on the Ranch.

Water Resources BMPs

The majority of water delivery sources for livestock operations are of the improved type, which includes tanks and troughs. These improved facilities allow for the distribution of water to where it is needed and reduce demand and negative impacts on unimproved sources such as springs, streams, or other water bodies. TRC will implement the following BMPs to ensure that water resource management is performed efficiently while providing necessary water for operations and appropriate distribution to minimize adverse impacts to natural resources:

BMP R-11: TRC will ensure that livestock water systems are maintained in good condition.

BMP R-12: TRC will require that water systems, including new water systems installed by TRC and the Conservancy, utilize best available technologies, and are well maintained to prevent leakage or water loss from the system and maximize efficiency.

BMP R-13: TRC will coordinate development of new water systems with the Conservancy. If determined to be required, TRC will then apply for and obtain relevant approvals for new watering systems under the Ranch-wide Agreement and under applicable laws.

BMP R-14: TRC will preclude lessees from transferring water off of the Ranch.

Health and Safety BMPs

BMP R-15: TRC will continue to require livestock lessees to ensure the health and safety of livestock populations and staff involved in the operations, and that livestock operations are in compliance with all applicable livestock health regulations to ensure population health and reduce the risk of contagious disease.

Environmental BMPs

BMP R-16: TRC will coordinate with livestock operations to implement environmental BMPs.

BMP R-17: TRC and its lessees will work with the Conservancy, if opportunities are identified to adjust the location of fencing, to ensure the desired distribution of livestock across Ranch lands to achieve RDM objectives, protect sensitive resources (e.g., areas with highly erodible soils, wetlands, springs, streams, and riparian areas), and achieve specific conservation objectives or to improve species habitat (e.g., pronghorn habitat, San Joaquin kit fox habitat).

4.6.2 WILDLIFE MANAGEMENT

Regulations and policies regarding the management and use of the fish and wildlife of the State of California are established by the California Fish and Game Commission, and the California Department of Fish and Wildlife (CDFW, formerly the California Department of Fish and Game) is charged with implementing these policies and regulations. Some species require purchase of tags for each animal harvested. For the purposes of regulating and managing harvest, the State of California classifies terrestrial wildlife species as follows (species requiring a State-issued tag for harvest are indicated as such):

- Big Game (tags required for all): deer, elk, pronghorn, black bear, feral pig
- Small Game: tree squirrel, rabbit, jackrabbit
- Furbearers: American badger, gray fox, raccoon
- Nongame: bobcat (tag required), coyote, weasel, California ground squirrel, skunk, opossum, European starling, American crow
- Upland Game Birds: California quail, mountain quail, mourning dove, Eurasian collared dove, band-tailed pigeon, wild turkey (tag required), chukar, pheasant
- Waterfowl: various ducks and geese

TRC's current Wildlife Management operation was developed in the 1980s, with the enrollment of Tejon Ranch in CDFW's PLM Program. In recent years, TRC has requested, through the PLM Program, authorization to harvest mule deer, Rocky Mountain elk, pronghorn, black bear, and wild turkey. For the next 5-year PLM Program renewal (2013–2018), TRC is requesting authorization to harvest mule deer, Rocky Mountain elk, pronghorn, and wild turkey. Currently, TRC advertises hunts for mule deer, Rocky Mountain elk, wild turkey, and feral pig on its Wildlife Management (Hunt Tejon) website but continues to offer memberships that encompass all species hunted on the Ranch. TRC has suspended harvest of American badger on the Ranch.

General BMPs

BMP W-1: TRC will require and emphasize in hunter orientations that hunters are required to accurately report animals harvested within designated hunting areas on Tejon Ranch. TRC will collect and report information on the numbers, sex, and estimated age, of harvested animals. The data will be compiled at the end of the spring and fall seasons and shared with the Conservancy no later than September 1 and March 1, respectively.

BMP W-2: TRC will enforce compliance with the lead ammunition ban. TRC will provide written information and a verbal orientation to ensure that hunting clients are aware of the lead ammunition ban, the presence of the California condor, and other species. TRC will exercise its right to call the appropriate authorities if it suspects or has evidence that a hunter has broken the law.

BMP W-3: TRC will ensure that no trash, in particular no micro-trash, is present around hunting cabins.

BMP W-4: TRC will continue to coordinate with the California Department of Fish and Wildlife on its PLM Program.

BMP W-5: TRC will coordinate with the Conservancy (Section 3.4 Objectives FS-1.1 and FS-1.2, Conservation Activities FS-1.1, FS-1.2(a), and FS-1.2(b)), in the context of the PLM, to use information such as hunter effort (hunter-days), harvest, and population monitoring data to develop wildlife management goals, objectives, and strategies for PLM species (mule deer, Rocky Mountain elk, pronghorn, and wild turkey) and black bear harvested on Tejon Ranch.

BMP W-6: TRC will require hunters to remain on paved or dirt roads while traveling on the Ranch.

BMP W-7: TRC will require hunters with vehicles to carry a fire extinguisher and shovel.

BMP W-8: TRC will restrict time and locations for campfires, allowing them only at designated camp areas and cabins during appropriate times of year to minimize risk of wildfires.

BMP W-9: TRC will require all hunters to participate in an orientation that includes information on environmental conditions, special subjects such as lead ban compliance, micro-trash control (including picking up shell casings), avoiding harassment of special-status species, rules for use of the Ranch, safety information, Ranch access guidelines, and information specific to the type of guided hunt in which they will be participating.

BMP W-10: TRC will require that hunting clients only take shots that are backed by a substantial barrier or hill, have a clear view of the road when shooting near roads to ensure no one is coming, and not shoot from their vehicles.

BMP W-11: TRC will require that hunting clients comply with all state laws and obtain appropriate licensing through the State.

BMP W-12: TRC will notify hunters and lessees about the Conservancy's science and public access programs and will aid the Conservancy in educating clients on the purpose and locations of science equipment deployed on the Ranch and the need to respect that equipment.

Predator Management BMPs

The importance of predators in structuring ecological systems is well-known, with food webs often being more diverse and resilient when top carnivores are present (see discussion in Appendix C, Wildlife Assessment); however, the effects of the level of predator harvesting associated with TRC's Wildlife Management Program on Tejon Ranch food webs have not been specifically studied. Removal or significant reduction of the abundance of predators can often have unpredictable and far-reaching consequences. It is also important to recognize that two top predators, gray wolf and grizzly bear, were extirpated from the Tejon Ranch region in the 1800s and that significant effects to the food web (e.g., probable increases in coyote populations) have likely already taken place.

In recognition of the importance of predators to achieving the Conservancy's biodiversity conservation mission, this RWMP establishes a specific conservation objective to "manage carnivore species to maintain their ecological effects on food webs" (Section 3.4, Objective 4). From a science-based ecosystem management perspective, there are potential management strategies ranging from no removal of predators to removing a number from the system that would not cause adverse consequences to the predator population itself or to the rest of the food web; however, overharvest could produce complex, adverse effects that are difficult to document rigorously.

TRC's wildlife management operations are a Ranch Use (i.e., a specific Reserved Right subject to BMPs) and an important economic use. The Ranch-wide Agreement specifies that wildlife management is subject to Conservancy-established BMPs and that these BMPs must respect economic uses as a whole. Mammalian predators, including coyote, black bear, bobcat, gray fox, long-tailed weasel, badger, raccoon, spotted skunk, striped skunk, and opossum, can legally be harvested on Tejon Ranch. Black bear harvest on the Ranch has traditionally occurred under TRC's PLM Program, although black bear is not included in TRC's 2013 PLM agreement. Harvesting of badger on Tejon Ranch was suspended by TRC in 2012, and mountain lion can only be killed under a CDFW-approved depredation permit. Coyotes and all other predators are harvested by hunting clients under the Wildlife Management Program as part of membership packages and guided hunts, by TRC employees, and ranching lessees to reduce loss of livestock (primarily new calves). Guided hunts for bobcat, coyote, and fox were offered by TRC in the past, but guided hunts exclusively for these species were suspended by TRC on January 1, 2013. Some current hunting clients buy hunting access primarily to hunt coyote; although the economic magnitude of this access is not well documented, TRC believes it to be significant. Starting in 2013, the State of California has prohibited the use of dogs to hunt black bear and bobcat, and the effect this legislation will have on the level of harvest of these species at Tejon Ranch is uncertain. TRC believes that harvest of predators other than coyote, bobcat, and black bear on the Ranch is infrequent. However, the current level of predator harvest at Tejon Ranch is not clear, leaving a fundamental data gap for management planning.

The following BMPs recognize the important role that predators play in ecosystems and the Conservancy's desire to maintain their ecological effects on food webs, while acknowledging TRC's Ranch Uses and economic uses. The Conservancy does not currently have adequate information to establish appropriate harvest levels necessary to achieve Conservancy conservation goals or TRC wildlife management goals. Given this lack of information, the Conservancy believes that a precautionary approach is justified, with TRC reducing the harvest of predators on the Ranch until sufficient information is available and specific management strategies can be developed. The following BMPs shift predator management at the Ranch to an objective and data-driven approach, reduce the overall predator harvest on Tejon Ranch in the near term, respect TRC's existing economic uses, and acknowledge the periodic need for predator control to reduce losses of livestock and property and reduce risk to human life.

BMP W-13: If necessary, TRC will pursue depredation permits as provided by CDFW for problem species for which depredation permits apply, such as mountain lion and black bear. Problem species are generally any animals that present a potential threat to livestock, property or human safety. The CDFW depredation policy for black bear describes progressive responses ranging from non-lethal hazing to depredation depending on the specific bear situation and degree of damage being caused. The current CDFW mountain lion depredation policy states that non-lethal means will be used whenever possible but provides for depredation when circumstances are appropriate. As required by the applicable policy and permits, TRC will coordinate with CDFW to respond to the problem animal.

BMP W-14: There is no CDFW depredation policy for problem coyotes. TRC will collaborate with the Conservancy to develop a rigorous and objective protocol for dealing with problem coyotes, which are animals that present a specific threat to specific wildlife species (e.g., pronghorn or San Joaquin kit fox), livestock, property or human safety. The Tejon Ranch protocol for dealing with problem coyotes will be based on CDFW depredation policies for other species (e.g., mountain lion and black bear) and, will detail appropriate monitoring, means of documenting problematic wildlife interactions, and ways to measure and respond to such interactions. The problem coyote protocol must be approved by the Conservancy Board of Directors. The general principles of the problem coyote protocol will apply to other problem species for which CDFW depredation policies do not apply (e.g., raccoons and skunks). If warranted under the problem coyote protocol, removal of problem coyotes or other problem predators covered by the protocol can occur by TRC employees, lessees under TRC oversight, guided hunting clients and government trappers, which might first include non-lethal approaches as appropriate. Records (numbers, sex, and estimated age) will be kept of all problem coyotes removed under the protocol, so that data-driven management can be conducted. TRC will allow removal of coyotes by TRC hunting guides and ranching lessees only as consistent with this protocol.

A strategy and timeline will be developed by TRC and the Conservancy in 2013, the problem coyote protocol will be developed in 2014, and the protocol will be implemented in 2015. While the protocol is being developed in 2014, TRC will initiate the policy transition by informing its ranching lessees and employees that the intent of the protocol under development is to eliminate the practice of indiscriminate shooting of coyotes and to move toward objective, fact-based coyote control only when and where necessary to reduce manage focal wildlife species, protect property, livestock or minimize threats to human safety.

BMP W-15: TRC will authorize harvest of coyotes by TRC's hunting clients based on wildlife management plans for the species or other ecological management objectives (e.g., pronghorn) that justify the harvest level, demonstrate no significant adverse effects to coyote populations, and advance the Long-term Stewardship Standard. This will require enhancing coyote population monitoring and tracking of harvest by hunting clients to support better planning and adaptive management decision-making. TRC will collect and report information on the numbers, sex, and estimated age, of harvested animals. Enhanced harvest monitoring by TRC will be implemented for a 2-year period (September 1, 2013, to July 30, 2015). During or after this 2-year period, TRC and the Conservancy will evaluate harvest data and work to set harvest levels using these and other scientific data.

Until new information is available to develop a management plan for coyotes, hunter harvest consistent with current TRC practices will be allowed in areas of the Ranch south of the Tejon Creek–Chanac Creek confluence (Figure 4-1). Hunter harvest of coyote will be suspended in areas north of the Tejon Creek–Chanac Creek confluence (approximately 45,000 acres of the Ranch) for a two-year period or until a science-based management plan for coyotes can be developed. The coyote management plan must be approved by the Conservancy Board of Directors.

The 2-year hunter harvest suspension for coyotes north of Tejon Creek–Chanac Creek confluence will begin September 1, 2013. TRC and the Conservancy will assess harvest information, evaluate any applicable science, and work to set future harvest levels for coyotes beginning in September 2015.

BMP W-16: TRC will authorize harvesting of bobcats by TRC’s hunting clients based on wildlife management plans for the species or other ecological management objectives (e.g., quail, turkey) that justify the need, demonstrate no significant adverse effects to bobcat populations, and advance the Long-term Stewardship Standard. This will require enhancing bobcat population monitoring to support better planning and adaptive management decision-making. TRC will collect and report information on the numbers estimated age, and sex of harvested animals. Enhanced harvest monitoring by TRC will be implemented for a 2-year period (September 1, 2013, to July 30, 2015). During or after this 2-year period, TRC and the Conservancy will evaluate harvest data and work to set harvest levels using these and other scientific data.

Until new information is available to develop a management plan for bobcats, a reduced level of hunter opportunities for bobcats on Tejon Ranch will be established. TRC will make available for purchase by hunting clients 100 bobcat options per year at an initial target price of \$250 per option to create an economic disincentive for harvesting bobcats (TRC estimates that 15-20% of bobcat options are actually filled each year). TRC reserves the right to set the price in the future. These options will only be filled in areas of the Ranch south of the Tejon Creek–Chanac Creek confluence (Figure 4-1). Bobcat harvest by hunters will be suspended in areas north of the Tejon Creek–Chanac Creek confluence for a two-year period or until a science-based management plan for bobcats can be developed. The bobcat management plan must be approved by the Conservancy Board of Directors.

The two-year hunter harvest suspension for bobcats north of Tejon Creek–Chanac Creek confluence will begin September 1, 2013. TRC and the Conservancy will assess harvest information, evaluate any applicable science and work to set harvest levels for bobcats beginning in September 2015.

BMP W-17: TRC will authorize harvesting of gray fox, long-tailed weasel, raccoon, striped skunk, spotted skunk, and opossum (Other Predators) by TRC’s hunting clients based on wildlife management plans for the species or other ecological management objectives that justify the need, demonstrate no significant adverse effects to Other Predator populations, and advance the Long-term Stewardship Standard. This will require enhancing monitoring of Other Predators to support better planning and adaptive management decision-making. TRC will collect and report information on the numbers estimated age, and sex of harvested animals. Enhanced harvest monitoring by TRC will be implemented for a 2-year period (September 1, 2013, to July 30, 2015). During or after this 2-year period, TRC and the Conservancy will evaluate harvest data and set harvest levels using these and other scientific data. Harvest of badger on any part of Tejon Ranch has already been suspended and this policy will remain in place.

Until new information is available to develop a management plan for Other Predators, hunter harvest consistent with current TRC practices will be allowed in areas of the Ranch south of the Tejon Creek–Chanac Creek confluence (Figure 4-1). Hunter harvest of Other Predators will be suspended in areas north of the Tejon Creek–Chanac Creek confluence (approximately 45,000 acres of the Ranch) for a two-year period or until a science-based management plan for coyotes can be developed. The Other Predator management plan must be approved by the Conservancy Board of Directors.

The two-year hunter harvest suspension for Other Predators north of Tejon Creek–Chanac Creek confluence will begin September 1, 2013. TRC and the Conservancy will assess harvest information, evaluate any applicable science, and work to set future harvest levels for Other Predators beginning in September 2015.

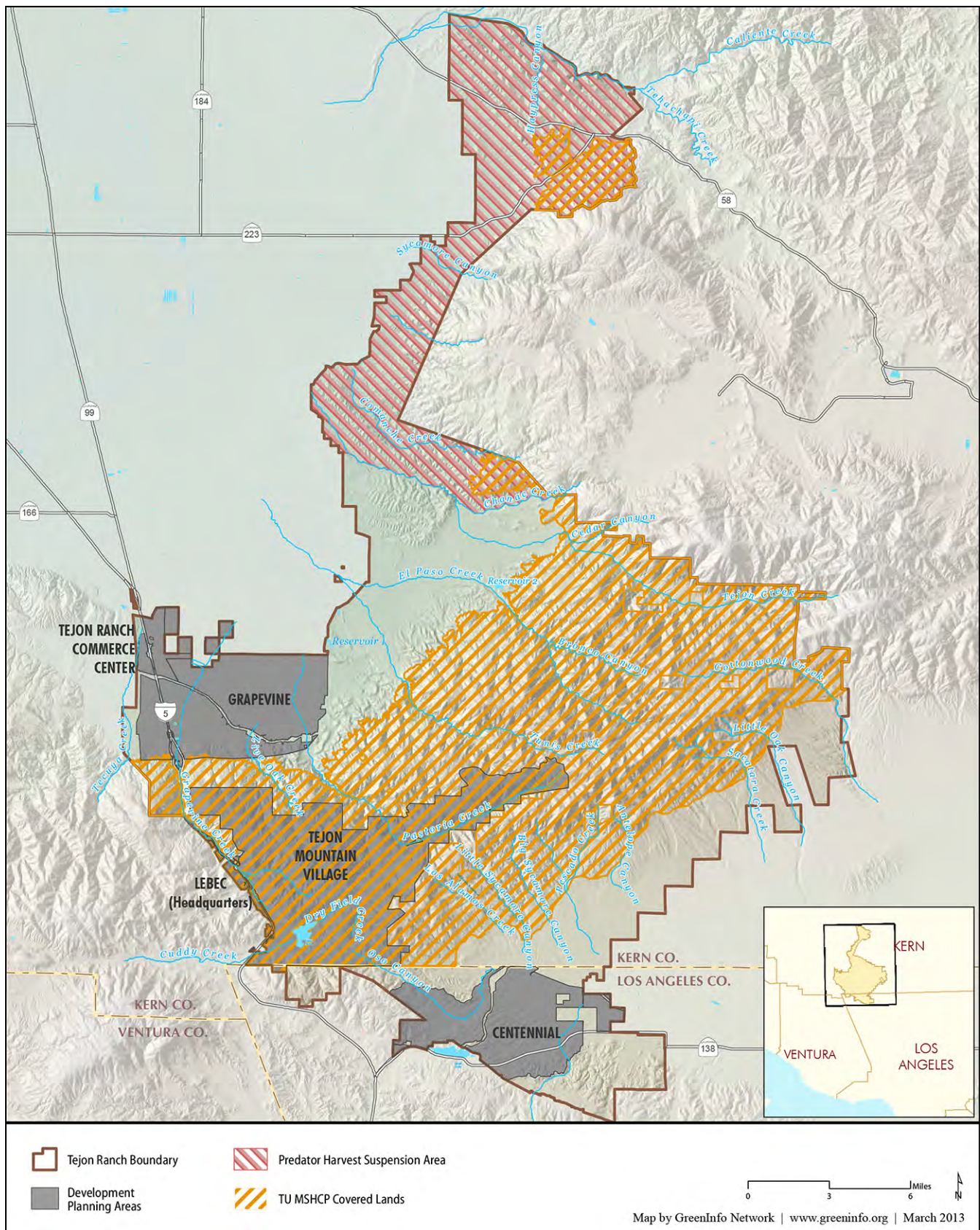


Figure 4-1 Predator Hunting Suspension Area

Additional BMPs for TU MSHCP Covered Lands

In addition to the BMPs listed above, TRC will implement the following BMPs listed in the TU MSHCP:

BMP TU MSHCP-16: TRC will ensure that all Entry Permits for back-country areas include educational materials describing condor protection measures.

BMP TU MSHCP-17: TRC will ensure that routine community maintenance activities include regular efforts to eliminate micro-trash [bits of refuse and litter attractive to condors] at and near all work sites, recreational 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 USFWS-approved Tejon Staff Biologist.

BMP TU MSHCP-18: TRC will continue to ban the use of lead ammunition on Tejon Ranch, as has been the case 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 Conservation Act, which bans lead ammunition in the range of the California condor effective July 1, 2008.

BMP TU MSHCP-19: TRC will continue to implement the hunter awareness and enforcement program. The components of the program include the following:

BMP TU MSHCP-19a All hunting permittees must acknowledge and sign a notice and agreement that addresses the lead-ammunition ban and the protection of the California condor.

BMP TU MSHCP-19b 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 to State and Federal governments.

BMP TU MSHCP-19c The agreement also clarifies protections that the condor has under State and Federal laws, penalties for violation of these laws, and the application of these laws to all hunting permittees.

BMP TU MSHCP-20: TRC will require that 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 Tejon 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 suspected to contain lead, shall remain in place on the Ranch; require the removal of all litter, trash, and micro-trash; and prohibit any behavior that could be construed as take of the condor.

BMP TU MSHCP-21: TRC will require that all hunting permittees must acknowledge and sign a hunting permit that reiterates that the possession or use of ammunition containing lead is prohibited. The permit also notices that the hunting permittee is bound to all conditions within each of these agreements.

BMP TU MSHCP-22: TRC will maintain an education and enforcement program that is expected to include workshops and/or seminars to educate hunters with respect to the impacts of lead on condors and that will give hunters an opportunity to experiment with non-lead ammunition alternatives.

BMP TU MSHCP-23: TRC will maintain a hunter education and enforcement program to be implemented by the Wildlife Management Operation at TRC. 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.

BMP TU MSHCP-24: If condors are observed or are otherwise determined to be perching on or attracted to structures located within Covered Lands, USFWS or other party authorized by USFWS (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, such as installation of passive roof-top sprinkler systems on structures to deter condors from the property and other hazing measures deemed appropriate by USFWS.

4.6.3 FILMING

The Ranch has served as a frequent site for filming for decades. The Ranch provides a backdrop for a wide variety of productions, including feature films, television shows, commercials, and photo shoots for products or people. TRC allows companies or individual producers to access the Ranch for filming and photography. Primary filming areas in the Conserved Lands include the Bi-Centennial easement area in Big Sycamore Canyon, the Old Headquarters easement area, various paved and unpaved Ranch roads, and higher elevation film locations that offer backgrounds of conifer trees and ridgelines.

Filming operations on Tejon Ranch have the potential to disturb sensitive wildlife and vegetation; spread invasive species; and cause erosion, fires, and soil compaction. The following guidelines will help to preserve Conservation Values and mitigate these potential impacts during filming activities on the Conserved Lands. The guidelines will also ensure the safety of Ranch lessees, Ranch staff, Conservancy staff, and film personnel during filming. Certain circumstances (e.g., film sets in Covered Lands) will require some consultation with the Conservancy and additional restrictions and guidelines aimed at the protection of resources.

Oversight BMPs

TRC will continue to implement the following BMPs to ensure that filming activities are conducted in a safe manner.

BMP FILM-1: TRC will continue to require continuous, onsite supervision by TRC personnel to ensure the proper conduct of filming production company staff, and to ensure full compliance with safety and resource protection measures during all shoots.

BMP FILM-1a: The level and type of supervision is determined by the scope and complexity of the filming activity. Depending on crew size and complexity of production, TRC may employ one or more monitors.

Additional monitors may be assigned as required due to size, complexity of shoot, locations to be used, special effects, fire conditions, or other hazards or complexities.

In minor operations such as those involving still photography, TRC staff may determine that no monitor is necessary.

BMP FILM-1b: TRC will continue to limit film shoots to the number of TRC monitors available, ensuring that all film activities are monitored appropriately.

BMP FILM-2: TRC Filming Department staff will continue to notify other Ranch departments and the Conservancy of any Filming Department activity as necessary to ensure the appropriate planning and coordination of activities between different Ranch uses.

BMP FILM-3: TRC Filming Department staff will continue to obtain approval for extraordinary requests, such as special effects, from the department Vice President, to ensure compliance with TRC procedures and applicable laws.

Temporary Construction BMPs

When temporary construction is necessary for film production, the following BMPs will apply:

BMP FILM-4: TRC will continue to require all areas proposed for disturbance by film production companies to be identified. TRC will review the request for new temporary construction for filming with the film company representative, and then complete a Site Evaluation and make practicable adjustments to avoid or minimize impacts to sensitive resources. TRC will consult with the Conservancy when necessary to determine the best approach to ensure that no significant impairment of Conservation Values occurs. Production companies are required by TRC to abide by regulations and obtain necessary permits for their productions.

BMP FILM-5: TRC will continue to ensure that any areas disturbed by film production activities are restored to pre-filming condition by the production companies using the sites. In the event that such restoration includes revegetation, TRC will consult with the Conservancy on the planting plan.

BMP FILM-6: TRC will continue to ensure that remediation is conducted appropriately and in a timely manner.

BMP FILM-7: Film operations will continue to be required to avoid any action or behavior that constitutes an attractive nuisance or otherwise presents an unreasonable and avoidable danger to California condors, as directed by TRC.

Fire Prevention and Management BMPs

To prevent the outbreak of wildfire caused by film production, TRC has implemented the following BMPs:

BMP FILM-8: The use of fires is subject to Statewide burn bans and Kern County or Los Angeles County Fire Department seasonal burn bans. Exceptions may include special effects made of non-combustible logs and Liquefied Propane Gas, which are considered pyrotechnic devices under state law and must be handled by a licensed pyrotechnics technician.

BMP FILM-9: During periods of very high or extreme fire danger, all fires may be prohibited. Filming activity may also be shut down on the Conserved Lands due to fire conditions. This restriction should be explained to the production company in advance of filming.

BMP FILM-10: TRC will continue to require the presence of a water truck, in good operating condition and capable of transporting and pumping water onsite when environmental conditions or filming activities present a fire risk.

BMP FILM-11: Arc lights are not to be used in areas of combustible materials such as grasses or brush, inside buildings, or under conditions of high fire danger.

BMP FILM-12: TRC will continue to require vehicles to remain on roads or in designated areas at shoot locations and during filming to prevent ignition of dry grasses by hot engines or mufflers.

BMP FILM-13: TRC will continue to provide for access by Kern County or Los Angeles County Fire Department Marshals to monitor filming activities.

BMP FILM-14: Smoking is limited to designated areas on the Ranch.

Special Effects BMPs:

BMP FILM-15: All special effects must be approved in advance by the TRC Filming Department.

BMP FILM-16: Noise control measures should be employed to limit disturbance of sensitive wildlife. Gunshots, explosions, and amplified music or sound should be limited to the extent possible so as to not disturb wildlife in proximity to the activity.

BMP FILM-17: Pyrotechnic effects are subject to final approval by TRC and the Fire Department with jurisdiction in the area.

BMP FILM-18: A Kern County or Los Angeles County Fire Department Pyrotechnics Permit must be obtained for pyrotechnic effects, including smoke machines, and must be immediately available for TRC film staff review.

BMP FILM-19: A Fire Safety Officer must be present during pyrotechnic effects.

BMP FILM-20: Pyrotechnics and fire-related activities will be authorized by appropriate air quality permits, as necessary.

Water and Riparian Communities BMPs

Where film production is planned in water bodies and adjacent to riparian areas, TRC has implemented the following BMPs:

BMP FILM-21: TRC will continue to require film production companies to drain all fluids from vehicles before allowing submersion in water bodies.

BMP FILM-22: TRC will continue to not allow chemical or fuel drops in water bodies.

BMP FILM-23: TRC monitors will continue to ensure that sensitive riparian habitat is not adversely affected.

BMP FILM-24: TRC will continue to require removal of all filming sets and props from water bodies.

Animal Use BMPs:

When film production companies use animals during shoots, TRC will implement the following BMPs:

BMP FILM-25: TRC will continue to require trainers onsite to ensure safety of crew and animals, ensure appropriate containment and management of animals, and avoid adverse impacts from or interactions with film production animals.

BMP FILM-26: Harassment of native wildlife and introduction of wildlife captured elsewhere is prohibited.

BMP FILM-27: All animals used for filming must be permitted by TRC and must be tethered or caged when not actually filming.

BMP FILM-28: Working animals may be unleashed during filming, provided that:

BMP FILM-28a: The trainer is in the immediate area.

BMP FILM-28b: The animal is under control to the satisfaction of the TRC monitor.

BMP FILM-28c: Adequate measures have been taken to prevent escape.

BMP FILM-29: Under no circumstance will any animal or fish be released into the Conserved Lands during or after filming.

BMP FILM-30: Animal handlers must have appropriate insurance and permits from the applicable associations or CDFW, as required.

Road BMPs:

Where vehicles are used to transport film crews and equipment along Ranch roads to the selected film site, TRC will implement the following BMPs:

BMP FILM-31: Vehicles will drive on Tejon Ranch at safe and reasonable speeds.

BMP FILM-32: Vehicles are not allowed off roadways without prior authorization to prevent damage to sensitive species and vegetation.

BMP FILM-33: Parking and staging areas will be established to limit the disturbance to sensitive soils.

Helicopter, Aircraft, and Flight Operations BMPs

Where helicopters and aircraft are used in filming operations TRC will implement the following BMPs:

BMP FILM-34: Any helicopter or aircraft operations within Ranch boundaries will be specifically approved by TRC.

BMP FILM-35: Helicopters and fixed-wing aircraft will avoid focal conservation target species. During nesting and breeding seasons, film companies and flight operators will confer with TRC for information on rare species occurrences. (For example, known condor, golden eagle, and prairie falcon nesting sites will be avoided, as well as pronghorn breeding grounds during breeding season.)

Plant Material BMPs:

TRC will implement the following BMPs regarding plant materials:

BMP FILM-36: Cutting, altering, damaging, or removing vegetation will be avoided to the extent possible.

BMP FILM-37: Use of insecticides, herbicides, and pesticides will be avoided except in consultation with the Conservancy.

BMP FILM-38: Any introduction of invasive weeds is prohibited (see Appendix A).

BMP FILM-39: Plant materials known to contain seed stock may not be brought onto the Ranch.

Cleanup BMPs

TRC will implement the following BMPs regarding cleanup following filming operations:

BMP FILM-40: All filming operations areas are to be cleared of all equipment, props, and trash (especially micro-trash) and returned to their original condition to the satisfaction of the TRC monitor.

BMP FILM-41: All set removal and cleanup is to be completed as soon as possible after completion of filming. Major sets are to be struck within 24 hours of completion of shooting, or as otherwise agreed with the TRC monitor. In consultation with the Conservancy, TRC may coordinate with production companies to retain set pieces for future use.

BMP FILM-42: All garbage and debris must be properly disposed of upon completion of each day's shooting.

Damage to Ranch Resources or Structures BMPs

TRC will implement the following BMPs related to resource or structural damage:

BMP FILM-43: During filming or upon completion, if any damage is found to have been caused by the production company, the company will be required to repair or replace damaged items to the satisfaction of TRC.

BMP FILM-44: A monitor may halt filming if a production company violates conditions and restrictions. This may include issues such as safety or resource damage.

Additional BMPs for TU MSHCP Covered Lands

In addition to the above, in TU MSHCP Covered Lands, TRC will implement the following BMPs listed in the TU MSHCP:

BMP TU MSHCP-25: TRC will ensure that all TRC film crew contracts include provisions requiring the film companies to provide crew members with educational materials describing condor protection measures.

BMP TU MSHCP-26: A pre-activity site evaluation by the Tejon Staff Biologist and, when appropriate given the site conditions, pre-activity surveys, for the Covered Species will be conducted.

BMP TU MSHCP-27: Use of insecticides, herbicides, and pesticides will be avoided except in conformance with the Integrated Pest Management Plan (see Volume 4) in the TU MSHCP Covered Lands.

BMP TU MSHCP-28: TRC will require that the USFWS-approved Tejon Ranch Staff Biologist, or designated TRC employees or consultants, accompany all film crews to enforce rules regarding discarding of micro-trash items and will require a thorough daily cleanup by the filming entity during and immediately upon completion of all film shoots to eliminate any micro-trash that may have accumulated.

BMP TU MSHCP-29: TRC will ensure that routine community maintenance activities include regular efforts to eliminate micro-trash at and near all work sites, recreational 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 USFWS-approved Tejon Staff Biologist.

BMP TU MSHCP-30: TRC will ensure that fireworks, explosions (louder than gunshots), or other abnormally loud noises are prohibited in the TU MSHCP Mitigation Lands unless the USFWS-approved Tejon Ranch Staff Biologist determines, in consultation with USFWS, that no condors are present or would be otherwise adversely affected by the fireworks, explosions, or noise. Additionally, fireworks, explosions (louder than gunshots), or other abnormally loud noises within the Condor Study Area are prohibited.

BMP TU MSHCP-31: TRC will ensure that 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 USFWS-approved Tejon Ranch Staff Biologist; and potential setbacks from localized roosting and feeding behaviors near a carcass location.

BMP TU MSHCP-32: In addition to the BMPs above, in the TU MSHCP Covered Lands, filming crews 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 Tejon Ranch Staff Biologist. The Tejon Ranch Staff Biologist, in consultation with the USFWS, is authorized to respond to changing California condor behaviors, human activities, and other conditions with whatever restrictions are necessary to provide the protection intended.

4.6.4 FIRE AND FUEL MANAGEMENT

Due to the size of the property, vegetative conditions, and terrain, wildfire is a significant concern at the Ranch. TRC cooperates closely with local and state agencies to implement policies that reduce the risk factors for widespread wildfire on the Ranch.

As discussed below, TRC has implemented BMPs to manage wildland fire on the Ranch. TRC is subject to the oversight of various public agencies, including the California Department of Forestry and Fire Protection (CAL FIRE), Kern County Fire Department, and the Los Angeles County Fire Department. The requirements of these agencies take precedence over practices established by TRC. In the case of an outbreak of wildfire on the Ranch, TRC defers to, supports, and is subject to the authority of the lead fire-fighting agency, usually CAL FIRE.

TRC relies on livestock grazing as the primary method of reducing fine wildland fire fuels on the Ranch, and BMPs for livestock grazing may be found in Section 4.6.1, “Ranching and Livestock Management.” TRC also maintains safe perimeters around structures and maintains widened roads to serve as firebreaks where special concern exists, such as areas adjacent to I-5 North from Fort Tejon to Grapevine. Responsible agencies perform the majority of preventative measures, including vegetation clearing and road and firebreak maintenance. In the past up until the mid-1990s, TRC worked with the local fire agencies to implement prescribed burns for habitat management purposes in accordance with the PLM permit for its wildlife management program, generally along Blue Ridge, as part of habitat enhancement associated with the PLM Program.

Due to Tejon Ranch’s vast, steep, and undeveloped nature, wildland fire poses a particularly significant potential threat to natural communities, as well as to life and property. Operations associated with fire suppression, fuel management, and post-fire recovery activities on Tejon Ranch have many potential deleterious effects. Most notably, fire and fuel management operations have the potential to disturb sensitive wildlife habitat and vegetation, compact soils, cause erosion and sedimentation, introduce invasive species, and alter natural communities. The following guidelines will help to preserve Conservation Values and mitigate these potential impacts during fire suppression and fuel management activities on the Conserved Lands. The guidelines will also help ensure the safety of TRC lessees, TRC personnel, and Conservancy personnel by preventing wildfires.

Prescribed Fire BMPs

BMP FM-1: TRC will consult and coordinate closely with the Conservancy and regulatory agencies prior to conducting prescribed burns on the Conserved Lands. See Additional BMPs for TU MSCHP Covered Lands, below, for restrictions within TU MSHCP Covered Lands.

BMP FM-2: Prior to any prescribed fire, extensive planning and fuel modification should occur.

BMP FM-3: Any prescribed fire on the Conserved Lands shall be conducted with individual burn prescriptions detailing resource objectives, ignition methods, weather parameters, smoke management procedures, public notification plans, specialized equipment, needed firefighting resources, and natural community and physical characteristics of the site.

Regulatory Interface BMPs

TRC works with various local regulatory agencies to manage wildland fire management activities on the Ranch, employing the following BMPs:

BMP FM-4: TRC will continue to provide open access to the Ranch for Kern County and Los Angeles County Fire Departments, CAL FIRE, and other relevant agencies.

BMP FM-4a: TRC will continue to provide access for road maintenance activities performed to allow access for fire-fighting vehicles.

BMP FM-4b: As appropriate, TRC will continue to provide agencies with access to Ranch lands or facilities for fire-fighting operation coordination and support.

BMP FM-5: In the case of an outbreak of wildfire on the Ranch, TRC will continue to defer to, and be subject to, the lead fire-fighting agency. TRC does not engage in fire-fighting activities but will continue to support agencies in fire-fighting operations to the extent feasible.

Fuel Break Network BMPs

In addition to the road network, TRC maintains various fuel breaks to reduce the risk and range of wildfire. The following BMPs relate to fuel breaks:

BMP FM-6: Where appropriate and feasible, TRC will continue to maintain fuel breaks around structures.

BMP FM-7: TRC will continue to maintain existing mineral fuel break networks—particularly along major public roads—implemented by the Ranch or other agencies to assist in fire management in the event of future fires.

BMP FM-8: TRC will continue to work with agencies to implement fuel management or protective measures for areas prone to fire (such as along highways) through mechanical or chemical methods, such as mowing, disking, or herbicide use. (Herbicides will continue to be used in compliance with approved herbicide application requirements to avoid or minimize impacts on biological resources.) See Additional BMPs for TU MSCHP Covered Lands, below, for restrictions within TU MSHCP Covered Lands.

BMP FM-9: TRC will continue to comply with the requests of agencies and in accordance with the BMPs for Prescribed Burning (listed above) to allow for prescribed burning of roadside shoulder areas owned by TRC or adjacent to TRC property.

BMP FM-10: Prevent the spread of invasive plants by (1) removing only enough vegetation and ground cover to accomplish the fuel management and resource objectives and (2) constructing fuel breaks no wider than necessary. (For example, rather than completely clearing vegetation, thin vegetation enough to reach fuel management objectives, while leaving enough vegetation to hold soils together and reduce the spread of invasive species.)

BMP FM-11: Favor thinning techniques that do not result in ground disturbance (such as hand thinning, thinning using a chainsaw, mowing, or mastication) over techniques that result in ground disturbance (such as grapple piling or blading), whenever this can be done with no loss of fuel management effectiveness.

BMP FM-12: TRC will strive to mow fuel breaks and roadsides before invasive plants set seeds to prevent spread.

BMP FM-13: If heavy equipment is required for thinning, explore the use of alternative mechanized equipment with greater reach or less ground pressure exerted per square inch to reduce soil compaction and/or total area disturbed.

BMP FM-14: When fuel reduction measures necessitate ground disturbance and soil exposure or removal of substantial ground cover and canopy, cover and reduce exposure of bare ground using onsite chipping or treated fuels from mastication.

General Policy BMPs

TRC will continue to implement the following Ranch-wide BMPs to reduce the risk of human-caused wildfire:

BMP FM-15: TRC will continue to prohibit smoking, except in designated areas of the Ranch, to reduce the risk of cigarette-caused wildfire.

BMP FM-16: TRC will continue to limit campfires to designated locations, including camp areas, across the Ranch.

BMP FM-17: TRC will continue to prohibit campfires during fire season except in designated areas.

BMP FM-18: TRC access permits will continue to instruct those traveling on Ranch lands to stay on well-maintained paved or dirt roads, thereby reducing the risk of vehicle-caused fires.

BMP FM-19: TRC will continue to require vehicles traveling on the Ranch to carry a fire extinguisher and shovel, serving as a first line of defense against wildfire.

BMP FM-20: To ensure prompt reporting of fire outbreaks and reduce the delay between the time a fire starts and the time firefighting begins, TRC will continue to provide a listing of pertinent phone numbers to Ranch users and guests and ask that they report any concerns to the appropriate authorities.

Ranch Operations BMPs

TRC will continue to implement the following BMPs in other Ranch operations to manage fire risk and fuel:

BMP FM-21: TRC will continue to implement a no-burn program for agricultural clippings.

BMP FM-22: The use of mechanized equipment in fire-prone areas will be managed prudently to reduce the ignition of wildland fire.

Water Resources BMPs

BMP FM-23: TRC will continue to use onsite water resources to support firefighting operations.

BMP FM-24: TRC will continue to support the maintenance of Castac Lake, thereby providing a water source for fire-fighting operations on and in the vicinity of the Ranch, including aerial operations.

BMP FM-25: TRC will continue to utilize ponds, troughs, reservoirs, pipelines, and other water facilities that serve as reliable water sources for fire-fighting operations.

Fire Response BMPs

During firefighting activities, the protection and safety of humans and property are the foremost goals for agencies dealing with a fire. However, where practicable, TRC will make efforts to implement the following BMPs during post-fire recovery activity:

BMP FM-26: TRC will coordinate with the Conservancy to develop an understanding of preferred areas for staging and other activities. Locate fire recovery activity areas at sites free of invasive plants where feasible (e.g., incident base camp and staging areas; fire crew camps, including spike camps; helibases; drop points; parking areas.)

BMP FM-27: Avoid use of water sources known to contain aquatic invasive plants to prevent the spread of aquatic invasive plants to other water bodies.

Post-Fire Activity BMPs

After a fire has occurred on the Ranch, TRC will seek to implement the following BMPs with the relevant agency(s) to ensure that Conservation Values are not degraded:

BMP FM-28: Avoid heavy equipment operation on fragile post-fire soils and steep slopes whenever possible. Travel in vehicles through burned areas should be restricted to roads. Off-road travel could reduce the speed of recovery and create additional disturbance.

BMP FM-29: Limit human, pack animal, and livestock entry into burned areas until vegetation has reestablished sufficiently.

BMP FM-30: Repair damaged road and fire road networks altered by fire suppression activities to stabilize erosion potential in burn areas (e.g., repair or install berms, water bars, and other drainage diversions in fire areas to minimize erosion – these are generally implemented by fire response agencies).

Additional BMPs for TU MSHCP Covered Lands

In addition to the above, in TU MSHCP Covered Lands, TRC will implement the following BMPs listed in the TU MSHCP:

BMP TU MSHCP-33: In the TU MSHCP Covered Lands, fuel management practices will 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., hunting 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 are reflected in the Fuel Modification Plan (see Volume 4), which is subject to USFWS review.

BMP TU MSHCP-34: Within the TU MSHCP Covered Lands, 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), TRC 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. When using any chemical methods, the Integrated Pest Management Plan shall be followed.

BMP TU MSHCP-35: Use of herbicides in the TU MSHCP Covered Lands will be in conformance with the Integrated Pest Management Plan (see Volume 4).

4.6.5 CONSTRUCTION OF NEW OR REPLACEMENT FENCES AND REMOVAL OF FENCES

TRC employs fencing on the Ranch for a variety of reasons, from general security to specific Ranch operations. Fencing provides a method of securing the Ranch from trespassers and poachers, defining areas reserved for certain uses, creating pastures for livestock, and excluding people or animals from designated areas. Currently, an estimated 650 miles of fencing exist on Tejon Ranch, including a boundary fence around the entire Ranch. The decision to construct a fence on the Ranch is not made lightly, and fences are largely considered to be permanent infrastructure. Modifications and new fence construction are not frequent.

Livestock fences may prohibit or inhibit the movements of wildlife and may cause injury or death to animals that are unsuccessful at negotiating fences. If fences are designed improperly, animals moving under fences may sustain cuts from low bottom wires, animals that try to move through wire fences may become entangled, and

animals attempting to jump fences may be cut by barbed top wires or entangle their legs between the two top wires. Additionally, improperly placed fences on steep slopes may contribute to excessive erosion and sedimentation when wildlife and livestock create deep trails from walking along steep fences. The following guidelines will help to preserve Conservation Values and mitigate these potential impacts during fencing operations and fence management activities on the Conserved Lands.

Planning BMPs

For livestock operations, fencing serves as a primary measure to accomplish separation of livestock types. It also serves as a secondary measure to control the distribution of livestock in areas where water and mineral locations have failed to achieve the desired distribution or level of control. TRC will employ the following general planning BMPs for fencing-related activities on Conserved Lands:

BMP FE-1: TRC will continue to monitor fences regularly to determine whether the location of a fence and the type of fencing are serving the intended purpose.

BMP FE-2: TRC will continue to construct or allow the construction of new fencing only if determined to be reasonably necessary for operational purposes.

BMP FE-3: TRC will continue to employ a variety of fencing types to meet specific purposes, ranging from preventing animals from accessing an area to providing enhanced visual aesthetics near developed areas.

The following BMPs guide the process of planning new fences:

BMP FE-4: TRC will continue to require lessees to submit requests to allow new fence construction for livestock management to TRC.

BMP FE-5: TRC will continue to review lessees' requests, including fence type and location, and will consult with the Conservancy in making decisions on these requests, following review of sensitive natural resources that could be affected by the new fencing and review of applicable legal requirements such as the TU MSHCP (see Additional BMPs for TU MSHCP Covered Lands, below).

Environmental BMPs

The following BMPs are employed to ensure that fencing is implemented in an environmentally sensitive manner:

BMP FE-6: Where practicable, TRC will continue to install "wildlife-friendly" fencing of a type and design that allow for passage of wildlife.

BMP FE-6a: Types of fencing considered "wildlife friendly" include barbed wire and post and rail. These types of fencing make up the majority of fencing currently employed on the Conserved Lands. Wildlife will generally traverse wire fences by one of three methods: (1) crawling under the bottom strand, (2) penetrating between strands, or (3) jumping over the top strand.

BMP FE-6b: The interface between animals and fences on the Ranch will continue to be generally monitored and adjustments will be made as necessary. Where necessary and in consultation with the Conservancy, TRC will continue to employ modified fencing design to allow passage of target species. For example, pronghorn generally attempt to crawl under barbed-wire fencing; therefore, TRC may use smooth wire for bottom strands and raise the bottom strand on fencing to allow sufficient clearance on the bottom to allow pronghorn passage where appropriate.

BMP FE-6c: In instances when increased livestock pressure may require stronger fencing, TRC will consult with the Conservancy to consider potential conflicts with targeted wildlife. As necessary, TRC will install stronger and tighter wildlife-friendly fences that utilize taut fence wires, reduced distance between line posts, and more stays between line posts.

BMP FE-6d: The actual height of fences should be adjusted on steep slopes to maintain a suitable effective height (e.g., a 42-inch fence on a 50% slope presents an obstacle 75 inches tall).

Ranch Operations BMPs

The following BMPs guide use of fencing in Ranch operations:

BMP FE-7: TRC will continue to employ fencing to restrict access by animals or people to Ranch resources.

BMP FE-8: TRC will continue to employ anti-wildlife or anti-pig fencing, such as chain-link, welded wire, or electric fencing, as necessary to restrict animal access to farm crops, ornamental vegetation, or developed areas.

BMP FE-9: TRC may continue to employ a variety of fencing to enhance visual aesthetics in areas deemed appropriate, including around developed areas, Disturbance Areas, and DUAs.

Construction and Maintenance BMPs

The following BMPs will guide the construction and maintenance of fencing on the Conserved Lands:

BMP FE-10: TRC will consult with the Conservancy on new cross-fencing or other major fencing installations.

BMP FE-11: TRC will continue to construct fences to be stable, economical, secure, and maintainable.

BMP FE-12: TRC will continue to construct fences in a manner that avoids or minimizes negative effects on natural resources. For example, improperly located fences may result in accelerated erosion on steep slopes and bare areas. Animals trailing along fences can cut deep paths, which then become water channels and sources for erosion and sedimentation.

BMP FE-13: TRC will continue to maintain fences to ensure that they are serving the intended purpose.

BMP FE-14: When maintaining fences, TRC will install wildlife-friendly fencing features as needed to control the movement of targeted wildlife species.

BMP FE-15: TRC will continue to respond to requests for fence maintenance in a manner appropriate to the urgency of the request.

BMP FE-16: TRC will work with the Conservancy to remove fences that are in poor condition and are no longer needed to meet operational goals.

BMP FE-17: Birds and other wildlife can enter open vertical pipes and become trapped and die. TRC will ensure all vertical pipes in newly constructed fences and gates will be capped or plugged.

Additional BMPs for TU MSHCP Covered Lands

In addition to the above, in TU MSHCP Covered Lands, TRC will implement the following BMPs listed in the TU MSHCP:

BMP TU MSHCP-36: A pre-activity site evaluation by the Tejon Staff Biologist and, when appropriate given the site conditions, pre-activity surveys, for the Covered Species will be conducted.

BMP TU MSHCP-37: New fences shall 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

BMP TU MSHCP-38: The Tejon Staff Biologist will coordinate with lessees and livestock operations personnel regarding fence type and location to ensure compliance with TU MSHCP requirements to avoid impacts to Covered Species and other terrestrial wildlife species.

BMP TU MSHCP-39: In the event of construction in Conserved Lands, the USFWS-approved Tejon Ranch Staff Biologist will monitor construction activities in suitable habitat to ensure avoidance of harm to individuals of any Covered Species and will have the authority to direct the cessation of field activities likely to cause any such harm.

4.6.6 PRIVATE RECREATIONAL USES

TRC employees, guests, and invitees enjoy permitted access to the Ranch for a wide range of recreational uses. These recreational uses include activities throughout the year and have occurred at fluctuating rates from year to year as staffing levels, charitable activities, community outreach, or business operations have varied. This access also serves various constituencies from the communities surrounding the Ranch, as well as invitees from national and international locations. As prescribed in the Ranch-wide Agreement, this section of Volume 2 of the RWMP addresses management of TRC's continued Private Recreational Uses.

The Ranch-wide Agreement outlines that, while Private Recreational Use is a Reserved Right, it must be exercised in accordance with the BMPs established in this volume of the RWMP and with provisions for such use outlined in the Public Access Plan (RWMP Volume 3). Commercial Recreational Use, which TRC has and will continue to manage, must be managed in accordance with the guidelines for such uses outlined in the Public Access Plan.

In addition to the BMPs for Private Recreational Use and the provisions outlined in the Public Access Plan for TRC's recreational use, all private and commercial recreational uses that utilize the Condor Study Area and the Covered Lands will be subject to those permit conditions as required in the TU MSHCP ITP and the permitted and prohibited uses within the Condor Study Area and Covered Lands Conservation Easement Area. The annual planning coordination process for public access ensures that any conflicts between recreational uses will be identified and addressed.

The RWMP provides for the use of the Conservation Easement Area by TRC and its guests. In addition to the Conservancy-managed Public Access Programs, TRC will continue to provide its employees, guests, and invitees with access to the Ranch for Private Recreational Uses, which are grouped into the following categories: Tours, Arts, Social Gatherings, Passive Recreation, and Hobbies. Private Recreational Use activities typically include, but are not limited to, the sample uses described below. Activities comprising a day's events are often combined (e.g., a tour may be combined with a social gathering afterward, such as a barbecue). TRC will continue to manage these uses responsibly according to these BMPs as the frequency and number of participants may increase with anticipated company growth through the implementation of its community development plans. If located within the Covered Lands, the uses identified below will be subject to the restrictions in the TU MSHCP and any associated conservation easements.

Camping is defined separately from the Private Recreational Uses listed above because, in many instances, it has become a part of the enjoyment of some of the other uses. Whether camping is a single-day, overnight, or multiple-day event it is considered passive recreation within the context of TRC's Ranch Use of Private Recreational Use. Frequency of past camping associated with or without another activity has been minimal. This may vary from two campers, for recreation or ecological consultants as part of research, to 10 or more.

Within the TU MSHCP Covered Lands, Private Recreational Uses are limited 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, snowshoeing and sledding, camping and fishing and boating.

Tours

Tour purposes vary, from promoting business interests to being a lovely way to spend a day, to presenting the Ranch's commitment to conservation. Guests range from local or regional dignitaries, business partners, regulatory agency staff, and project stakeholders to employees driving the Ranch on the weekend with family members. Tours will be conducted by sport utility vehicle, auto, bus, helicopter, and various other vehicles to meet the tour purpose. Vehicle tours are always on road, usually following major ranch roads and, occasionally, minor roads. Tour attendance typically ranges from 2 to 10 guests in 1–2 vehicles. Tours of the ranch are typically the most frequent private recreational use, with dozens of tours taking place each year. As TRC anticipates corporate growth, it is likely that tours will also increase.

Arts

The Ranch has, for years, supported the arts community and promoted the scenic beauty and heritage of the Ranch by sponsoring organizations that promote art programs locally and statewide. Art events such as photography, painting, and sculpture field trips usually consist of 10–15 guests and 3–5 vehicles. Many participants will park on ranch roads and venture off-road on foot, usually within view of the road. Art events can number from 5 to 10 outings a year and may increase in the future as an increased number of employees from TRC engage in efforts to promote the Ranch in local communities.

Social Gatherings

This category has primarily been used to refer to business- and employee-related barbecues, lunches, dinners, cocktail parties, auctions, family picnics, and business meetings. This use sometimes requires temporary facilities or the use of permanent Ranch facilities. The typical group is 15–20 participants, and the activity usually takes place at TRC's facilities and back-country cabins, such as the Cazador and Venado cabins, High Desert Hunt Club, and Old Headquarters Picnic Grounds. TRC has arranged about 20 events a year, but this frequency may shift in the future as a result of the increased number of amenities available in TMV.

Passive Recreation

Both employees and guests have enjoyed outdoor sports such as mountain biking, hiking, wildlife viewing, equestrian trail rides, mountain boarding, and snow play. Past use, depending on the time of year, has been 2–20 employees and guests per weekend, usually in small groups at various locations.

Hobbies

Employees and ranch guests have expressed an interest in hobbies that have become part of their Tejon Ranch experience. Some examples are amateur movie making, action video, astronomy, and radio-controlled vehicles. Usage, as with passive recreation, is typically 2–20 employees and guests per weekend and may have a moderate increase in the future.

Camping (Accessory Use)

Camping is defined separately from the Private Recreational Uses described above because, in many instances, it has become a part of the enjoyment of some of these uses. Whether camping is a daytime activity, overnight, or a multi-day event, it is defined as passive recreation within the context of TRC's Reserved Right of Private Recreational Use. Frequency of past camping, either alone or associated with another activity, has been minimal. This may vary from two campers for recreation to up to 10 or more ecological consultants as part of a research activity.

The following BMPs are designed to guide TRC in avoiding, minimizing, and mitigating impacts during the planning process to ensure that no significant impairment of the Conservation Values of the Conserved Lands occurs.

Planning BMPs

The following BMPs will guide planning of Private Recreational Use activities by TRC:

BMP PRU-1: TRC will coordinate with Ranch Operations and the Conservancy to ensure that activities are scheduled to avoid conflicts with other uses.

BMP PRU-2: TRC will ensure that employees and guests follow appropriate permitting procedures prior to accessing the Ranch.

BMP PRU-3: TRC will designate areas for activities based on conditions in the area, appropriateness for the activity type, and any TU MSHCP permit or associated conservation easement restrictions, where applicable.

Performance BMPs

TRC will implement the following BMPs to guide the performance of Private Recreational Use activities:

BMP PRU-4: TRC will require that guests proceed on designated roads and trails and use designated facilities; off-road uses will be allowed only where not prohibited and deemed appropriate for the type of activity.

BMP PRU-5: If employees or guests are found to be in violation of this requirement and such violation results in environmental damage, TRC may take appropriate action, including requiring the violator to fund the restoration of damaged areas to natural or pre-existing condition, or may rescind the guest's access to the Ranch.

BMP PRU-6: TRC will require that guests perform activities in accordance with access permit conditions and additional conditions placed on activity performance by TRC; violations of such will be dealt with as described in BMP PRU-5.

BMP PRU-7: TRC will provide orientation information to employees and guests regarding applicable environmental requirements and restrictions, such as the lead-ammunition ban and micro-trash (bits of refuse and litter attractive to condors) collection and management requirements.

BMP PRU-8: As appropriate, TRC will require that a TRC representative or the Tejon Ranch Staff Biologist monitor private recreational activities.

BMP PRU-9: TRC will investigate any complaint received from any employee, lessee, or third party concerning any employee or guest's alleged violation of any requirements for avoiding impacts to California condors, and TRC will immediately notify USFWS of such complaint (as required under the federal Endangered Species Act). TRC will cooperate with USFWS in investigating and taking appropriate action in response to such a complaint.

Safety BMPs

TRC will implement the following BMPs to ensure the safety of guests while visiting the Ranch:

BMP PRU-10: TRC will brief employees and guests as necessary on relevant weather or Ranch conditions to ensure that guests are prepared to access the Ranch. Such briefings may include guidance on appropriate clothing.

BMP PRU-11: TRC will brief employees and guests on appropriate safety gear to obtain prior to accessing the Ranch.

BMP PRU-12: TRC may require employees and guests to carry a GPS locator unit.

Additional BMPs for TU MSHCP Covered Lands

In addition to the above, in TU MSHCP Covered Lands, TRC will implement the following BMPs listed in the TU MSHCP:

BMP TU MSHCP-40: TRC will ensure that all Entry Permits for back-country areas include educational materials describing condor protection measures.

BMP TU MSHCP-41: TRC will ensure that access to the Condor Study Area in conjunction with the Public Access Plan (including TRC's Private Recreational Uses) must be approved by USFWS. 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 on California condor use of the Condor Study Area (as determined by the USFWS-approved Tejon Ranch Staff Biologist and USFWS), and prohibiting future access by those persons who do not follow the rules or comply with the program.

BMP TU MSHCP-42: TRC will work with the Conservancy on the selection of any new public access trails, which shall be made in consultation with the project biologist; the selection of appropriate locations for access trails and facilities will be made in such a way as to minimize effects on open space areas.

BMP TU MSHCP-43: Within the TU MSHCP Covered Lands, TRC will hire a full time staff biologist - the Tejon Staff Biologist monitor uses and enforce restrictions on the Covered Lands.

BMP TU MSHCP-44: Within the TU MSHCP Covered Lands, TRC provide employees and guests with educational information, reviewed annually, regarding acceptable activities in open space areas, including recreational activities, pet restrictions, and wildlife restrictions, including prohibition on collecting individual animals or plants. The educational information will specifically include material on California condor occurrence on the Ranch, prohibited behaviors if perched or feeding condors are found, and threats to condors provided by recreational users and other visitors such as micro-trash and disturbance.

BMP TU MSHCP-45: Within the TU MSHCP Covered Lands, access to the Condor Study Area will be limited and regularly monitored by the Tejon Staff Biologist (at least once a month).

BMP TU MSHCP-46: Within the TU MSHCP Covered Lands, 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 project biologist or USFWS-approved Tejon Staff Biologist has determined that the nest has become inactive and/or trail use would not affect nesting golden eagle.

BMP TU MSHCP-47: Within the TU MSHCP Covered Lands, 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

4.6.7 DESIGN AND CONSTRUCTION OF POWER GENERATION FACILITIES SERVING EXISTING AND REASONABLY ANTICIPATED USES ON CONSERVED LANDS

Under the Ranch-wide Agreement, TRC retained the right to "install, establish and maintain power generation facilities (other than hydroelectric facilities) reasonably required to serve existing and reasonably anticipated uses permitted on the Conserved Lands." In the event that such facilities are constructed, TRC also is allowed "to sell excess power generated by such facilities, if the capacity of the power generation facility at the time of

installation is consistent with Grantor's reasonable anticipation of its power needs for such uses." However, these rights are subject to review by the Conservancy, which, in its "reasonable discretion," has determined that the installation, maintenance, and use of these facilities will not significantly impair the Conservation Values. The following BMPs are intended to guide the good-faith efforts and consultation process for any new power generation facilities.

BMP PGF-1: TRC will notify the Conservancy as soon as practicable of its plans to install and/or establish new power generation facilities on the Conserved Lands.

BMP PGF-2: TRC and the Conservancy will work collaboratively and in good faith to avoid, minimize, and, as necessary, mitigate any potential impairment of Conservation Values resulting from the installation, establishment, and operation and maintenance of new power generation facilities in the Conserved Lands.

Additional BMPs for TU MSHCP Covered Lands

In addition to the above, TRC will implement the following BMP listed in the TU MSHCP:

BMP TU MSHCP-48: As required by the TU MSHCP, no wind farms will be constructed on the Ranch. 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 USFWS, based on USFWS'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).

4.6.8 EXPANSION OR CONSTRUCTION OF NEW INCIDENTAL RANCH FACILITIES

Under the Ranch-wide Agreement, Incidental Ranch Facilities are all facilities that are incidental to a Ranch Use, including but not limited to squeezes, loading chutes, holding and feeding fields, corrals, barns, shop and storage buildings, sewage disposal facilities and systems, water distribution and irrigation facilities, livestock and wildlife watering facilities (including impoundments and related water distribution facilities), and infrastructure. As with fencing, TRC installs new Incidental Ranch Facilities only when necessary and treats them as permanent.

The following BMPs will help to preserve Conservation Values and mitigate potential impacts during the construction and maintenance of Incidental Ranch Facilities on the Conserved Lands. The Ranch-wide Agreement allows for the implementation of *de minimis* activities without consultation with the Conservancy, so long as TRC keeps the Conservancy informed of such actions.

Additionally, in the TU MSHCP Covered Lands, ancillary ranch structures (i.e., incidental ranch facilities) that support ranching activities in existence as of June 17, 2008, the date of the Ranch-wide Agreement, may be preserved and maintained and ancillary ranch structures may 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) 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 USFWS to ensure that the activity associated with an ancillary ranch structure avoids or adequately minimizes impacts to Covered Species and their habitats.

Planning BMPs

TRC will implement the following BMPs in the planning and construction of any new Incidental Ranch Facilities:

BMP IRF-1: TRC will construct Incidental Ranch Facilities as necessary to meet demand for operations. TRC will work with the Conservancy to develop procedures to ensure that the Conservancy is reasonably informed of the nature and extent of *de minimis* Incidental Ranch Facilities constructed.

BMP IRF-2: TRC will consult with the Conservancy on the planning and design of new structures or facilities that are deemed not to be *de minimis* and will incorporate the following measures:

BMP IRF-2a: In the event that an Incidental Ranch Facility activity is not a *de minimis* activity, TRC will invite the Conservancy to participate in a site evaluation to identify, and avoid or minimize, impacts to sensitive natural resources.

BMP IRF-2b: If determined to be necessary, TRC will continue to apply for and obtain all required permits and approvals, and will comply with all applicable requirements, including but not limited to the TU MSHCP and Ranch-wide Agreement.

Incidental Ranch Facilities BMPs

TRC will consult with the Conservancy to employ the following BMPs in planning features to be included in new or existing structures and facilities that are deemed not to be *de minimis*. Incidental Ranch Facilities that are not considered *de minimis* include new barns, roads, watering facilities that are not minor (such as stock ponds and modifications of springs, ponds, and other natural water bodies), power transmission lines and associated facilities, oil and gas pipelines and associated facilities, and other similar types of activities.

BMP IRF-3: Structures will continue to be planned and designed in accordance with appropriate building codes and will meet or exceed relevant energy and water efficiency standards.

BMP IRF-4: Facilities will continue to include appropriate amenities, including plumbing, electrical, and other services as appropriate.

BMP IRF-5: Where necessary and feasible, TRC will continue to employ off-grid technologies, such as solar power or other power generation, to provide appropriate services.

Location BMPs

TRC will consult with the Conservancy and employ the following BMPs when determining locations for new facilities that are deemed not to be *de minimis*:

BMP IRF-6: Any new facility should be located away from surface waters, wetlands, and other sensitive habitat areas to the extent practicable.

BMP IRF-7: To the extent practicable, avoid locating facilities on unstable slopes and soils.

Construction BMPs

TRC will consult with the Conservancy to construct Incidental Ranch Facilities in accordance with the following BMPs:

BMP IRF-8: All construction will continue to comply with relevant permits and conditions of permits.

BMP IRF-9: Construction will continue to be planned to avoid or minimize impacts to sensitive natural resources, including pre-activity surveys within the TU MSHCP Covered Lands.

BMP IRF-10: Construction impacts will continue to be limited to a minimal area around the construction site.

BMP IRF-11: Use and maintain proper erosion and sediment control practices during and immediately after construction activities.

BMP IRF-12: Use applicable road management BMPs for access roads associated with facility sites.

Maintenance BMPs

To provide a safe environment and enhance the longevity of structures and facilities, TRC will employ the following BMPs:

BMP IRF-13: TRC will continue to ensure that maintenance is performed by trained staff.

BMP IRF-14: TRC will continue to respond in a timely and appropriate manner to reports of problems or requests for service on Incidental Ranch Facilities.

BMP IRF-15: TRC will continue to require that Incidental Ranch Facilities be maintained in a neat and orderly condition and that trash and other materials do not accumulate in a manner that becomes an attractant or threat to native wildlife such as condors (e.g., micro-trash, anti-freeze) and pests such as Norway rats.

Additional BMPs for TU MSHCP Covered Lands

In addition to the above, in TU MSHCP Covered Lands, TRC will implement the following BMPs listed in the TU MSHCP:

BMP TU MSHCP-49: In the event that an Incidental Ranch Facility activity is not a de minimis activity and is located outside of a previously disturbed area (e.g., undergrounding utilities in road rights-of-way), then the activity may only proceed following a meet and confer process with USFWS to ensure that the activity associated with an ancillary ranch structure avoids or adequately minimizes impacts to Covered Species and their habitats. To the extent ground disturbance is required, then the following construction BMPs shall apply:

BMP TU MSHCP-49a A pre-activity site evaluation by the Tejon Ranch Staff Biologist and, when appropriate given the site conditions, pre-activity surveys, for the Covered Species will be conducted.

BMP TU MSHCP-49b TRC will implement BMPs to protect surface water quality (i.e., pollutants, erosion, dust control, sedimentation) as required by applicable requirements from the federal Clean Water Act, Porter-Cologne Water Quality Control Act, and air districts.

BMP TU MSHCP-49c The installation of infrastructure (and trails) or other ground-disturbing activity in Covered Lands will include efforts to minimize the footprint of, and use BMPs for the design and installation of, any such infrastructure, including surveys prior to grading, contractor education, staking, and temporary construction fencing.

BMP TU MSHCP-49d To ensure that diseases are not conveyed between work sites by the USFWS-approved Tejon Ranch Staff Biologist or project biologist, the fieldwork code of practice developed by the Declining Amphibian Populations Task Force (2009) will be followed at all times.

BMP TU MSHCP-49e Prior to grading, activities in or immediately adjacent to suitable habitat for Tehachapi slender salamander will be monitored. Exclusion fencing will be erected if appropriate to prevent Tehachapi slender salamanders from entering construction zones.

BMP TU MSHCP-49f In the rare instance of grading in Conserved Lands, TRC will conduct surveys for Tehachapi slender salamanders prior to grading in suitable habitat. The USFWS-approved Tejon Ranch Staff Biologist or project 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 USFWS-approved Tejon Ranch Staff Biologist or project 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.

BMP TU MSHCP-49g TRC will conduct surveys to determine presence or absence of western spadefoot prior to Ranch activities that could adversely affect breeding habitat for western spadefoot, such as eliminating stock ponds.

BMP TU MSHCP-49h In the event of construction in Conserved Lands, the USFWS-approved Tejon Ranch Staff Biologist will monitor construction activities in suitable habitat to ensure avoidance of harm to individuals of any Covered Species and will have the authority to direct the cessation of field activities likely to cause any such harm.

4.6.9 INFRASTRUCTURE SERVING DESIGNATED USE AREAS

The Ranch-wide Agreement designates 21,175 acres for farming, mineral extraction, and oil and gas operations (the DUAs), within the matrix of Conserved Lands that are subject to this RWMP. This land includes four Designated Farming Areas on nearly 2,800 acres, three Designated Mining Areas on 2,975 acres, and a single Designated Oil and Gas Area on 15,400 acres. In recognition of the importance of these economic uses for TRC, the Ranch-wide Agreement and certain conservation easements over the Acquisition Areas of White Wolf, Old Headquarters, and Bi-Centennial retain the rights for TRC to install infrastructure to serve the DUAs on Conserved Lands outside of the DUAs. Construction and maintenance of infrastructure within the DUAs are subject to BMPs for DUAs (Section 4.5). In this context, infrastructure consists of streets, roads, and bridges; transit and transportation facilities; water supply lines and water resource systems; storm drains and sewers; wastewater lines and wastewater management systems; power transmission lines and associated facilities; oil and gas pipelines and associated facilities; communications infrastructure; and other similar improvements, utilities, and facilities.

The installation of this infrastructure requires the Conservancy's prior written consent, which shall not be withheld if the proposed installation:

- minimizes the footprint to the extent feasible;
- avoids or minimizes impacts to habitat values; and
- uses BMPs consistent with the DUA Management Standard in its design, construction, and maintenance to minimize any impairment of Conservation Values to the extent feasible.

The following BMPs are intended to guide the planning and installation of infrastructure serving the DUAs.

BMP IDUA-1: TRC will notify the Conservancy as soon as practicable of its plans to install infrastructure serving the DUAs.

BMP IDUA-2: TRC will work to avoid the installation of infrastructure serving the DUAs on the Conserved Lands.

BMP IDUA-3: In the event that infrastructure is necessary, TRC and the Conservancy will collaborate in good faith to minimize any potential impairment of habitat values resulting from the installation, construction, and operation and maintenance of infrastructure serving the DUAs.

Additional BMPs for TU MSHCP Covered Lands

In addition to the above, in TU MSHCP Covered Lands, TRC will implement the following BMPs listed in the TU MSHCP:

BMP TU MSHCP-50: TRC will ensure that utility towers are self-supporting (i.e., no guide wires shall be included as part of the design).

BMP TU MSHCP-51: TRC will ensure that utility tower façades will be primarily solid (e.g., through use of panels or other sidings, wider or denser lattice work, or alternative tower solutions approved by USFWS) to increase their visibility to California condors, although microwave dishes and antennae may be exposed to provide appropriate system operation.

BMP TU MSHCP-52: TRC will ensure that utility towers incorporate USFWS-approved condor anti-perching devices on all potential landing surfaces.

BMP TU MSHCP-53: TU MSHCP 4: In the event that installation of such infrastructure is not a de minimis activity and is located outside of a previously disturbed area (e.g., undergrounding utilities in road rights-of-way), then the activity may only proceed following a meet and-confer process with USFWS to ensure that the activity associated with an ancillary ranch structure avoids or adequately minimizes impacts to Covered Species and their habitats. To the extent ground disturbance is required, then the following construction BMPs shall apply:

BMP TU MSHCP-53a A pre-activity site evaluation by the Tejon Staff Biologist and, when appropriate given the site conditions, pre-activity surveys, for the Covered Species will be conducted.

BMP TU MSHCP-53b TRC will implement BMPs to protect surface water quality (i.e., pollutants, erosion, dust control, sedimentation) as required by applicable requirements from the federal Clean Water Act, Porter-Cologne Water Quality Control Act, and air districts.

BMP TU MSHCP-53c The installation of infrastructure (and trails) or other ground-disturbing activity in Covered Lands will include efforts to minimize the footprint of, and use BMPs for the design and installation of, any such infrastructure, including surveys prior to grading, contractor education, staking, and temporary construction fencing.

BMP TU MSHCP-53d To ensure that diseases are not conveyed between work sites by the USFWS-approved Tejon Ranch Staff Biologist or project biologist, the fieldwork code of practice developed by the Declining Amphibian Populations Task Force (2009) will be followed at all times.

BMP TU MSHCP-53e Prior to grading, activities in or immediately adjacent to suitable habitat for Tehachapi slender salamander will be monitored. Exclusion fencing will be erected if appropriate to prevent Tehachapi slender salamanders from entering construction zones.

BMP TU MSHCP-53f In the rare instance of grading in Conserved Lands, TRC will conduct surveys for Tehachapi slender salamanders prior to grading in suitable habitat. The USFWS-approved Tejon Ranch Staff Biologist or project 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 USFWS-approved Tejon Ranch Staff Biologist or project 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.

BMP TU MSHCP-53g TRC will conduct surveys to determine presence or absence of western spadefoot prior to Ranch activities that could adversely affect breeding habitat for western spadefoot, such as eliminating stock ponds.

BMP TU MSHCP-53h In the event of construction in Conserved Lands, the USFWS-approved Tejon Ranch Staff Biologist will monitor construction activities in suitable habitat to ensure avoidance of harm to individuals of any Covered Species and will have the authority to direct the cessation of field activities likely to cause any such harm.

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The Conservancy recognizes two general types of monitoring: (1) compliance monitoring (also known as implementation monitoring) determines if management actions or BMPs are implemented as intended; and (2) effectiveness monitoring determines if management actions or BMPs are achieving the desired results (Atkinson et al. 2004). Monitoring is an integral part of the Conservancy’s adaptive management process and will be incorporated into specific management goals and Conservation Activities. A well-designed monitoring program will provide results on both compliance and effectiveness; both are used to improve management practices through adaptive management. An efficient monitoring program produces the information required to accomplish stated goals at minimal cost. To provide effective and practical feedback into management decisions, monitoring needs to meet high standards of precision and accuracy, be feasibly implemented over biologically relevant time frames, and be cost-efficient. As such, the design and resources required to monitor Conservation Activities will be important considerations when prioritizing and planning implementation actions.

This section describes monitoring activities to support adaptive management of Conservation Activities. Monitoring is organized by classes of significant near-term Conservation Activities. Monitoring would be developed for other Conservation Activities as opportunities to implement them arise. In addition, compliance monitoring will be conducted by TRC and the Conservancy to ensure that BMPs (discussed in Section 4) are implemented as intended. Effectiveness monitoring of BMPs may also be implemented on a more limited and informal basis than is discussed for Conservation Activities.

5.1 GRAZING MANAGEMENT

Grazing management-related Conservation Activities are proposed within four natural communities: San Joaquin Valley grasslands, Antelope Valley grasslands, riparian systems, and oak woodlands. Although much is generally known about grazing effects in many California natural communities, large knowledge gaps remain related to specific conservation goals. To be effectively adaptive with grazing management on Tejon Ranch, the Conservancy proposes combining two approaches to evaluating grazing management effects.

The first approach informing management adopts the Before-After-Control-Impact (BACI) principles of design. BACI design defines two treatments, a control and an impact (such as a management treatment). The “before” measurements are crucial in that they provide a means to quantify the differences in ecosystem function between the control and impact sites not related to the management impact, since these measurements occur before the imposition of any new activity. The “after” measurements are used to estimate the effect of the management treatment based on the difference between the control and impact sites. The Conservancy’s ongoing grassland monitoring studies provide a basis for “before” conditions.

The second approach replaces traditional hypothesis testing with a measurement of the degree of support in the monitored data for the management hypotheses. This approach provides greater relevance of information gained by evaluating an effect size and associated estimates of uncertainty, rather than an ordinary statistical test of null hypotheses. For example, rather than testing an uninformative null hypothesis such as “low levels of RDM do not enhance abundance of a target species,” the Conservancy may monitor differences in target species abundance under different managed RDM levels and evaluate the uncertainties associated with those differences. This approach is more conducive to an adaptive management framework than traditional tests, in part because it provides more intuitive answers to managers. For additional discussion of these approaches, refer to Appendix B.

5.1.1 SAN JOAQUIN VALLEY GRASSLANDS

As discussed in Volume 1 of this RWMP, grazing management in the San Joaquin Valley grasslands is targeted at maintaining low plant cover and biomass conditions in environmental sites that support high-priority conservation targets. Compliance monitoring will assess whether these conditions are being achieved and (despite the fact that this has not been the practice at Tejon Ranch) will use RDM (e.g., target 500 pounds per acre or less), vegetation height (e.g., less than 12 inches), and bare ground (e.g., 50% or more) as metrics. Effectiveness monitoring will evaluate whether grazing management to achieve low biomass conditions produces a positive response by conservation targets. Conservation targets for this system include (at Site 2) native plants, San Joaquin kit fox, blunt-nosed leopard lizard, burrowing owl, and (at Site 4) endemic plant species (e.g., Comanche Point layia and Tejon poppy). Effectiveness monitoring will use abundance metrics (e.g., native plant cover or population size or abundance indices).

The Conservancy will use quantitative data collected from permanent grassland monitoring plots to generate vegetation data. Grassland relevé plots are 20 m x 5 m (100 m²) with four 50-m point transects extending from each corner. Ocular estimates of all plant cover, bare ground, litter, rocks, and other materials are made within the plot, and plants intercepting points every meter along each transect (200 points total) are recorded. In 2013, the Conservancy will also collect data on RDM and vegetation height at these plots. In 2013, seven plots currently classified as Site 2 and 13 plots currently classified as Site 4 will be monitored.

The Conservancy has initiated baseline monitoring of San Joaquin kit fox occupancy in low-elevation pastures targeted for grazing management to enhance condition for conservation targets. In 2012, the Conservancy randomly deployed 25 remotely triggered camera traps in 1-km grid cells within potentially suitable kit fox habitat. Camera traps are deployed for 1 month, then reallocated to new grid cells for another month, and so on. Kit fox density cannot be obtained by this method unless animals are individually marked, but indices of abundance can be developed. In 2013, the Conservancy is planning on initiating blunt-nosed leopard lizard monitoring, likely using distance sampling techniques along walking transects in potentially suitable habitat. Since 2010, the Conservancy has been opportunistically monitoring the presence of burrowing owls on Tejon Ranch. These baseline data will be used to develop a monitoring program for burrowing owl, although the methodology has not been developed. Abundance metrics for target wildlife species would be used for effectiveness monitoring purposes.

5.1.2 ANTELOPE VALLEY GRASSLANDS

Grazing management in the Antelope Valley is focused on promoting native plant species and wildlife such as pronghorn. Due to a lack of information on this system, the Conservancy currently does not have explicit grazing management hypotheses. Rather, the Conservancy is focusing on refining environmental site descriptions and attempting to better understand site potential for native plants and pronghorn habitat in the area to inform and refine management prescriptions. Grassland monitoring will also be used to help derive RDM standards (or other habitat metrics, such as bare ground or stubble height) and establish baseline or “before” conditions in Antelope Valley grasslands. This baseline is necessary to monitor responses to any future grazing management actions. The RDM standards or other suitable metrics (e.g., vegetation height) would be used for compliance monitoring purposes.

Antelope Valley grasslands are monitored using the same methodology as described above for the San Joaquin Valley grasslands. In 2013, the Conservancy is increasing its monitoring of this system and will monitor 20 grassland plots in the Antelope Valley. The Conservancy also will be exploring potential monitoring approaches for various wildlife species in 2013, including pronghorn, and the Conservancy has been opportunistically monitoring the presence of burrowing owls and other species since 2010. The Conservancy will use this information to develop appropriate monitoring methodologies for target wildlife species as part of future adaptive grazing management projects. Effectiveness monitoring likely will use abundance metrics for target wildlife species and native plants.

5.1.3 RIPARIAN SYSTEMS

Grazing management in riparian systems is targeted at improving vegetative structure and cover to enhance habitat for riparian species such as understory-nesting and ground-nesting bird species. In addition, feral pigs utilize riparian habitats extensively, and controlling feral pigs may reduce predation on these and other wildlife species (e.g., herpetofauna). The Conservancy has little quantitative information on riparian habitat composition and structure and the drivers of riparian condition. Thus, at this point, riparian monitoring will be designed to provide baseline information to improve understanding of these communities, as well as to evaluate responses to management. Additional discussion of grazing management and monitoring of riparian habitats is provided Appendix B. Proposed baseline monitoring for riparian habitats is summarized below.

Riparian monitoring methodologies are still in development, but the following methods are being considered to build ecological site descriptions, develop state and transition models, and assess vegetation responses to management. The Conservancy's initial development of riparian ecological site descriptions and riparian enhancement efforts will be directed to three study reach locations within lower Tejon Creek, six study reaches in the vicinity of the confluence of Chanac and Tejon Creeks, three study reaches in the lower reaches of Tunis Creek, and three study reaches within the lower reaches of El Paso Creek, for a total of 15 sampling locations. Within each study reach, permanent plots will be established. In each plot, point-intercept vegetation data will be collected at 1-m intervals along 50-m transects oriented parallel to the stream channel on both sides of the stream for a total of 100 points. An additional five transects will be established perpendicular to the stream, extending from the channel bank to the outer edge of riparian vegetation. Point-intercept samples will be collected at 0.5-1 m intervals along each transect, and the number of individuals of each woody riparian plant species will be counted within a 1-m belt along each perpendicular transect. Soil samples will be collected at each transect and analyzed for soil chemical parameters and texture.

Stream geomorphology will be assessed by measuring creek profiles along the vegetation transects oriented parallel to the channel. These profiles will include shape, width, width/depth ratio, side-slope gradient, and aspect of the creek channel. Fluvial surfaces (e.g., alluvial bars, stream banks, floodplains, and terraces) in each plot will be drawn each year on a map, and elevation, stream gradient, and slope and aspect of plots will be measured. Hydrology of study sites will be assessed by measuring soil moisture and depth to groundwater along transects oriented perpendicular to the stream.

Use of riparian habitats by livestock and feral pigs will be quantified in the study reaches using motion-triggered camera traps at each permanent plot. Video data from these cameras will be used to determine the behavior of livestock and feral pigs and the amount of time they spend at each site. Because many wild pigs can have distinctive markings, the Conservancy will evaluate whether population estimates can be made from camera data. Pig disturbance will also be quantified along vegetation transects.

Compliance monitoring for grazing management in riparian systems will relate to the specific livestock management provisions implemented in a particular area. For example, examples of compliance monitoring measures are monitoring the distribution of minerals and supplements to ensure that they are not placed adjacent to riparian areas or monitoring the use of pastures supporting riparian habitats to confirm that seasonal grazing management prescriptions are being implemented appropriately. For feral pig control, compliance monitoring will evaluate if control measures, such as exclusionary fencing or population reductions, are being implemented and are effective at achieving targeted abundances (i.e., complete exclusion).

Effectiveness monitoring will focus on metrics characterizing anticipated responses of vegetation and wildlife to management. For example, anticipated vegetation responses, such as increased understory cover, will be characterized using the vegetation sampling methods described above. To characterize wildlife responses to grazing management and pig control, the Conservancy initiated riparian bird surveys in three study reaches in 2012 and is expanding these surveys into the other two study reaches in 2013. The Conservancy will also initiate herpetofaunal monitoring using cover board arrays in study reaches in 2013. Cover board arrays are plywood sheets placed on the ground that herpetofauna use for cover; monitoring of such arrays can be used to assess species diversity and indices of abundance.

5.1.4 OAK WOODLANDS

Grazing management in oak woodlands may focus on enhancing diversity of understory plant species. The Conservancy has not initiated work on this issue but proposes to conduct grazing management trials to explore effects of grazing on these systems. Compliance monitoring will assess if grazing management prescriptions are implemented as intended. Effectiveness monitoring will evaluate responses of understory vegetation communities to the management treatments. Monitoring of understory plant communities can be conducted in a variety of ways, such as with point-intercept transect or quadrat sampling methods.

5.2 INVASIVE PLANT MANAGEMENT

Management of nonnative invasive plant species on Tejon Ranch is currently focused on grassland and riparian habitats but will extend into all natural communities as needed. The Conservancy will develop an invasive plant monitoring program to inform and track management efforts. The distribution and status of relatively widespread invasive nonnative species in grasslands, such as cheat grass, can be monitored effectively with grassland plots, within which invasive plant cover is quantified. Relatively localized invasive species, such as shortpod mustard and yellow star-thistle, will require more focused surveys and mapping efforts that can be stored in a spatially explicit database such as a Geographic Information System (GIS). The Conservancy has developed an invasive plant species GIS database for portions of Tejon Ranch, including the five Acquisition Areas and the Conserved Lands in Los Angeles County (totaling approximately 72,000 acres of the Conserved Lands) based on mapping efforts conducted in 2010 (Appendix A). The Conservancy will seek to expand and update invasive plant species mapping throughout the Conserved Lands. The database will include all known noxious weed infestations, areas that have been treated, and the success of those treatments.

Compliance monitoring will focus on ensuring that management treatments are applied as specified in management plans for the particular target species. For example, type of treatment, timing of treatments, and number of treatments should be recorded in the Conservancy's invasive plant species database. Effectiveness monitoring to determine the level of control achieved by the treatment will be assessed visually and recorded in the Conservancy's database.

5.3 WILDLIFE MANAGEMENT

The abundance, distribution, and harvest of wildlife populations at Tejon Ranch are not well understood. The Conservancy will be exploring potential monitoring approaches for various wildlife species in 2013 and will work with TRC to incorporate these techniques into existing wildlife monitoring efforts as appropriate. Techniques that the Conservancy will evaluate include remotely triggered camera traps, distance sampling methods, and track and sign transects.

The Conservancy is also working with TRC to improve wildlife monitoring and hunter harvest reporting at Tejon Ranch. TRC will emphasize in hunter orientations the need to accurately report animals harvested within designated hunting areas on Tejon Ranch. TRC will collect and report information on the numbers, sex, and estimated age of harvested animals on the Ranch. Data will be compiled at the end of the spring and fall hunting seasons and shared with the Conservancy no later than September 1 and March 1 of each year, respectively.

The Conservancy and TRC will use these data to evaluate status and trends of wildlife at Tejon Ranch and develop species-specific management strategies. Potential management strategies may suggest feral pig control to reduce competition or predation intensity, harvest level modifications, and grazing management or other measures to enhance habitat. Compliance monitoring will focus on ensuring that management actions are implemented as intended (e.g., targeted feral pig abundances are achieved or pigs are effectively excluded from a wetland area). Effectiveness monitoring will evaluate responses to the management action, such as changes in abundance of herpetofauna following reduction of feral pig population. Specific compliance and effectiveness monitoring methods will depend on the wildlife management actions being evaluated and the nature of the expected or desired responses.

5.4 REPORTING

The Conservancy will summarize the implementation of Conservation Activities annually. The nature and extent of each specific Conservation Activity will be summarized, as well as the results of effectiveness and compliance monitoring. TRC will conduct compliance monitoring of BMPs and will summarize the results annually for incorporation into the adaptive management process by the Operations Committee. The Operations Committee will meet in the fall of each year to review and discuss implementation and success of BMPs and Conservation Activities, and to coordinate planning for the following year. At least annually, Conservancy staff will provide a summary to the Conservancy Board of implementation of Conservation Activities and BMPs, effectiveness of these measures, and relevant resource condition trends.

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