

Final Environmental Assessment for the North Area Right-of-Way Maintenance Program

Prepared for

**Western Area Power Administration,
Sierra Nevada Region**



Prepared by

Aspen
Environmental Group

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1.0 PURPOSE AND NEED FOR ACTION

1.1 Introduction and Background

The Western Area Power Administration (Western) markets and delivers reliable, cost-based hydroelectric power and related services within a 15-state region of the central and western United States. Within its Sierra Nevada Region, Western owns, operates, and maintains 115-kilovolt (kV), 230-kV, and 500-kV transmission lines in Alameda, Butte, Colusa, Contra Costa, Glenn, Lassen, Modoc, Sacramento, San Joaquin, Shasta, Siskiyou, Solano, Sutter, Tehama, Trinity, Yolo and Yuba Counties, California, and Klamath County, Oregon (see Figure 1-1). These lines include portions of the Central Valley Project (CVP) and the entire Pacific Alternating Current Intertie (PACI) transmission lines. Additionally, Western operates and maintains (also has partial ownership of) the California-Oregon Transmission Project (COTP), which is owned by the Transmission Agency of Northern California (TANC) and comprises three 500-kV lines that extend from the Captain Jack Substation in Klamath County, Oregon, to the Tesla Substation in San Joaquin County, California. Besides transmission lines, TANC owns numerous communication facilities throughout California. Collectively, the CVP, PACI, COTP, seven communication facilities, and associated access roads are referred to as Western's North Area Right-of-Way (ROW), and comprise the project area. Many of these transmission lines pass through rugged and densely vegetated areas in northern and central California, requiring proactive vegetation maintenance. Western's *2007 Integrated Vegetation Management (IVM) Guide and Transmission Vegetation Management Program* (Western 2007) employs an adaptive management approach to follow environmentally protective vegetation-control principles for unwanted vegetation, including cultural/natural control, physical/mechanical control, biological control, and chemical control. Section 2.0, Alternatives including the Proposed Action, provides additional details on these vegetation-control methods.

Pursuant to section 7 of the federal Endangered Species Act (ESA), Western has a programmatic biological opinion (BO) (USFWS 1998) from the U.S. Fish and Wildlife Service (USFWS) for existing O&M activities. Western also has a current programmatic agreement (PA) with the California State Historic Preservation Officer (SHPO), pursuant to Section 106 of the National Historic Preservation Act (NHPA), for existing O&M activities. The PA also addresses Western-maintained COTP and PACI facilities. These documents address current routine ROW maintenance along Western's transmission ROWs.

Western's North Area ROW Maintenance Project (project) serves to update the existing O&M program to include all transmission facilities, substations, access roads, and seven communication facilities into one comprehensive Master O&M Program. In addition, the Master O&M Program includes additional maintenance activities that are outside the scope of the existing BO and PA. This environmental assessment (EA) will support further ESA and NHPA consultation required for the additional transmission systems and maintenance activities. Furthermore, this EA is intended to streamline other regulatory and permitting requirements, as described in section 2.2.4.

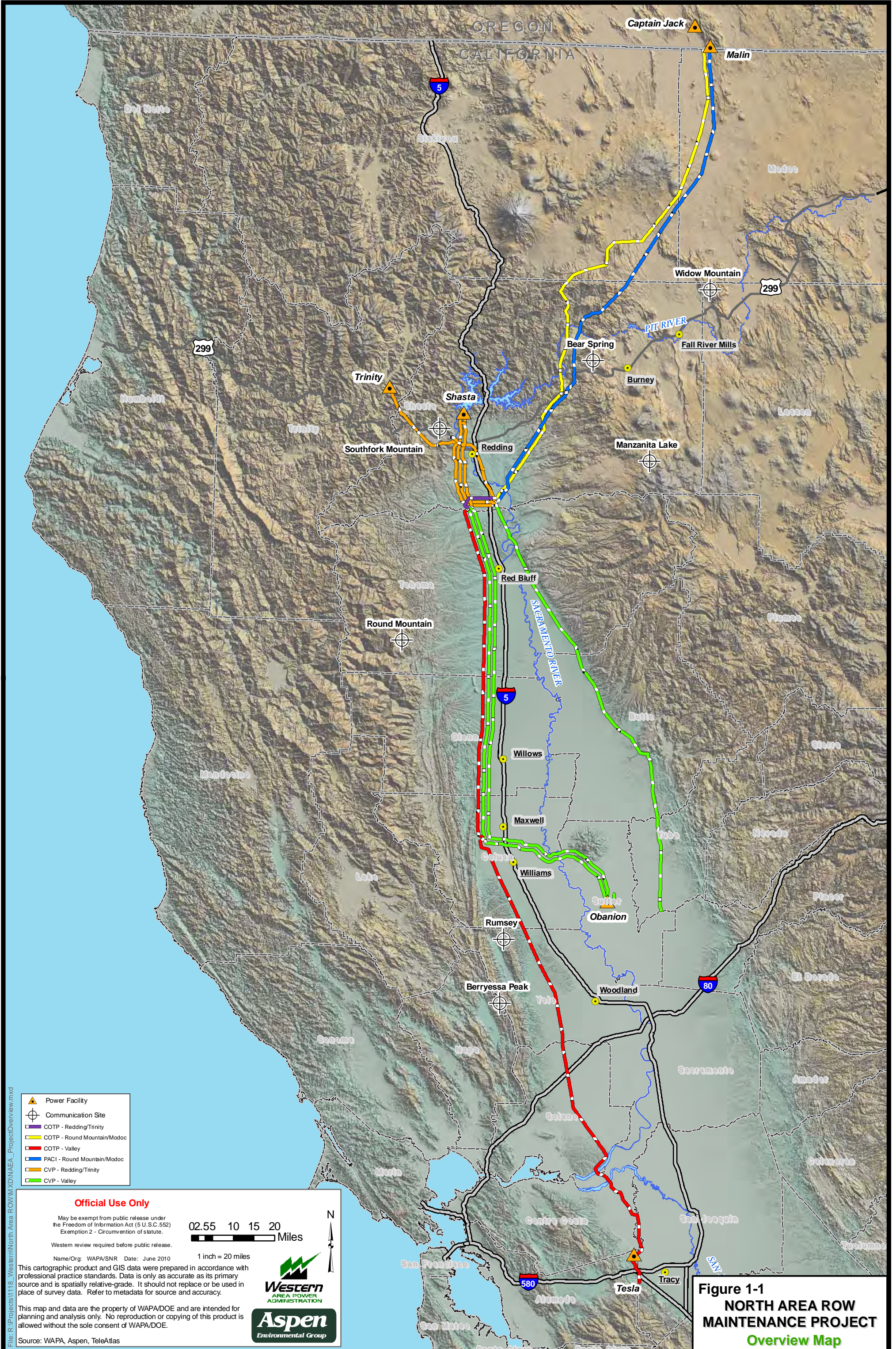
1.2 Purpose and Need for Action

The purpose of the North Area ROW Maintenance Project is to maintain existing transmission line, communication facility, and legal access road ROWs in order to ensure reliability of the transmission system and safe, all-weather access to the transmission line structures and other Western facilities. Western has designed this maintenance program to balance environmental protection with system reliability and compliance with the National Electric Safety Code (NESC), Western Systems Coordinating Council (WSCC) requirements, North American Electric Reliability Council (NERC) reliability standards, Institute of Electrical and Electronics Engineers (IEEE) standards, and Western directives for maintaining system reliability and protection of human safety. In meeting this purpose, Western's objectives are to maintain its transmission line ROWs to:

- prevent operational hazards;
- provide access for maintenance;
- protect facilities from fire;
- control the spread of noxious weeds and protect environmental quality;
- adhere to principles of Western's IVM Program;
- establish stable, low-growing native plant communities under the ROW;
- develop a technically and economically efficient program;
- protect public and worker safety;
- maintain sound relationships with landowners and managers; and
- streamline regulatory permitting activities.

The need for the Proposed Action includes:

- eliminating the threat for vegetation to interfere with the lines and towers. Vegetation near transmission lines may pose a threat to public safety and the environment from arcing (which can cause fires) and trees falling onto the transmission lines;
- controlling vegetation in a cost-effective manner that would benefit the public and natural ecosystems;
- maintaining the transmission line and legal access road ROWs to facilitate year-round access to transmission line structures.



- Power Facility
- Communication Site
- COTP - Redding/Trinity
- COTP - Round Mountain/Modoc
- COTP - Valley
- PACI - Round Mountain/Modoc
- CVP - Redding/Trinity
- CVP - Valley

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1 inch = 20 miles



Figure 1-1
NORTH AREA ROW
MAINTENANCE PROJECT
Overview Map

Second page allowed for color figure.

1.3 Location and Project Area Description

The study area includes the transmission line ROWs, communication sites, and access roads within Western's Sierra Nevada Region of northern and central California, which includes portions of Alameda, Butte, Colusa, Contra Costa, Glenn, Lassen, Modoc, Sacramento, San Joaquin, Shasta, Siskiyou, Solano, Sutter, Tehama, Trinity, Yolo and Yuba Counties (see Figure 1-1). There are more than 800 miles of transmission line ROW and 250 miles of access roads within the project area.

For clarity, the project area has been divided into three distinct geographical sub-areas: Valley, Redding/Trinity, and Round Mountain/Modoc. Within section 3.0, the affected environment is described and the environmental consequences are assessed according to this convention for each issue area. The following describes the transmission line ROW encompassed in each geographical sub-area of the project area. Refer to Figure 1-1 for an illustration of the following geographical areas.

1.3.1 Valley

The Valley portion of the project area includes the CVP and COTP transmission ROWs and access roads from the Tesla Substation in San Joaquin County north to the Cottonwood and Olinda Substations in southern Shasta County. Neither the Cottonwood-Olinda #1/#2 line nor the Cottonwood and Olinda Substations are included in the Valley portion. The following circuits are included within the Valley region:

- Cottonwood-Roseville 230-kV (CVP)
- Olinda-O'Banion 230-kV (CVP)
- Keswick-O'Banion 230-kV (CVP) - portion of transmission line
- O'Banion-Sutter 230-kV (CVP)
- Captain Jack-Olinda 500-kV (COTP) - portion of transmission line
- Olinda-Tracy 500-kV (COTP)
- Tracy-Tesla 500-kV (COTP)

Communication facilities within the Valley region include Berryessa Peak, Rumsey, and Round Mountain.

1.3.2 Redding/Trinity

The Redding/Trinity region is located within Shasta and Trinity Counties near the City of Redding and the Trinity Alps. The Redding/Trinity portion of the project encompasses the CVP and COTP transmission ROWs and access roads northwest of the Airport Substation, including the Cottonwood-Olinda #1/#2 line and the Cottonwood and Olinda Substations to the Trinity Substation. The following circuits are included within the Redding/Trinity area:

- Cottonwood-Olinda #1/#2 230-kV (CVP)
- Carr-Keswick #1/#2 230-kV (CVP)
- Spring Creek-Keswick 230-kV (CVP)
- Airport-Cottonwood 230-kV (CVP)
- Shasta-Flanagan 230-kV (CVP)
- Flanagan-Keswick 230-kV (CVP)
- Shasta-Cottonwood #1/#2 230-kV (CVP)
- Trinity-Carr 230-kV (CVP)
- Keswick-Airport 230-kV (CVP)
- Keswick-Olinda 230-kV (CVP)
- Keswick-O'Banion 230-kV (CVP) – portion of transmission line
- Captain Jack-Olinda 500-kV (COTP) – portion of transmission line

The Southfork Mountain communication facility is located within the Redding/Trinity region, near Lewiston Lake.

1.3.3 Round Mountain/Modoc

The northern portion of the project area extends from the Airport Substation northeast across the Modoc Plateau to the Malin Substation in Klamath County, Oregon. The segment of the Captain Jack-Olinda circuit (COTP) that is north of the Oregon border is not included in the project area; however, the 0.5-mile segment of the Malin–Round Mountain circuit located in Oregon is evaluated in this EA. The following circuits are included within the Round Mountain/Modoc region:

- Round Mountain-Cottonwood 230-kV (PACI)
- Malin-Round Mountain 500-kV (PACI)
- Captain Jack-Olinda 500-kV (COTP) – portion of transmission line

Communication facilities within the Round Mountain/Modoc region include Manzanita Lake, Bear Spring, and Widow Mountain.

1.4 Scope of this Environmental Assessment

This EA evaluates and presents the potential environmental consequences resulting from implementation of the Proposed Action and No Action Alternative. The methods and management approaches that comprise the Proposed Action and No Action Alternative are described in section 2, as well as those alternatives considered but eliminated from full EA evaluation. Section 3 presents a detailed description of the affected environment and a comprehensive analysis of environmental consequences for the Proposed Action and No Action Alternative for 16 environmental issue areas (e.g., air quality, habitats and vegetation, cultural resources). Section 4 includes a discussion of the cumulative scenario and impacts with regard to the Proposed Action and No Action Alternative.

Western has developed standard operating procedures (SOPs) and project conservation measures (PCMs) to prevent adverse effects to sensitive resources in the ROW during O&M activities. SOPs will be followed at all times, during all O&M activities, and throughout the project area (see Table 2-1 for SOPs). Western would conduct an annual

training class on SOPs for all maintenance crews. Western developed PCMs to proactively protect the sensitive resources in the field. PCMs are specific to each resource and O&M activity (see Tables 2-2 through 2-5 for PCMs).

Assessment of the affected environment and environmental consequences relied on a combination of existing data and data collected during biological and cultural resource field surveys. Surveys were conducted throughout the project area between the Tesla and Malin Substations, including more than 800 miles of ROW and 250 miles of access roads. Additionally, biological and cultural resource surveys were completed for the seven TANC-owned/Western-maintained communication facilities and associated access roads included in this project. The following sections describe the biological and cultural surveys completed.

1.4.1 Biological Resources Survey

Before the biological surveys commenced, Western assembled existing information on special-status species distribution and potential habitat within the project area. This involved coordination with USFWS, California Department of Fish and Game (CDFG), National Marine Fisheries Service (NMFS), U.S. Forest Service (USFS), Bureau of Land Management (BLM), and National Park Service (NPS).

The biological resource surveys were conducted between mid April 2005 and September 30, 2005, with subsequent visits to select areas occurring during the winter and spring of 2006. Surveys of communication facilities were conducted in November 2007. Two-person survey teams consisted of a wildlife biologist and a botanist who conducted meandering pedestrian surveys of the project area. Habitats were mapped and described according to a classification system based on Holland's (1986) *Preliminary Descriptions of the Terrestrial Communities of California*. Habitats were assessed for their potential to support special-status species, and any wildlife encountered or special-status species occurrences were noted.

Additionally, target biological resources were recorded with sub-meter accuracy using a global positioning system (GPS) unit, and the location information was accompanied by detailed explanatory comments. Target biological resources included elderberries, vernal pools and swales, and water features (e.g., perennial and intermittent streams, springs, open water). Wetlands were mapped, although formal delineations per U.S. Army Corps of Engineers (USACE) standards were not conducted.

1.4.2 Cultural Resources Survey

Western conducted cultural resource investigations to prepare a complete inventory of archaeological sites and historic buildings and structures located within or near the transmission lines and access roads ROWs. The inventory efforts included a comprehensive literature search to identify and evaluate previous survey and site recording efforts, as well as a detailed pedestrian field survey of the transmission line and access road ROWs.

Cultural resource surveys were conducted between April 26, 2005, and January 21, 2006, with subsequent visits to select sites occurring during the spring of 2006. Surveys of communication facilities were conducted in November 2007. Two-person teams of archaeologists conducted a comprehensive survey of the project area. The survey was conducted systematically, with linear transects of a maximum of 20 meters wide. Each individual ROW segment was covered by either two or three transects. Some transmission corridors that contained double or triple tower ROWs required four or six transects for adequate coverage. The goals of the cultural resource field survey were to:

- identify and record all cultural resources including prehistoric sites, historic sites 45 years or older, and traditional cultural properties;
- identify areas not surveyable and the reason for not surveying (i.e., density of vegetation, inclination of slope);
- re-record previously recorded sites;
- evaluate the significance of cultural resources.

Cultural sites and diagnostic artifacts were recorded with sub-meter accuracy using a GPS unit. In addition, data regarding each site were entered into the geographic information system (GIS) database using the GPS unit, in accordance with a standardized data dictionary. This information included site type, quantity and type of artifacts, site condition or integrity, and any explanatory comments.

1.4.3 O&M GIS Database

The results of the comprehensive biological and cultural surveys as well as the locations of all Western's infrastructure were incorporated into a GIS database, which is an integral part of Western's O&M program. The O&M GIS database provides the location of all sensitive biological and cultural resources in relation to Western's infrastructure at sub-meter accuracy. In addition, each resource is linked to its corresponding PCM. The O&M GIS database include two datasets that facilitate site-specific recognition and protection of sensitive resources by Western and Agency staff and maintenance crews/contractors prior to O&M activities:

- **Category A, B, C** – ROW span and access road polygons are color-coded green, yellow, or red based on the maintenance activity category and sensitive-resource presence within each span or access road polygon. This dataset will be useful in quickly identifying the critical issues associated with each span and maintenance activity.
- **Sensitive Resource Lookup Table** – a table that lists all potential and observed occurrences of sensitive resources for each ROW span, access road, habitat polygon.

1.5 Cooperating Agencies

The infrastructure passes through lands managed by BLM, USFS, and NPS. Under National Environmental Policy Act (NEPA) regulations, these three federal land managers have decided to become cooperating agencies in preparing this EA for the project. Western has proactively met with these agencies on numerous occasions and has requested input into the scope, alternatives, and environmental analysis. See section 6.0 for a detailed description of agency coordination on this project.

1.6 Comments on the Draft EA

On July 30, 2008 the Draft EA was published for a 30-day review period. Comments were received from the U.S. Army Corps of Engineers, California Department of Transportation, State Water Resources Control Board, and one member of the public. Comment letters and Western's responses are presented in Appendix N.

1.7 Decisions Needed

This EA, which is the responsibility of Western, is a concise public document that serves to:

- provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement (EIS) or a finding of no significant impact (FONSI);
- aid Western's compliance with NEPA when no EIS is necessary; and
- facilitate preparation of an EIS if one is necessary (40 CFR § 1508.9).

Based on the findings contained in this EA, weighing how each alternative meets the purpose and need, Western will determine whether the proposed North Area ROW Maintenance project requires an EIS or if a FONSI can be prepared. Should Western decide to prepare a FONSI, the document will present supporting rationale for that decision.

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2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

2.1 Introduction, Background, and Existing O&M Activities

Western's O&M program has been developed to improve the safety and reliability of the electric transmission systems, including existing North Area transmission lines. The project includes the Pacific AC Intertie (PACI), Central Valley Project (CVP), and California Oregon Transmission Project (COTP) right-of-ways (ROWs) as well as TANC-owned/Western-maintained communication facilities (Figure 1-1). The Proposed Action includes maintaining these transmission lines, communication facilities, and legal access roads, thereby ensuring reliability of the transmission system and safe, all-weather access to the transmission line structures and other Western facilities.

The project serves to produce a Master O&M Program for all O&M activities throughout the project area. The Master O&M Program was discussed with land managers and resource agencies to develop a specific O&M plan for each land manager. The Master O&M Program contains specific O&M plans for National Park Service, U.S. Forest Service, Bureau of Land Management, and private lands. These specific O&M plans would provide guidance to Western on the preferred maintenance within these lands.

For the purposes of this EA, Western would perform vegetation management using a combination of manual and mechanical methods, including the spot application of herbicides. Access road repairs would be performed as needed. Transmission system maintenance activities would consist of regular aerial and ground patrols to locate and correct problems, and preventative maintenance.

The Proposed Action and the No Action Alternative have been retained for full analysis in this EA. Refer to section 2.2 for a detailed description of the Proposed Action. Section 2.3 describes the vegetation activities under the No Action Alternative. Section 2.4 describes the alternatives considered and eliminated from full evaluation in the EA.

2.2 Proposed Action Description

2.2.1 Inspection/System Management

In compliance with Western's *Guidelines, Requirements, Inspections, and Procedures (GRIP) 19*, Western has been conducting aerial, ground, and climbing inspections of its existing transmission infrastructure since initial construction. Western has updated these required inspections under this O&M program. The following paragraphs describe Western's inspection requirements.

Aerial Inspections

Aerial inspections would be conducted a minimum of every 6 months by helicopter or small plane over the entire transmission system to check for hazard trees¹ or

¹ Trees located within or adjacent to the easement or permit area that present an immediate hazard to the facility or have the potential to encroach within the safe distance to the conductor as a result of bending, growing, swinging, or falling toward the conductor.

encroaching vegetation, as well as to locate damaged or malfunctioning transmission equipment. Typically, aerial patrols would be flown between 50 and 300 feet above Western's transmission infrastructure depending on the land use, topography, and infrastructure requirements. In general, the aerial inspections would pass over each segment of the transmission line within a one-minute period.

Ground Inspections

Annual ground inspections would check access to the towers/poles, tree clearances, fences, gates, locks, and tower hardware, and ensure that each structure would be readily accessible in the event of an emergency. They would allow for the inspection of hardware that would not be possible by air, and identify redundant or overgrown access roads that should be permanently closed and returned to their natural state. Ground inspections would typically be conducted by driving a pickup truck along the ROW and access roads. Detailed ground inspections would be performed on 20 percent of all lines and structures annually, for 100 percent inspection every 5 years. Ground inspections would involve a shake test, which includes manually shaking the knee braces of the tower to see if there is anything loose on the structure.

Climbing Inspections

Climbing inspections would be performed on all antenna towers at least once every 7 years to identify deterioration in hardware that could not be detected from either ground or aerial patrols. In addition, climbing of transmission line structures would occur if problems were identified during ground inspections. Typically, such activities would involve the use of a pickup truck or bucket truck.

2.2.2 Maintenance Activities

In general, Western O&M activities for the North Area transmission lines would include the following:

- **Vegetation maintenance (transmission line and access road ROWs).** Vegetation maintenance would ensure that vegetation did not interfere with human safety, transmission line conductors, towers, other hardware, or impede access to the transmission line for maintenance crews. In general, vegetation maintenance could be performed using a variety of methods including manual methods (hand-controlled, powered, or non-powered tools such as chainsaws and clippers), mechanical methods (such as heavy-duty mowers), and herbicidal applications (used either to prohibit or retard vegetative growth). As described in Appendix G, past herbicide application in the North Area ROW involved very low quantities of herbicide primarily for stump treatment. Herbicide application under the proposed O&M program would likewise be minimal.
- **Access road maintenance.** Access road maintenance would include activities to ensure that legal access roads were in appropriate condition for all-weather access to transmission lines by maintenance and inspection crews. These activities would include grading, surfacing, erosion-control measures, and constructing water diversions such as culverts, ditches, and water bars.

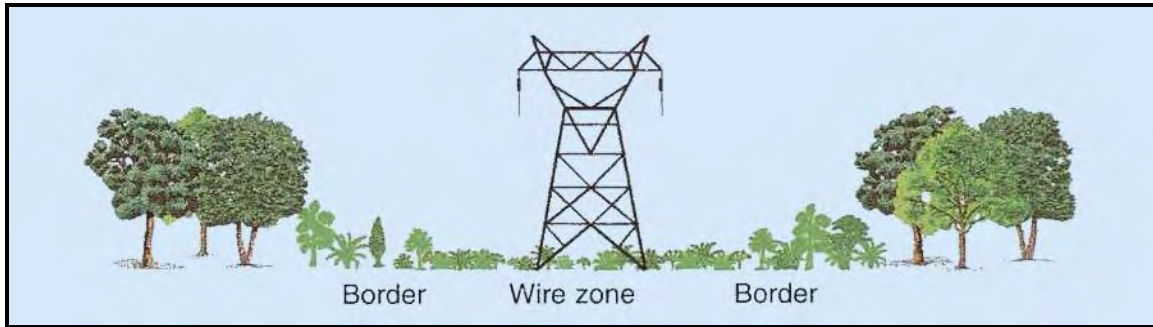
- **Transmission line and associated structure, hardware, and equipment maintenance.** This category of activities would include equipment and system maintenance and upgrades, routine aerial and ground patrols of transmission lines and ROWs, and transmission system repairs.

The methods used to complete maintenance activities would be selected in consultation with the appropriate land managers.

2.2.2.1 Vegetation Maintenance

Western's proposed Integrated Vegetation Management (IVM) program identifies the correct vegetation maintenance approach (also referred to as prescription) for specific areas based on the sensitivity of resources, reliability and safety issues, and environmental laws and regulations. IVM is a practice of managing undesirable vegetation in which action clearance thresholds are established and proactively monitored. For those areas that are in violation of the threshold, all possible control options are evaluated, selected, and implemented. Control options are based on worker and public safety, environmental impact, effectiveness, site characteristics, and economics. Initially, the ROW is restored through the removal of undesirable vegetation. The ROW is then enhanced via various management techniques to protect facilities, reduce the potential for fire, and provide habitat for wildlife and a variety of plant species. Under the IVM program, vegetation maintenance options range from wire zone/border zone management (with the greatest vegetation clearance) to buffered vegetation management (with the least vegetation clearance). Western would also work with the land managers to follow any additional BLM, NPS, or USFS requirements.

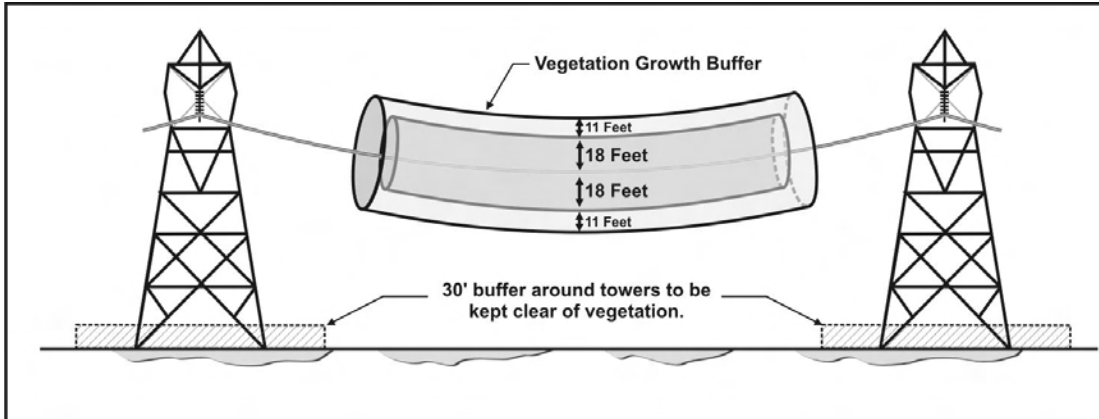
Establishment of a wire zone/border zone is a key consideration in the development of IVM programs. For most areas, Western would adopt a wire zone/border zone approach to ROW vegetation management, which recognizes the ROW as a valuable economic and ecological resource. Key to this concept is the management of the ROW from two perspectives, the wire zone and the border zone. The wire zone includes the ROW area immediately under the transmission wire plus 10 feet on both sides. The border zone is the remainder of the ROW on both sides of the wire zone. The goal is to have a low shrub-forb-grass cover type in the wire zone and a taller shrub-forb-grass cover type in the border zone. Brush and/or tree vegetation would be thinned to a maximum average distance of 30 feet between main stems. Also, this approach would maintain 30 feet of clearance around each transmission tower or transmission structure. Benefits of this approach include a reduction in the frequency of disturbance due to less frequent vegetation management activities. Figure 2-1 is an illustration of the desired appearance of a ROW subject to the wire zone/border zone management practice.

Figure 2-1 Wire Zone/Border Zone Management Practice

In specific areas where conversion of the ROW from naturally occurring tree-dominated native plant communities into a wire zone/border zone ROW would not be appropriate, Western would use a buffered vegetation management approach for these specific areas. Under the buffered vegetation management approach, Western would maintain NERC's reliability standards between any point of the circuit or transmission system and vegetation (currently 18 feet for a 500-kV line). This approach would also maintain 30 feet of clearance around each transmission tower or structure. Benefits of this approach would include the reduction of ground-disturbing activities and the related reduction in the establishment of nonnative plant species. Figure 2-2 provides an illustration of the buffered vegetation management approach.

A transmission circuit can move vertically depending on the atmospheric temperature and electrical load on the line. Western would recommend adding 60 percent to the clearance standard as a buffer to account for the sag in the line during periods of high temperatures and high load. As a result, the buffered vegetation management area would include the mandatory 18 feet Clearance I requirements plus 60 percent buffer clearance (approximately 11 feet based on the current 18-foot requirement) for vegetation growth and sag in the line. See Figure 2-2 for an illustration of the buffered vegetation management approach.

As described above, Western proposes to implement a combination of vegetation management practices that are consistent with the principles of IVM and in concert with land owner goals and policies. Depending on the area and the requirements, Western would develop specific prescriptions to manage vegetation along the ROWs (e.g., fuel shade break). The prescriptions would fall between the wire zone/border zone and buffered vegetation management approaches. The following paragraphs describe the general vegetation management methodologies.

Figure 2-2 Buffered Vegetation Management Approach for 500-kV Line

Note: A minimum of 23 feet from conductor to vegetation (buffer for clearance and vegetation growth) would be required for a 230-kV buffered vegetation management area

MANUAL VEGETATION CONTROL METHODS

Manual vegetation control is defined as the application of powered and non-powered handheld tools or installation of synthetic or natural barriers to manage vegetative growth. The primary benefit of manual methods is selectivity; only unwanted or target vegetation is removed, while non-target vegetation is not disturbed. The primary disadvantages of manual methods are that they are labor intensive and they are only effective in vegetation with relatively low density. The manual vegetation control techniques currently employed by Western are described below.

Cutting

The most commonly used manual method to control vegetation is cutting target plants with power saws. Other manually operated tools such as axes, machetes, and clippers may also be used. This method is highly effective on species that do not resprout. For species that resprout, including most deciduous trees, sprouts may resurge to original heights within several years and at much greater density than the original stems. Access for subsequent manual treatments is thereby hindered.

Girdling

Girdling involves manually cutting away bark and cambium tissues around the trunk of target trees. This treatment is rarely practiced by Western, but could be appropriate in some cases (e.g., where large trees cannot be felled by cutting). Conifer species are killed by girdling, but hardwoods frequently will resprout below the girdle unless the cut is treated with herbicide. Girdling results in standing dead trees or snags, which are left to decompose and fall on their own. Snags are left at the land owner's request and provide habitat for cavity-nesting species and other wildlife (Western 2007). Girdling could pose a fuels-management problem by mixing standing dead fuel with live fuel, which could significantly increase the potential for a crown fire.

Topping and Trimming

Topping involves cutting a tree at a specific height to prevent it from growing into transmission lines or microwave beam paths without felling the whole tree. This treatment is used in rare cases by Western as the situation dictates. Trimming or pruning is the removal of selected branches from tree trunks for the same purposes. Directional pruning is practiced by Western, whereby the trees are pruned to direct growth away from the conductors. Western uses these highly labor-intensive techniques in special situations where it is desirable to leave trees in place as visual screens (e.g., along roads, streams, and rivers) or where easement contracts and land/resource plans dictate such tree removal or trimming criteria (e.g., in orchards and along streams) (Western 2007).

Under the buffered vegetation management approach, limbing or trimming of the individual branches that encroach into the buffered vegetation area would be the preferred method. Within the buffered vegetation management area, topping would not be acceptable because it could encourage faster growth in an undesirable direction.

Slash Disposal/Fuels Reduction

Manual cutting operations by Western are sometimes followed by slash disposal techniques designed to reduce fire hazards or to improve aesthetic appeal. Slash refers to the debris left within the vegetation treatment area. Depending on land-owner preference, access limitations, and fire safety, the slash can be treated by one of the following methods: it can be chipped and left on site; burned in piles; removed from the site; or lopped and scattered. Western acknowledges land manager concerns related to fuels left in the ROW and would reduce fuel load during vegetation management activities, to the extent feasible.

MECHANICAL VEGETATION CONTROL METHODS

Mechanical methods employ machines to remove or control vegetation. These methods are often nonselective in that certain plants cannot be either targeted for removal or avoided. Mechanical methods, however, may be highly effective at controlling brush on gentle topography with few site obstacles. Most pieces of mechanical equipment are not safe to operate on slopes over 30 to 35 percent; mechanical methods are also constrained where soils are susceptible to compaction or erosion. Site obstacles such as rocks, stumps, or logs also reduce efficiency of these methods (Western 2007). Western would use mechanical methods to remove vegetation in portions of the ROW.

HERBICIDE CONTROL METHODS

Under the Proposed Action, Western could expand its use of herbicides for vegetation management. Western would coordinate with land managers and local agencies to ensure that its use of herbicides would be consistent with local regulations and guidelines.

An herbicide is a chemical used to kill or suppress the growth of nonnative or invasive plants. The most satisfactory classification of herbicides is based upon how they are used for noxious-weed control and how they work. Accordingly, herbicides are classified into two major types:

- **Selective herbicides** kill certain plants but do not significantly affect the most desirable plants. For example, some selective herbicides kill broadleaf plants (including brush) but do not affect grasses.
- **Nonselective herbicides** are chemicals that are generally toxic to plants without regard to species.

Plants differ in susceptibility to any specific chemical, and the choice of herbicide and application rate depends on the species to be controlled.

Western proposes using only those herbicides that have been approved for use in ROW maintenance based on evaluations of toxicity, solubility, soil adsorption potential, and persistence in water and soil. Further, these herbicides must be registered for use in California by the U.S. Environmental Protection Agency. Appendix G provides detailed information on herbicides and their potential risk. Western would use only employees or contractors with required applicator licenses/certificates.

Western would follow strict safety procedures and best management practices (BMPs) while applying herbicides. These practices, described in Western's IVM Program (Western 2007), are a part of the Master O&M Program and would include:

- Reviewing federal and California pesticide regulations for restrictions on use of particular herbicides;
- Reviewing interagency agreements for herbicide type or application method restrictions;
- Using herbicides approved by the respective land management agency;
- Observing site conditions to match specific herbicides and application methods to those conditions, including the plants that are to be controlled, seasonal limitations, presence of sensitive environmental areas (such as listed and/or sensitive species, habitat, and wetlands), presence/proximity of non-target vegetation, presence/proximity of crops, and vegetation conditions (such as height and amount of tall-growing brush);
- Reviewing and implementing Western's environmental protection requirements and the individual risk assessment for each proposed herbicide;
- Following all restrictions and guidance listed on the herbicide label;
- Calibrating equipment to ensure proper mixture and volume of herbicide;
- Selecting the proper nozzle tip to avoid overspray;
- Handling herbicides carefully to avoid accidental spills and ensure worker and public safety;

- Adjusting herbicide application methods and equipment based on wind speed and direction, which could include avoiding application on windy days when drift potential exceeds that which is recommended on the label;
- Providing the land owner and/or appropriate agency with the following information after completion of a particular activity: herbicide used, amount (including concentration), location of application, and method and date of application.

There are several different ways to apply herbicides, and the method selected depends on the type of control needed, the type of vegetation, and the site situation (i.e., site conditions, location). Application methods Western would use include stump treatment, basal spray treatment, foliage spray treatment, soils treatment, and under-surfacing materials treatment. See Appendix G for additional details.

Stump Treatment

Western currently applies either an oil-based herbicide mixture or a ready-to-use non-oil solution. This type of treatment is used when vegetation is cut to the ground. This method is primarily used after initial clearing and during maintenance clearing when trees have grown too tall to use foliage spray or when drift is an issue (Western 2007). As needed, cut surfaces of stumps would be treated with registered borax fungicide (e.g. Sporax) soon after the tree is felled.

Basal Spray Treatment

This treatment method involves spraying the lower part of the stem and the exposed roots of incompatible vegetation with an oil-based formula. Basal spray treatment would be used on resprouting species and nonnative and invasive plant species. This method is more selective than a foliage spray and does not cause immediate brownout of vegetation (Western 2007). In general, this treatment is prescribed where:

- brush is too tall to use foliage spray without causing unacceptable drift;
- the ROW is adjacent to cropland, residences, susceptible vegetation, or other sensitive areas, and drift is a problem;
- the ROW contains a high density of compatible species, and a foliage spray cannot be applied without injuring the compatible cover.

Foliar Spray Treatment

Foliar spraying is a common method of applying herbicides on brush up to 15 feet tall. This method uses a water-based formulation that is applied to the entire plant's foliage and stems. Because it is sprayed into the air, drift can be a problem under certain atmospheric conditions. Also, most foliage sprays cause immediate brownout of vegetation. This method would not be used in areas where drift and brownout are concerns (e.g., adjacent to cropland, residences, susceptible vegetation, or other environmentally or visually sensitive areas) (Western 2007).

Projected Herbicide Application Area and Quantity

In order to estimate the amount of herbicide that would be used on annual basis, Western requested detailed information from its contractors regarding past herbicide use within the project area. Herbicide has primarily been applied as a stump treatment, rather than a spray. With regard to quantities per year, 23 gallons of Garlon 4, a stump treatment, was applied over approximately 175 acres (or 0.13 gallons per acre). This application area equates to approximately one percent of the entire project area. These numbers represent a typical average amount of herbicide that would be used by Western (Western personnel or contractor) in the North Area project area on an annual basis.

Documentation and Reporting

Per federal regulations, Western would document and report information pertaining to herbicide application within the ROW and associated facilities. This information could include herbicide type, quantity, and application area. Reporting format and frequency would be decided in coordination with the appropriate land manager.

2.2.2.2 Access Road Maintenance

As part of the O&M program, Western must maintain safe and reliable access roads to the existing infrastructure. Western would notify land managers before work begins and would comply with applicable specifications, as required. Western would also take into account land-manager guidelines. In addition, land managers would be notified when work was completed so that they have an opportunity to inspect the work.

For all access road work, any equipment will be cleaned and inspected prior to operations. All ditches, existing culverts, and inlet assemblies will be cleaned. Slash and debris may be scattered, but will not be placed near or in stream channels, culvert inlets, or ditches. There will be a clearing limit of 4 feet on both sides of the existing roadbed. Trees over 6 inches in diameter within the clearing limit that do not impede blading will be limbed to a height of 14 feet and left standing.

The following paragraphs describe Western's general approach to maintaining its existing legal access roads.

CLEARING CULVERTS AND DITCHES

Existing culverts and ditches would be kept free of debris and obstructions. Ditches on newly constructed roads could require frequent cleaning and checking after each major storm until revegetation has occurred. Additionally, it would be Western's goal to check each culvert at least once a year after spring rains and before winter rains; additional culvert checks will be performed as needed to keep culverts clean and unobstructed. During inspection and clearing of culverts and ditches, Western would:

- leave grass in the ditch unless it had filled with sediment and were no longer functioning;

- check for undercutting road shoulders and banks;
- check culverts for blockage by debris;
- not leave a berm on the side of the road; as berms would channel water down the road.

CULVERT AND DITCH DESIGN

Culverts

Culverts would be made of corrugated metal or corrugated steel. Western would clear an area 10 feet upstream and 10 feet downstream of a culvert, with a width 2 feet wider than the diameter of the culvert.

Western understands the potential for adverse environmental effects if a culvert is installed without consideration of existing biological resources. As such, Western would consider the following guidelines when constructing new culverts:

- Whenever possible, low-water crossings would be installed instead of a culvert;
- Applicable permits (including national regulatory permits for wetlands and state water-quality certification) would be obtained as appropriate;
- Projects would be scheduled so that they did not coincide with fish migrations, spawning, and egg-incubation periods;
- The appropriate erosion and sediment controls would be installed on disturbed soils as soon as possible (i.e., before site work was finished) consistent with the terms and conditions of all applicable permits.

Culverts would be large enough to pass a 100-year flood at 67 to 75 percent of capacity. They would be designed to accommodate water velocities and flows necessary for fish, frogs, and other aquatic species to swim through the culvert. Culvert diameters would match the width of the stream at an average point. Stream widths would be measured at the top of the banks to best represent the stream size during normal high water or bank-full conditions. The angle or slope of the culvert would be equal to the stream grade to maintain an acceptable water velocity for fish passage. For culvert design specifications, refer to drawings in Appendix M. The designs presented in Appendix M are example culvert design specification that may be used in the field depending on the unique site characteristics, while maintaining the 100-year flood at 67 to 75 percent of capacity.

Water Bars

A water bar is a ridge that directs water off the road. Water bars would be spaced 200 feet apart for roads with a grade under 6 percent, 125 feet apart for grades between 6 and 10 percent, and 50 feet apart for grades between 10 and 13 percent. For general water-bar design specifications, refer to drawings in Appendix M.

Rolling Drain Dips

A rolling drain dip allows for cross-drainage. It consists of a shallow dip followed by a hump, along with an earth berm at the edge of one side of the road. For example rolling drain dip design specifications, refer to drawings in Appendix M.

REMOVING SLIDE DEBRIS

Slide debris can cause increased sediment loads in established roadway drainage systems as well as in established streams. In order to prevent this, Western would not side-cast removed material. Should slide debris occur, the cause would be evaluated to determine if removal of the slide debris could exacerbate slope instability by undercutting the toe of the slope. In some instances, removal of some debris could be required and stabilization of the remaining material could prevent further problems. The appropriate erosion and sediment controls would be installed on disturbed soils as soon as possible (i.e., before site work was finished). Mulching and other forms of erosion control would be used to prevent erosion.

REPAIRING ROAD STRUCTURES

In order to maintain safe access, associated road structures would be routinely inspected and maintained. Road structures in need of repair could include bridges, culverts, cattle guards, and fences. Should a structure need to be modified, maintenance activities would be designed to reduce erosion and sedimentation in streams. Western would employ the following BMPs:

- Be consistent with applicable specifications of the appropriate land manager;
- Protect vegetation and minimize the amount of disturbance of plants and soils by equipment;
- Work quickly to minimize the time disturbed soils are exposed;
- Divert run-off away from exposed soils into vegetated buffers;
- Disperse concentrated stream flows;
- Provide adequate run-off channels;
- Trim slopes to stable configurations and revegetate as soon as possible;
- Comply with land manager design and engineering requirements for new or modified structures;
- Inspect new or modified structures at least once a year after spring rains and before winter rains;
- Mitigate the damage created during emergency road repairs as soon as possible to prevent further damage and erosion.

CONTROLLING EROSION

Western would work with guidance from each land manager to review and annually prioritize roads for repair over a 5 year period. This would involve monitoring for erosion, rehabilitating gullies and rills, and ensuring that there are no ruts deeper than 3 inches.

REPAIRING DAMAGED ACCESS ROADS

For damaged access roads or roads with existing drainage and erosion problems, Western would replace the surface material lost or worn away, then grade and shape the road surface, turnouts, and shoulders to their original condition, or better. Watering could be required to control dust and to retain fine surface rock.

This program would make it a goal to eliminate old erosional features while proactively preventing new problems. While repairing damaged access roads, it would be Western's goal to adhere to the following BMPs:

- Be consistent with applicable specifications of the appropriate land manager;
- Minimize the amount of disturbance to plants and soils by equipment;
- Work quickly to minimize the time disturbed soils are exposed;
- Divert run-off away from exposed soils and into vegetated areas;
- Disperse concentrated stream flows;
- Provide adequate run-off channels;
- Trim slopes to stable configurations and revegetate as soon as possible;
- Check road quality at least once a year after spring rains and before winter rains;
- Mitigate any damage created by emergency repairs as soon as possible to prevent further damage and erosion.

REMOVING ACCESS ROADS

Western would consider removing access roads that are no longer needed. Western would annually prioritize roads for removal and provide land-management agencies with a plan to restore the abandoned roads to a natural state over a 5- to 6-year period. In addition, on NPS lands, Western could give up rights to roads no longer used if NPS granted rights to new roads.

2.2.2.3 Transmission System Maintenance

The need for repairs and preventative maintenance would be based on the results of inspections or other reports. Repairs and preventative maintenance could include: replacing insulators; tightening, replacing, or repairing towers/poles or hardware; and looking for ROW encroachments. These activities would be performed wherever damage or deteri-

oration of transmission lines or facilities pose a threat to safety or reliability. The type of equipment needed could include a pickup truck, bulldozer, backhoe, bucket truck, and hand tools, and would depend on the required repair or maintenance. For major activities, Western would coordinate with the land manager.

2.2.3 Equipment/System Upgrades

For the transmission system to operate in a safe, reliable, and efficient manner, Western would replace or upgrade system components based on the age, condition, and technology of the equipment. System upgrades or replacements could include new conductors, capacitor banks, transformers and breakers, small solar-power arrays, and other electrical equipment.

2.2.4 Coordination with Regulatory and Land Management Agencies

Western has been conducting maintenance activities along the North Area ROWs since the lines were constructed. Maintenance activities have included vegetation removal, access and maintenance road grading and stabilization, fiber-optic installation, and transmission system upgrades. All of these activities have been reviewed by the USFWS and are consistent with the programmatic biological opinion published in May 1998.

In the past, Western identified maintenance activities along the ROWs and coordinated individually with USFWS and the appropriate land-management agencies (i.e., USFS, BLM, and NPS) on actions or mitigation measures needed to complete the maintenance task. Negotiated requirements were usually documented in a categorical exclusion for each particular maintenance task. This reactionary process was labor intensive for Western, regulatory agencies, and land managers.

Western is proposing to streamline the regulatory process under the Proposed Action, by proactively identifying the sensitive resources that occur in the ROWs and access roads and consulting with the appropriate agencies and land managers on PCMs that would protect the resources. As described previously, Western has conducted detailed biological and cultural resource surveys throughout all of the North Area ROWs, communication facilities, and legal access roads. Western has incorporated all resource information and PCMs into a user-friendly GIS database, which would be provided to the resource agencies and land managers for reference.

Development of the PCMs was based largely on the survey data collected between 2005 and 2007, including habitat classification and assessment of the potential for special-status species to occur. To meet Western's objective to maintain system reliability and public safety while protecting natural resources, PCMs were developed according to activity categories A, B, and C, which are based on an activity's potential to cause adverse effects. These activity categories are described in section 2.2.5. This approach is consistent with the approach used in the 1998 programmatic biological opinion.

2.2.4.1 Regulatory Coordination

Western would continue to coordinate with resource agencies and land managers on major facilities maintenance and vegetation removal activities. The following bullets describe the process and reporting requirements that Western would follow for category A, B, and C maintenance activities (section 2.2.5 provides a description of the O&M activity categories).

- **Identification of maintenance activity.** Western is required to conduct aerial and ground inspections of its lines on a periodic basis. During inspections, Western would identify problem areas or equipment. These maintenance projects would be prioritized based on public and worker safety, system reliability, protection of the environment, and funding. Section 2.2.4.2 describes the frequency of each type of maintenance activity.
- **Coordination with resource agencies and land managers.** Western would coordinate with the appropriate resource agencies and land managers for each major maintenance project, providing a description of the maintenance task and coordinating with them regarding the approved PCMs. The resource agencies and land managers would have access to Western's GIS database, which includes aerial photography, videos, biological and cultural resource data, and resource-based PCMs. This would allow the agencies and land managers to make decisions on applicable PCMs without going out into the field.
- **Training of Western personnel or contractors.** Western would train its maintenance personnel on SOPs and PCMs on an annual basis. Should a contractor be hired to conduct a particular task, Western would train the contractor prior to project startup. As described in section 2.2.4.3, all SOPs would be incorporated into the contractor's master contract. Western personnel and contractors would be responsible for complying with the SOPs and PCMs.
- **Monitor maintenance activity.** Western's personnel would monitor maintenance activities to make sure that the contractor was complying with the applicable SOPs and PCMs. Western would also conduct follow-up inspections of the ground-disturbance activity sites.

2.2.4.2 Projected O&M Frequency

Under the Proposed Action, Western would continue periodic aerial and ground patrols of the transmission lines and towers. Aerial inspections would be performed a minimum of every 6 months by flying a helicopter at 50 to 300 feet above the conductors. Ground patrols would be conducted semi-annually using a pickup truck to drive along lines. During either type of patrol, problems could be identified that may require immediate repair or replacement of transmission line hardware or vegetation management. Typically, equipment repair or replacement would be conducted by a four-person crew with two or three trucks, a boom line truck, and an aerial and assist truck. Western would also conduct periodic climbing inspections of antenna towers.

Western would also monitor vegetation clearance and access roads along the ROWs. Western would prioritize those areas that needed maintenance according to public and worker safety, transmission reliability, environmental protection, and funding. Based on past O&M activities, Western assumes that O&M activities would occur on an annual basis as follows for the North Area ROWs; the estimate is an average per year over the entire project area:

- 500 to 1,000 acres of vegetation would be managed in ROW and access roads;
- 4 to 8 miles of access roads would be stabilized/graded;
- 3 to 5 culverts would be repaired or replaced;
- 10 to 20 miles of communication equipment, including fiber-optic cable, would be installed or maintained;
- 4 to 8 towers or poles would be relocated or stabilized (towers would be relocated adjacent to existing tower or poles);
- Communication sites would be inspected once a year;
- Herbicides would be applied to approximately 175 acres per year (approximately 1 percent of the entire project area).

2.2.4.3 Standard Operating Procedures

Table 2-1 provides a list of SOPs that Western and its contractors would follow for every O&M activity, regardless of the activity category. SOPs would be followed at all times throughout the project area. All Western O&M personnel would be subject to an annual training that includes SOPs, environmental laws and regulations, and applicable agency requirements.

SOPs would be included as part of the contract with any contractor selected to conduct O&M activities. Prior to conducting the O&M activity, Western's O&M personnel would review the SOPs with the selected contractor to make sure the intent and background of each procedure was clearly understood. In addition, Western's O&M personnel would monitor the contractor during maintenance activities, and conduct follow-up inspections of the job site at periodic intervals after the work had been completed.

2.2.4.4 Project Conservation Measures

Western has developed PCMs to protect natural resources. PCMs have been integrated into Western's master GIS database and used in project planning to generate activity reports. These activity reports would identify the sensitive resources within the target area and specify PCMs according to the occurrence potential for the resource and the type of activity proposed. PCMs include, among other things, identification of limited operating periods, pre-construction flagging of sensitive resource areas, and equipment restrictions.

PCMs would apply to species based on their listing status:

- Federally and state-listed species would be protected along all ROWs on all lands;
- Agency-listed sensitive species would be protected on that agency's land (e.g., USFS-sensitive species would be protected on USFS land).

Table 2-2 provides the PCMs for special-status plants and Table 2-3 provides the PCMs for special-status fish and wildlife. Impacts to fish, wildlife, and plant species found in vernal pool, wetland, and aquatic habitats are further avoided by implementation of water resource/aquatic habitat PCMs, which are provided in Table 2-4. PCMs for cultural resources are presented in Table 2-5.

2.2.5 Operation and Maintenance Activity Categories

The following is a list of the O&M activities according to their associated activity category. Note that substation and facility maintenance activities are restricted to the confines of the existing fenced substation or facility perimeter.

- Category A – Inspection and Minor Maintenance Activities
- Category B – Routine Maintenance Activities
- Category C – New Infrastructure

2.2.5.1 Category A – Inspection and Minor Maintenance Activities

Maintenance activities in Category A are primarily inspection-type actions, with some minor repairs that would cause minimal, if any, soil disturbance. These maintenance tasks would cause no or nominal effects to sensitive resources as long as SOPs were followed. Typical activities under Category A may include but would not be limited to:

Substation Maintenance

- Maintenance and replacement of transformers and breakers
- Servicing and testing of equipment at existing substations, including oil change-outs
- Installation or replacement of bushings
- Cleaning or replacement of capacitor banks
- Maintenance or installation of propane tanks within a substation yard
- Maintenance of switches, voltage regulators, reactors, tap changes, reclosers, and valves
- Replacement of wiring in substations and switchyards
- Replacement of existing substation equipment including regulators, capacitors, switches, wave traps, radiators, and lightning arresters
- Installation of cut-out fuses
- Adjustment and cleaning of disconnect switches
- Placement of temporary transformers
- Maintenance, installation, and removal of solar power arrays and controllers
- Installation of foundation for storage buildings above ground mat within existing substation yard
- New footings
- Ground mat repairs
- Remediation of small spill of oil and hazardous materials (less than 1 gallon)
- Clearing vegetation by hand within the property boundary of a fenced substation
- Application of soil sterilants and herbicides within the property boundary of a fenced substation

Transmission Line Maintenance

- Ground and aerial patrols
- Ground wire maintenance
- Aircraft warning device maintenance
- Insulator maintenance
- Bird guard maintenance
- Cross arms maintenance on wood pole structures
- Emergency manual removal and/or pruning of danger trees or vegetation
- Steel members of steel transmission line structures
- Hardware on wood and steel transmission line structures
- X brace and knee brace maintenance
- Dampener maintenance
- Ground rod maintenance
- Armor rod maintenance and clipping-in structures
- Conductor upgrade/maintenance
- Emergency placement of rocks at bases of poles or structures to stabilize small eroded areas
- Remediation of small spill of oil and hazardous materials (less than 1 gallon)
- Antennae maintenance
- Structure mile marker maintenance

Communication System

- Microwave radio tower maintenance
- Communication tower and antennae maintenance
- Light beacon maintenance
- Microwave dish maintenance
- Parabolic dish maintenance
- Periodic antenna tower climbing inspections

Facilities Maintenance

- Building maintenance including interior and exterior painting; and roof, ceiling, floor, window, and door maintenance
- Clearing vegetation by hand within the property boundary of fenced maintenance facilities
- Application of soil sterilants and herbicides within the property boundary of fenced maintenance facility

2.2.5.2 Category B – Routine Maintenance Activities

Maintenance activities in Category B include some of the typical repair tasks that would occur along Western’s existing ROW. Category B actions have the potential to cause minimal effects to sensitive resources. Category B maintenance equipment may include, but would not be limited to, rubber-tired vehicles such as bucket trucks, backhoes, front-end loaders, cranes, auger trucks, bobcats, and pole trucks. In addition to SOPs, Western would implement all PCMs identified for resources in the work area for Category B maintenance activities. Typical activities under Category B may include but would not be limited to:

Transmission Line Maintenance

- Maintenance and repair of existing culverts
- Removal of soil deposition around tower legs
- Ground anchors maintenance
- Filling of erosional features on access roads
- Remediation of small spill of oil and hazardous materials (between 1 and 10 gallons)
- Grading existing access roads
- Application of herbicides
- Placement of fill or rock(s) around existing culverts
- Placement of fill or rock(s) around existing towers or structures
- Vehicle and equipment staging
- Installation and repair of fences and gates
- Installation or replacement of underground and overhead power, communication, or ground electrical line (less than 100 feet)
- Manual removal and/or pruning of danger trees or vegetation
- Mechanical vegetation management by means of masticators or other similar mechanical equipment

Communication System Maintenance

- Foundations or footings maintenance
- Installation of underground and overhead power, communication, or ground electrical line (less than 100 feet)
- Installation of cellular equipment onto existing infrastructure
- Maintenance and repair of existing culverts
- Remediation of small spill of oil and hazardous materials (between 1 and 10 gallons)
- Application of soil sterilants and herbicides

2.2.5.3 Category C – New Infrastructure

Maintenance activities in Category C have the potential to cause adverse effects to sensitive resources if PCMs are not implemented. Category C tasks are generally those maintenance activities that would disturb large areas and would utilize heavy equipment. Category C maintenance equipment may include, but would not be limited to, the use of steel-tracked and/or rubber-tired bulldozers, graders, backhoes, and front-end loaders. Typical activities under Category C may include but would not be limited to:

Transmission Line and Communication System Maintenance

- Adding new access roads
- Installation of new culverts
- Installation of new foundation for storage building at existing facilities
- Erosion-control projects at existing facilities
- Reconductoring
- Mechanical vegetation management by means of bulldozers or other similar mechanical equipment
- Tower/pole relocation/realignment within existing ROW
- Installation or replacement of underground and overhead power, communication, or ground electrical line (greater than 100 feet)
- Remediation of a small spill of oil and hazardous materials (greater than 10 gallons)

2.3 No Action Alternative

Under the No Action Alternative, Western would continue its need-driven management approach using current methods for ROW maintenance. Under a need-driven management approach, Western would trim, mow, clear, remove, and dispose of vegetation along ROW segments as control needs are identified through periodic line patrols. Western would perform vegetation management using the current mix of manual and mechanical methods to control vegetation on transmission line and access road ROWs. The No Action Alternative also includes the current practice of spot application of herbicides. Access road repairs would be performed as needed. Transmission system maintenance activities would consist of regular aerial and ground patrols to locate problems, repairs to correct problems, and preventative maintenance. These are all consistent with the 1998 programmatic biological opinion.

The primary differences between the Proposed Action and the No Action Alternative are the broader application of herbicide use, the installation of fiber-optic cable, tower relocation/realignment, and installation of cellular equipment to existing infrastructure. The Proposed Action also provides a process to streamline the regulatory process for future O&M activities.

2.4 Alternatives Eliminated from Full EA Evaluation

Alternatives were assessed for their ability to reasonably achieve the project objectives and reduce potential adverse effects of the Proposed Action. This section provides the rationale for elimination of each alternative identified.

2.4.1 Comprehensive Vegetation Removal Alternative

Under this alternative, currently approved vegetation-control methods would be used to remove vegetation throughout the project area. In contrast to the Proposed Action, the Comprehensive Vegetation Removal Alternative would not facilitate a gradual conversion to stable, low-growing plant communities. Instead, the vegetation would be removed by Western every two to three years throughout the North Area ROWs.

This alternative would cause significant, adverse impacts to biological resources from continuous habitat disturbance. Additionally, major vegetation removal activities throughout such a large area could cause significant soil erosion and adverse effects to water quality. Because this alternative would result in greater impacts than the Proposed Action, it has been eliminated from further consideration in this EA.

2.4.2 Prohibition of Herbicide Use Alternative

Under this alternative, Western would manage vegetation through manual and mechanical methods only. Herbicide use would not be allowed to retard vegetation growth or to eliminate non-native and invasive species. Under the Proposed Action, Western would remove the vegetation and apply site-specific application of herbicide in the ROW; the combination of vegetation removal and herbicide use would reduce the number of maintenance trips to the ROW to maintain reliability clearances.

Under the Prohibition of Herbicide Use Alternative, Western maintenance crews would need to remove vegetation and non-native and invasive species on an annual basis. These annual maintenance trips would increase the amount of ground disturbance, increase overall emissions, increase the potential for soil erosion, increase the potential for hazardous material and petroleum spills, increase long-term intermittent noise levels, and increase the potential for adverse effects to biological and cultural resources. As a result, this alternative was eliminated from analysis in the EA.

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Table 2-1 Standard Operating Procedures (SOPs) by Issue Area

SOP	Description
AESTHETICS	
AES-SOP-1	Material storage and staging areas will be selected to minimize views from public roads, trails, and nearby residences, to the extent feasible. During O&M, the work site will be kept clean of debris and construction waste. For areas where excavated materials will be visible from sensitive viewing locations, excavated materials will be disposed of in a manner that is not visually evident, in coordination with the land owner (as appropriate), and in compliance with applicable regulations.
AES-SOP-2	Replacement structures and hardware (e.g., conductors and insulators) will be replaced in kind, to the extent feasible, while ensuring that structures and hardware that are visible from sensitive viewing locations will have appropriate colors, finishes, and textures to most effectively blend into the visible landscape. If structures are visible from more than one sensitive viewing location, and backdrops are substantially different from different vantage points, the darker color will be selected, because dark colors tend to blend into landscape backdrops.
AES-SOP-3	Maintenance operations will be conducted in a manner that limits unnecessary scarring or defacing of the natural surroundings to preserve the natural landscape to the extent possible. To preserve vegetative screening from public areas, tree removal and vegetation clearing will be minimized along state highways and near recreation sites, and wherever possible along scenic roadways.
AIR QUALITY	
AQ-SOP-1	Western will adhere to all requirements of those agencies having jurisdiction over air quality matters, and any necessary permits for operation and maintenance will be obtained.
AQ-SOP-2	Machinery and vehicles will be kept in good operating condition and older equipment will be replaced with equipment meeting more stringent California emission standards; appropriate emissions-control equipment will be maintained for vehicles and equipment, per California, EPA, and Western air-emission requirements.
AQ-SOP-3	Idle equipment will be shut down when not in active use; visible emissions from stationary generators will be controlled.
AQ-SOP-4	Dust-control measures will be implemented in road construction and maintenance, as needed. Trucks transporting loose material will be covered or maintain at least 2 feet of freeboard and will not create any visible dust emissions.
AQ-SOP-5	There will be no open burning of construction trash.
AQ-SOP-6	Grading activities will cease during periods of high winds (as determined by local air quality management districts).
AQ-SOP-7	Major operations will be avoided on days when the local Air Quality Index is expected to exceed 150.
BIOLOGICAL RESOURCES	
B-SOP-1	All contract crews will complete biological pre-maintenance awareness training to ensure they are familiar with sensitive biological resources and associated SOPs and PCMs. All supervisors and field personnel will have on file a signed agreement that they have completed the training, and understood and agreed to the terms. SOPs and applicable PCMs will be written into the contract for O&M work, and contractors will be held responsible for compliance.

SOP	Description
B-SOP-2	Western crews will complete annual awareness training to ensure they are familiar with sensitive biological resources and associated SOPs and PCMs. All supervisors and field personnel will have on file a signed agreement that they have completed the training, and understood and agreed to the terms. Further, Western crews will have access to the O&M GIS database in the field to be able to identify sensitive resources and associated PCMs.
B-SOP-3	O&M excavations greater than 3 feet deep will be fenced, covered, or filled at the end of each working day, or have escape ramps provided to prevent the entrapment of wildlife. Trenches and holes will be inspected for entrapped wildlife before being filled. Any entrapped animals will be allowed to escape voluntarily before O&M activities resume, or they may be removed by qualified personnel, with an appropriate handling permit if necessary.
B-SOP-4	Vehicle traffic will be restricted to designated access routes and the immediate vicinity of O&M sites. Vehicle speeds will not exceed 15 mph on access and maintenance roads and 10 mph on unimproved access routes. Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas, to the maximum extent feasible.
B-SOP-5	No pets or firearms will be permitted at project sites.
B-SOP-6	At the end of each work day, O&M workers will leave work areas and adjacent habitats to minimize disturbance to actively foraging animals, and remove food-related trash from the work site in closed containers for disposal. Workers will not deliberately or inadvertently feed wildlife.
B-SOP-7	Nighttime O&M activities will be minimized to emergency situations. If nighttime O&M work is required, lights will be directed to the minimum area needed to illuminate project work areas.
B-SOP-8	Where feasible and appropriate, tall dead trees will be topped and left in place as snags or as downed logs to support wildlife dependent on these important features, in coordination with the land owner.
B-SOP-9	Mortalities or injuries to any wildlife that occur as a result of project- or maintenance-related actions will be reported immediately to the Western Natural Resources Department or other designated point of contact, who will instruct O&M personnel on the appropriate action, and who will contact the appropriate agency if the species is listed. The phone number for the Western Natural Resources Department or designated point of contact will be provided to maintenance supervisors and to the appropriate agencies.
B-SOP-10	Caves, mine tunnels, and rock outcrops will never be entered, climbed upon, or otherwise disturbed.
B-SOP-11	If a pesticide label stipulates a buffer zone width for protection of natural resources that differs from that specified in a PCM, the buffer zone width that offers the greatest protection will be applied.

SOP	Description
B-SOP-12	<p>To protect nesting birds (birds not specifically protected by PCMs but protected by the Migratory Bird Treaty Act), whose nests could occur within the ROW, Western and its subcontractors will perform Category B&C O&M activities outside the nesting season, which runs from March 1 through August 15 in the Valley region and from January 1 through September 15 in the Redding/Trinity and Round Mountain/Modoc regions. Alternatively, a qualified biologist will conduct nesting-bird surveys prior to project activities. For special-status birds, see specific PCMs.</p> <ul style="list-style-type: none"> • An additional survey may be required if gaps between the survey and the project activity exceed three weeks. • Should an active nest be discovered, the qualified biologist will establish an appropriate buffer zone (in which O&M activity is not allowed) to avoid disturbance in the vicinity of the nest. Maintenance activities will not take place until the biologist has determined that the nestlings have fledged or that maintenance activities will not adversely affect adults or newly fledged young. • Alternatively, the qualified biologist will develop a monitoring/mitigation plan that permits the maintenance activity to continue in the vicinity of the nest while monitoring nesting activities to ensure that the nesting birds are not disturbed. <p>At such time when Western finalizes an avian protection plan, Western will adhere to the guidance in that document.</p>
B-SOP-13	<p>Measures described in the <i>Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006</i> (Avian Power Line Interaction Committee 2006) and <i>Mitigation Bird Collisions with Power Lines: The State the Art in 1994</i> (Avian Power Line Interaction Committee 1994) will be implemented during O&M activities to minimize bird mortality and injury. At such time when Western finalizes an avian protection plan, Western will adhere to the guidance in that document.</p>
B-SOP-14	<p>At completion of work and at the request of the land owner/manager, all work areas except access roads will be scarified or left in a condition that will facilitate natural or appropriate vegetation, provide for proper drainage, and prevent erosion.</p>
B-SOP-15	<p>Prior to any application of herbicide, Western will query the California Department of Pesticide Regulation PRESCRIBE database, entering location information by county, township, range, and section, entering both the commercial name and the formulation of the desired pesticide, and will follow all use limitations provided to ensure compliance with applicable pesticide standards. This database is currently located at http://www.cdpr.ca.gov/docs/endspec/precint.htm. The measures generated by the PRESCRIBE database will supersede those in the PCMs where they are different.</p>
CULTURAL RESOURCES	
C-SOP-1	<p>All contract crews will complete cultural resources pre-maintenance awareness training to ensure they are aware of the locations of cultural resource sites; maintenance methods to be used in areas with sensitive cultural resources; and restrictions required in cultural resources areas (i.e., SOPs and PCMs). Crews will be educated on the Archaeological Resources Protection Act, which makes it a federal offense to willfully damage or remove any artifacts or materials from an archaeological site. All supervisors and field personnel will have on file a signed agreement that they have completed the training, and understood and agreed to the terms. SOPs and applicable PCMs will be written into the contract for O&M work, and contractors will be held responsible for compliance.</p>

SOP	Description
C-SOP-2	Western crews will complete annual awareness training to ensure they are familiar with sensitive cultural resources and associated SOPs and PCMs. All supervisors and field personnel will have on file a signed agreement that they have completed the training, and understood and agreed to the terms. Further, Western crews will have access to the O&M GIS database in the field to be able to identify sensitive resources and associated PCMs.
C-SOP-3	Operation of vehicles or heavy construction equipment will be avoided in areas that are not designated transmission line and legal access road ROWs or other established transportation routes. This measure will minimize the possibility of disturbing unmapped cultural resources.
C-SOP-4	Upon discovery of potential buried cultural materials, work within 50 feet of the find will be halted and the discovery will be reported immediately to the Western Natural Resources Department or other designated point of contact. Western will comply with provisions in the National Historic Preservation Act and consult with the California State Historic Preservation Officer and appropriate tribes to determine measures to avoid the resource or mitigate during maintenance activities.
GEOLOGY AND SOILS	
GS-SOP-1	Should Western need to modify or relocate a structure, Western will have a certified professional geotechnical engineer evaluate the potential for geotechnical hazards and unstable slopes.
GS-SOP-2	Upon completing ground-disturbing work, all work areas will be left in a condition that facilitates natural and appropriate vegetation regrowth, provides for proper drainage, and prevents erosion.
GS-SOP-3	All O&M activities must be in conformance with Western's Integrated Vegetation Management Environmental Guidance Manual and Erosion Control and Revegetation Plan.
GS-SOP-4	Wet areas will be avoided to the extent practicable and all activity will be minimized during winter and other wet periods to prevent damage (e.g., rutting, erosion, soil compaction). If wet areas cannot be avoided, Western will use wide-track or balloon tire vehicles and equipment or timber mats.
GS-SOP-5	All excavated soil will be backfilled and tamped at the location of excavation and used to provide positive drainage, or will be hauled off site to an area appropriate for disposal of excavated material, in accordance with federal, state, and local regulations and in coordination with the land owner.
GS-SOP-6	Use of ground-disturbing mechanical equipment to remove vegetation will be avoided on continuous slopes over 35 percent, unless the threat of erosion is minimal because of bedrock, or reseeded will be performed.
GS-SOP-7	Where soil has been severely disturbed and the establishment of vegetation will be needed to minimize erosion, appropriate measures, as approved by the federal land manager, will be implemented to establish an adequate cover of native grass or other native vegetation as needed. Perennial vegetation is preferred to annual vegetation. All mulch and seed will be of high purity to prevent the spread of noxious weeds. Soil preparation, seeding, mulching, and fertilizing will be repeated as necessary to insure soil stabilization and revegetation acceptable to the federal land manager.

SOP	Description
GS-SOP-8	Disturbance and removal of soils and vegetation will be limited to the minimum area necessary for access and O&M activities. Grading will be minimized to the extent possible. When required, grading will be conducted such that run-off waters flow predominantly away from watercourses/washes to reduce the potential for material to enter the watercourse/wash.
LAND USE	
LU-SOP-1	Any damage (e.g., to fences and gates) during maintenance activities will be repaired or replaced, and restored to their preconstruction condition.
LU-SOP-2	Western will notify affected land owners for vegetation management and encroachment activities, as appropriate. Western will post proper signage in areas requiring temporary closure or limited access due to O&M activities.
LU-SOP-3	The spread of noxious weeds will be minimized. Western will clean seeds from ground-disturbing equipment before entering cropland or forestland, or moving between these subject areas.
NOISE	
NOISE-SOP-1	All vehicles and equipment will be equipped with required exhaust-noise-abatement devices.
NOISE-SOP-2	For long-term O&M activities confined to a specific area, Western's Natural Resources Department will be contacted to evaluate local thresholds and all requirements of those agencies having jurisdiction over noise matters.
PUBLIC HEALTH	
PH-SOP-1	For identified locations, structures and/or shield wire will be marked with highly visible devices (e.g., lights and marker balls) where required by governmental agencies (e.g., Federal Aviation Administration) with jurisdiction.
PH-SOP-2	Signs and/or flags will be erected in areas of public access to indicate maintenance activities are taking place; workers will be conspicuous by wearing high-visibility vests and hardhats.
PH-SOP-3	O&M excavations greater than 3 feet deep will be fenced, covered, or filled at the end of each working day, or have escape ramps provided to prevent injury of the public and workers.

SOP	Description
PH-SOP-4	<p>With regard to herbicide use:</p> <ul style="list-style-type: none"> • All herbicide applicators will have received training and be licensed in appropriate application categories. • Herbicide-free buffer zones will be maintained per label instructions. • All herbicide label and material safety data sheet instructions will be followed regarding mixing and application standards and equipment-cleaning standards to reduce potential exposure to the public through drift and misapplication. • Western will ensure that areas treated with herbicides will be posted and re-entry intervals specified and enforced in accordance with label instructions. Herbicides and equipment will never be left unattended in areas with unrestricted access. • Climate, geology, and soil types will be considered (including rainfall, wind, depth of aquifer, and soil permeability) in selecting the herbicide with lowest relative risk of migrating to water resources. • There will be no aerial application of herbicides. • All herbicide spill requirements will be followed in the rare case of an herbicide spill, including containment, cleanup, and notification procedures. • Western will adhere to all pesticide use permit conditions, if such authorization is required by USFS or BLM.
PH-SOP-5	<p>With regard to hazardous materials:</p> <ul style="list-style-type: none"> • Hazardous materials will not be drained onto the ground, into streams, or into drainage areas. • Any release, threat of release, or discharge of hazardous materials within the project area in connection with project activities will be cleaned up and/or remediated, in accordance with applicable federal, state, and local regulations. • All construction waste, including trash and litter, other solid waste, petroleum products, and other potentially hazardous material will be removed in accordance with applicable federal, state, and local regulations. • Discovery of, or the accidental discharge of, a significant amount of hazardous materials will be immediately reported to Western's dispatch and Natural Resources Department. • There will be no storage of hazardous materials in the project area without approval from the authorized officer. • Upon termination of the permit, a report will be submitted to determine whether there had been site contamination and if so, that the remediation met compliance with applicable laws.
PH-SOP-6	<p>All contract crews will complete hazardous materials pre-maintenance awareness training to ensure they are aware of SOPs and PCMs, as well as pertinent regulations and the consequences for non-compliance. All supervisors and field personnel will have on file a signed agreement that they have completed the training, and understood and agreed to the terms. SOPs and applicable PCMs will be written into the contract for O&M work, and contractors will be held responsible for compliance.</p>
PH-SOP-7	<p>Contractors must submit a spill response plan that is approved by Western. Clean-up actions and costs resulting from contractor misconduct will be the responsibility of the contractor and approved by Western's Natural Resources Department.</p>
PH-SOP-8	<p>Western crews will complete annual awareness training to ensure they are familiar with SOPs and PCMs related to hazardous materials. All supervisors and field personnel will have on file a signed agreement that they have completed the training, and understood and agreed to the terms.</p>
PH-SOP-9	<p>All incompatible/non-desirable vegetation will be removed a minimum of 30 feet from tower center and conductors or as required by federal requirements, and to ensure access to towers.</p>

SOP	Description
PH-SOP-10	Western and its contractors will comply with all applicable federal and state regulations regarding fire suppression, including but not limited to having all equipment be equipped with a shovel, water pump, and fire extinguisher, the use of spark arrestors on all internal and external combustion engines, verification of daily fire levels during fire season, and a minimum of a 300-gallon water tank with a minimum of 250 feet of hose.
RECREATION	
REC-SOP-1	Western will direct members of the public to alternate trails or recreation areas if blocked by machinery or for safety purposes.
TRANSPORTATION	
TRANS-SOP-1	All lane closures or obstructions on major roadways associated with maintenance activities will be restricted to off-peak periods to minimize traffic congestion and delays, and will be coordinated with appropriate authorities (e.g., Caltrans).
WATER RESOURCES	
WR-SOP-1	Non-biodegradable debris will not be deposited in the ROW.
WR-SOP-2	Should Western need to relocate a structure or access road affecting waters of the United States or waters of the state, Western will consult with TANC and, as appropriate, the U.S. Army Corps of Engineers (USACE) and the California State Water Resources Control Board (SWRCB). Bridges will be used at new stream crossings wherever possible. Any discharge of material (displaced soils and, in certain circumstances, vegetation debris) within waters of the United States will be subject to USACE regulations under the Clean Water Act, and could require a permit. Western Natural Resources Department will be contacted. Any discharge of material (displaced soils and, in certain circumstances, vegetation debris) within waters of the state will be subject to SWRCB regulations under the Porter-Cologne Water Quality Control Act and applicable Clean Water Act regulations as administered on behalf of the United States by the SWRCB.
WR-SOP-3	Sediment-control devices, such as placement of native rock, will be used at all dry wash crossings.
WR-SOP-4	Run-off from the maintenance site will be controlled and will meet the State Water Resources Control Board storm water requirements in the Storm Water Pollution Prevention Plan.
WR-SOP-5	Run-off control structures, diversion ditches, erosion-control structures, and energy dissipaters will be cleaned, maintained, repaired, and replaced to meet the standards set by applicable permits and the Storm Water Pollution Prevention Plan, or where such a plan is inapplicable, similar standards set by Western or the applicable federal land manager.
WR-SOP-6	All contaminated discharge water created by O&M activities (e.g., concrete washout, pumping for work-area isolation, vehicle wash water, drilling fluids) will be contained and disposed of in accordance with applicable federal, state, and local regulations.
WR-SOP-7	Vehicles will be inspected daily for fluid leaks before leaving the staging area.

SOP	Description
WR-SOP-8	<p>Impacts to areas under the jurisdiction of the USACE and SWRCB will be avoided to the extent feasible. Where avoidance of jurisdictional areas is not feasible and the action is not covered under nationwide or other permits, Western will obtain 404/401 permits applicable to the action, as necessary. Western will perform an impact assessment for the O&M activity, which will identify and quantify the acreage of each jurisdictional area (wetland, riparian, etc.). Western will provide creation, restoration, or preservation mitigation consistent with the 404/401 permitting requirements. The mitigation will be implemented prior to or concurrent with the action, will be in-kind habitat, will include the appropriate buffers to protect the functions and values of the jurisdictional mitigation area, and is anticipated will be in close proximity to the impact or in the same watershed (Valley) or Resource Conservation District (Redding/Trinity) or Resource Conservation and Development agency (Round Mountain/Modoc). The mitigation ratio will be determined during the permit process, but within a range of 1:1 to 4:1, depending on the sensitivity of the habitat and other factors. If required, annual reporting to USACE and/or SWRCB will provide a complete accounting of impacts and mitigation.</p>

Note: Prior to commencement of O&M activities, all personnel will be trained on the implementation of SOPs. Western will ensure that certified personnel (e.g. certified professional in erosion and sediment control, certified professional in storm water quality) are available for review of proper implementation of SOPs.

Table 2-2 Special-status Plant Project Conservation Measures

PCM-ID	Species Name	Status	Activity Category	PCM
UPLAND SPECIES				
PCM-B001	<i>Allium sanbornii</i> var. <i>sanbornii</i> Sanborn's onion	CNPS List 4/ NPS	A	Follow SOPs.
			B	<p>From May 1 to September 30, vehicle access will be permitted only on well-established roads until the site has been cleared by a qualified biologist. All vehicles will have rubber tires. Off-road travel will be avoided to the extent possible.</p> <p>If vegetation-management activities are proposed between May 1 and September 30, a qualified biologist will mark plant populations (including a 50-foot buffer zone) prior to O&M activity. Within 100 feet of the marked area, the following work area limits will be provided: 1) only manual clearing of vegetation will be allowed within 50 feet of the edge of the marked area, 2) mechanical treatment of all kinds (including mowers, tractors, chippers, dozers) will be prohibited.</p> <p>Herbicide use will be prohibited at all times in the vicinity of this species with the exception of direct application to target vegetation.</p> <p>All work will be hauled off site.</p> <p>Ground disturbing activities require a survey by a qualified biologist to mark existing plant populations or clear the site. Ground disturbance will be prohibited within the flagged boundary unless otherwise directed by NPS.</p> <p>Standard erosion- and sediment-control measures will be installed for all ground-disturbing activities in compliance with best management practices adopted by Western to prevent impacts to plants.</p>
			C	<p>Follow all measures listed for A and B.</p> <p>Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.</p>

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PCM-ID	Species Name	Status	Activity Category	PCM
PCM-B002	<i>Amsinckia grandiflora</i> Large-flowered fiddleneck	FE/SE/1B.1	A	Follow SOPs.
			B	<p>From April 1 to May 31, vehicle access will be permitted only on well-established roads until the site has been cleared by a qualified biologist. All vehicles will have rubber tires. Off-road travel will be avoided to the extent possible.</p> <p>If vegetation-management activities are proposed between April 1 and May 31, a qualified biologist will mark plant populations (including a 50-foot buffer zone) prior to O&M activity. Within 100 feet of the marked area, the following work area limits will be provided: 1) only manual clearing of vegetation will be allowed within 50 feet of the edge of the marked area, 2) mechanical treatment of all kinds (including mowers, tractors, chippers, dozers) will be prohibited.</p> <p>Herbicide use will be prohibited at all times with the exception of direct application to target vegetation.</p> <p>Ground-disturbing activities between April 1 and May 31 require a survey by a qualified biologist to flag existing plant populations or clear the site. Ground disturbance during this time frame will be prohibited within the flagged boundary unless otherwise directed by all appropriate resource agencies.</p> <p>All work will be hauled off site.</p> <p>Standard erosion- and sediment-control measures will be installed for all ground-disturbing activities in compliance with best management practices adopted by Western to prevent impacts to plants.</p> <p>If ground disturbance is required within a plant population, it must be completed after the plant has set seed (after May 31) and the top 4 inches of topsoil will be stockpiled separately during excavations. When this topsoil is replaced, compaction will be minimized to the extent consistent with utility standards.</p> <p>A description of the O&M activity, including location and duration, will be kept on file at Western's Natural Resources Department in support of USFWS reporting requirements.</p>
			C	<p>Follow all measures listed for A and B.</p> <p>Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.</p>

PCM-ID	Species Name	Status	Activity Category	PCM
PCM-B003	<i>Arctostaphylos mallori</i> Mallory's manzanita	CNPS List 4/ NPS	A	Follow SOPs.
			B	<p>Vehicle access will be permitted only on well-established roads until the site has been cleared by a qualified biologist. All vehicles will have rubber tires. Off-road travel will be avoided to the extent possible.</p> <p>A qualified biologist will mark plant populations (including a 50-foot buffer zone) prior to O&M activity. Within 100 feet of the marked area, the following work area limits will be provided: 1) only manual clearing of vegetation will be allowed within 50 feet of the edge of the flagged area, and 2) mechanical treatment of all kinds (including mowers, tractors, chippers, dozers) will be prohibited.</p> <p>Herbicide use will be prohibited at all times with the exception of direct application to target vegetation.</p> <p>Ground-disturbing activities require a survey by a qualified biologist to flag existing plant populations or clear the site. Ground disturbance will be prohibited within flagged boundary unless otherwise directed by NPS.</p> <p>All work will be hauled off site.</p> <p>Standard erosion- and sediment-control measures will be installed for all ground-disturbing activities in compliance with best management practices adopted by Western to prevent impacts to plants</p>
			C	<p>Follow all measures listed for A and B.</p> <p>Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.</p>
PCM-B004	<i>Arnica venosa</i> Shasta County arnica	CNPS List 4/NPS	A	Follow SOPs.
			B and C	<p>Follow PCM-W002.</p> <p>If vegetation-management activities are proposed between May 1 and July 31, a qualified biologist will mark plant populations (including a 50-foot buffer zone) prior to O&M activity. Within 100 feet of the marked area, the following work area limits will be provided: 1) only manual clearing of vegetation will be allowed within 50 feet of the edge of the flagged area, and 2) mechanical treatment of all kinds (including mowers, tractors, chippers, dozers) will be prohibited.</p> <p>Ground-disturbing activities require a survey by a qualified biologist to flag existing plant populations or clear the site. Ground disturbance will be prohibited within flagged boundary unless otherwise directed by NPS.</p>
			C	<p>Follow all measures listed for A and B.</p> <p>Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.</p>

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PCM-ID	Species Name	Status	Activity Category	PCM
PCM-B005	<i>Calystegia atriplicifolia</i> ssp. <i>buttensis</i> Butte County morning-glory	CNPS List 1B.2/BLMS/FSS	A	Follow SOPs
			B	<p>From May 1 to July 31, vehicle access will be permitted only on well-established roads until the site has been cleared by a qualified biologist. All vehicles will have rubber tires. Off-road travel will be avoided to the extent possible.</p> <p>If vegetation-management activities are proposed between May 1 and July 31, a qualified biologist will mark plant populations (including a 50-foot buffer zone) prior to O&M activity. Within 100 feet of the marked area, the following work area limits will be provided: 1) only manual clearing of vegetation will be allowed within 50 feet of the edge of the flagged area, and 2) mechanical treatment of all kinds (including mowers, tractors, chippers, dozers) will be prohibited.</p> <p>Herbicide use will be prohibited at all times with the exception of direct application to target vegetation.</p> <p>Ground-disturbing activities proposed between May 1 and July 31 require a survey by a qualified biologist to flag existing plant populations or clear the site. Ground disturbance will be prohibited within the flagged boundary unless otherwise directed by BLM and/or USFS.</p> <p>All work will be hauled off site.</p> <p>Standard erosion- and sediment-control measures will be installed for all ground-disturbing activities in compliance with best management practices adopted by Western to prevent impacts to plants.</p>
			C	<p>Follow all measures listed for A and B.</p> <p>Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.</p>

PCM-ID	Species Name	Status	Activity Category	PCM
PCM-B006	<i>Castilleja rubicundula</i> ssp. <i>rubicundula</i> Pink creamsacs	CNPS List 1B.2/BLMS	A	Follow SOPs.
			B	<p>From April 1 to June 30, vehicle access will be permitted only on well-established roads until the site has been cleared by a qualified biologist. All vehicles will have rubber tires. Off-road travel will be avoided to the extent possible.</p> <p>If vegetation-management activities are proposed between April 1 and June 30, a qualified biologist will mark plant populations (including a 50-foot buffer zone) prior to O&M activity. Within 100 feet of the marked area, the following work area limits will be provided: 1) only manual clearing of vegetation will be allowed within 50 feet of the edge of the flagged area, and 2) mechanical treatment of all kinds (including mowers, tractors, chippers, dozers) will be prohibited.</p> <p>Herbicide use will be prohibited at all times with the exception of direct application to target vegetation.</p> <p>Ground-disturbing activities proposed between April 1 and June 30 require a survey by a qualified biologist to flag existing plant populations or clear the site. Ground disturbance will be prohibited within the flagged boundary unless otherwise directed by BLM.</p> <p>All work will be hauled off site.</p> <p>Standard erosion- and sediment-control measures will be installed for all ground-disturbing activities in compliance with best management practices adopted by Western to prevent impacts to plants.</p>
			C	<p>Follow all measures listed for A and B.</p> <p>Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.</p>

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PCM-ID	Species Name	Status	Activity Category	PCM
PCM-B007	<i>Chamaesyce ocellata</i> ssp. <i>rattanii</i> Stony Creek spurge	CNPS List 1B.2/BLMS	A	Follow SOPs.
			B	<p>From May 1 to October 31, vehicle access will be permitted only on well-established roads until the site has been cleared by a qualified biologist. All vehicles will have rubber tires. Off-road travel will be avoided to the extent possible.</p> <p>If vegetation-management activities are proposed between May 1 and October 31, a qualified biologist will mark plant populations (including a 50-foot buffer zone) prior to O&M activity. Within 100 feet of the marked area, the following work area limits will be provided: 1) only manual clearing of vegetation will be allowed within 50 feet of the edge of the flagged area, and 2) mechanical treatment of all kinds (including mowers, tractors, chippers, dozers) will be prohibited.</p> <p>Herbicide use will be prohibited at all times with the exception of direct application to target vegetation.</p> <p>Ground-disturbing activities proposed between May 1 and October 31 require a survey by a qualified biologist to flag existing plant populations or clear the site. Ground disturbance will be prohibited within the flagged boundary unless otherwise directed by BLM.</p> <p>All work will be hauled off site.</p> <p>Standard erosion- and sediment-control measures will be installed for all ground-disturbing activities in compliance with best management practices adopted by Western to prevent impacts to plants.</p>
			C	<p>Follow all measures listed for A and B.</p> <p>Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.</p>

PCM-ID	Species Name	Status	Activity Category	PCM
PCM-B008	<i>Clarkia borealis</i> ssp. <i>arida</i> Arid northern clarkia	CNPS List 1B.1/BLMS	A	Follow SOPs.
			B	<p>From June 1 to August 31, vehicle access will be permitted only on well-established roads until the site has been cleared by a qualified biologist. All vehicles will have rubber tires. Off-road travel will be avoided to the extent possible.</p> <p>If vegetation management activities are proposed between June 1 and August 31, a qualified biologist will mark plant populations (including a 50-foot buffer zone) prior to O&M activity. Within 100 feet of the marked area, the following work area limits will be provided: 1) only manual clearing of vegetation will be allowed within 50 feet of the edge of the flagged area, and 2) mechanical treatment of all kinds (including mowers, tractors, chippers, dozers) will be prohibited.</p> <p>Herbicide use will be prohibited at all times with the exception of direct application to target vegetation.</p> <p>Ground-disturbing activities proposed between June 1 and August 31 require a survey by a qualified biologist to flag existing plant populations or clear the site. Ground disturbance will be prohibited within the flagged boundary unless otherwise directed by BLM.</p> <p>All work will be hauled off site.</p> <p>Standard erosion- and sediment-control measures will be installed for all ground-disturbing activities in compliance with best management practices adopted by Western to prevent impacts to plants.</p>
			C	<p>Follow all measures listed for A and B.</p> <p>Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.</p>

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PCM-ID	Species Name	Status	Activity Category	PCM
PCM-B009	<i>Cordylanthus palmatus</i> Palmate-bracted bird's beak	FE/SE/1B.2	A	Follow SOPs.
			B	<p>From May 1 to October 31, vehicle access will be permitted only on well-established roads until the site has been cleared by a qualified biologist. All vehicles will have rubber tires. Off-road travel will be avoided to the extent possible.</p> <p>If vegetation-management activities are proposed between May 1 and October 31, a qualified biologist will mark plant populations (including a 50-foot buffer zone) prior to O&M activity. Within 100 feet of the marked area, the following work area limits will be provided: 1) only manual clearing of vegetation will be allowed within 50 feet of the edge of the flagged area, and 2) mechanical treatment of all kinds (including mowers, tractors, chippers, dozers) will be prohibited.</p> <p>Herbicide use will be prohibited at all times with the exception of direct application to target vegetation.</p> <p>Ground-disturbing activities proposed between May 1 and October 31 require a survey by a qualified biologist to flag existing plant populations or clear the site. Ground disturbance during this time frame will be prohibited within the flagged boundary unless otherwise directed by all appropriate resource agencies.</p> <p>All work will be hauled off site.</p> <p>Standard erosion- and sediment-control measures will be installed for all ground-disturbing activities in compliance with best management practices adopted by Western to prevent impacts to plants.</p> <p>If ground disturbance is required within a plant population, it must be completed after the plant has set seed (after May 31) and the top 4 inches of topsoil will be stockpiled separately during excavations. When this topsoil is replaced, compaction will be minimized to the extent consistent with utility standards.</p> <p>A description of the O&M activity, including location and duration, will be kept on file at Western's Natural Resources Department in support of USFWS reporting requirements.</p>
			C	<p>Follow all measures listed for A and B.</p> <p>Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.</p>

PCM-ID	Species Name	Status	Activity Category	PCM
PCM-B010	<i>Cypripedium fasciculatum</i> Clustered lady's slipper	CNPS List 4/NPS/BLMS/FSS	A	Follow SOPs and PCM-W002 (in aquatic habitat).
			B	<p>Follow all measures listed for A.</p> <p>From June 1 to August 31, vehicle access will be permitted only on well-established roads until the site has been cleared by a qualified biologist. All vehicles will have rubber tires. Off-road travel will be avoided to the extent possible.</p> <p>If vegetation-management activities are proposed between June 1 and August 31, a qualified biologist will mark plant populations (including a 50-foot buffer zone) prior to O&M activity. Within 100 feet of the marked area, the following work area limits will be provided: 1) only manual clearing of vegetation will be allowed within 50 feet of the edge of the flagged area, and 2) mechanical treatment of all kinds (including mowers, tractors, chippers, dozers) will be prohibited.</p> <p>Herbicide use will be prohibited at all times with the exception of direct application to target vegetation.</p> <p>Ground-disturbing activities require a survey by a qualified biologist to flag existing plant populations or clear the site. Ground disturbance will be prohibited within the flagged boundary unless otherwise directed by NPS and/or BLM and/or USFS.</p> <p>All work will be hauled off site.</p> <p>Standard erosion- and sediment-control measures will be installed for all ground-disturbing activities in compliance with best management practices adopted by Western to prevent impacts to plants.</p>
			C	<p>Follow all measures listed for A and B.</p> <p>Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.</p>

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PCM-ID	Species Name	Status	Activity Category	PCM
PCM-B011	<i>Eschscholzia rhombipetala</i> Diamond-petaled California poppy	CNPS List 1B.1/BLMS	A	Follow SOPs.
			B	<p>From March 1 to April 30, vehicle access will be permitted only on well-established roads until the site has been cleared by a qualified biologist. All vehicles will have rubber tires. Off-road travel will be avoided to the extent possible.</p> <p>If vegetation-management activities are proposed between March 1 and April 30, a qualified biologist will mark plant populations (including a 50-foot buffer zone) prior to O&M activity. Within 100 feet of the marked area, the following work area limits will be provided: 1) only manual clearing of vegetation will be allowed within 50 feet of the edge of the flagged area, and 2) mechanical treatment of all kinds (including mowers, tractors, chippers, dozers) will be prohibited.</p> <p>Herbicide use will be prohibited at all times with the exception of direct application to target vegetation.</p> <p>Ground-disturbing activities proposed between March 1 and April 30 require a survey by a qualified biologist to flag existing plant populations or clear the site. Ground disturbance will be prohibited within the flagged boundary unless otherwise directed by BLM.</p> <p>All work will be hauled off site.</p> <p>Standard erosion- and sediment-control measures will be installed for all ground-disturbing activities in compliance with best management practices adopted by Western to prevent impacts to plants.</p>
			C	<p>Follow all measures listed for A and B.</p> <p>Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.</p>

PCM-ID	Species Name	Status	Activity Category	PCM
PCM-B012	<i>Fritillaria pluriflora</i> Adobe lily	CNPS List 1B.2/BLMS	A	Follow SOPs.
			B	<p>From February 1 to April 30, vehicle access will be permitted only on well-established roads until the site has been cleared by a qualified biologist. All vehicles will have rubber tires. Off-road travel will be avoided to the extent possible.</p> <p>If vegetation-management activities are proposed between February 1 and April 30, a qualified biologist will mark plant populations (including a 50-foot buffer zone) prior to O&M activity. Within 100 feet of the marked area, the following work area limits will be provided: 1) only manual clearing of vegetation will be allowed within 50 feet of the edge of the flagged area, and 2) mechanical treatment of all kinds (including mowers, tractors, chippers, dozers) will be prohibited.</p> <p>Herbicide use will be prohibited at all times with the exception of direct application to target vegetation.</p> <p>Ground-disturbing activities require a survey by a qualified biologist to flag existing plant populations or clear the site. Ground disturbance will be prohibited within the flagged boundary unless otherwise directed by BLM.</p> <p>All work will be hauled off site.</p> <p>Standard erosion- and sediment-control measures will be installed for all ground-disturbing activities in compliance with best management practices adopted by Western to prevent impacts to plants.</p>
			C	<p>Follow all measures listed for A and B.</p> <p>Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.</p>

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PCM-ID	Species Name	Status	Activity Category	PCM
PCM-B013	<i>Iliamna bakeri</i> Baker's globe mallow	CNPS List 4.2/BLMS/FSS	A	Follow SOPs.
			B	<p>From June 1 to September 30, vehicle access will be permitted only on well-established roads until the site has been cleared by a qualified biologist. All vehicles will have rubber tires. Off-road travel will be avoided to the extent possible.</p> <p>If vegetation-management activities are proposed between June 1 and September 30, a qualified biologist will mark plant populations (including a 50-foot buffer zone) prior to O&M activity. Within 100 feet of the marked area, the following work area limits will be provided: 1) only manual clearing of vegetation will be allowed within 50 feet of the edge of the flagged area, and 2) mechanical treatment of all kinds (including mowers, tractors, chippers, dozers) will be prohibited.</p> <p>Herbicide use will be prohibited at all times with the exception of direct application to target vegetation.</p> <p>Ground-disturbing activities require a survey by a qualified biologist to flag existing plant populations or clear the site. Ground disturbance will be prohibited within the flagged boundary unless otherwise directed by BLM and/or USFS.</p> <p>All work will be hauled off site.</p> <p>Standard erosion- and sediment-control measures will be installed for all ground-disturbing activities in compliance with best management practices adopted by Western to prevent impacts to plants.</p>
			C	<p>Follow all measures listed for A and B.</p> <p>Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.</p>

PCM-ID	Species Name	Status	Activity Category	PCM
PCM-B014	<i>Lasthenia conjugens</i> Contra Costa goldfields	FE/CNPS List 1B.1	A	Follow SOPs.
			B	<p>From March 1 to June 30, vehicle access will be permitted only on well-established roads until the site has been cleared by a qualified biologist. All vehicles will have rubber tires. Off-road travel will be avoided to the extent possible.</p> <p>If vegetation management activities are proposed between March 1 and June 30, a qualified biologist will mark plant populations (including a 50-foot buffer zone) prior to O&M activity. Within 100 feet of the marked area, the following work area limits will be provided: 1) only manual clearing of vegetation will be allowed within 50 feet of the edge of the flagged area, and 2) mechanical treatment of all kinds (including mowers, tractors, chippers, dozers) will be prohibited.</p> <p>Herbicide use will be prohibited at all times with the exception of direct application to target vegetation.</p> <p>Ground-disturbing activities proposed between March 1 and June 30 require a survey by a qualified biologist to flag existing plant populations or clear the site. Ground disturbance during this time frame will be prohibited within the flagged boundary unless otherwise directed by all appropriate resource agencies</p> <p>All work will be hauled off site.</p> <p>Standard erosion- and sediment-control measures will be installed for all ground-disturbing activities in compliance with best management practices adopted by Western to prevent impacts to plants.</p> <p>If ground disturbance is required within a plant population, it must be completed after the plant has set seed (after June 30) and the top 4 inches of topsoil will be stockpiled separately during excavations. When this topsoil is replaced, compaction will be minimized to the extent consistent with utility standards.</p> <p>A description of the O&M activity, including location and duration, will be kept on file at Western's Natural Resources Department in support of USFWS reporting requirements.</p>
			C	<p>Follow all measures listed for A and B.</p> <p>Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.</p>

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PCM-ID	Species Name	Status	Activity Category	PCM
PCM-B015	<i>Neviusia cliftonii</i> Shasta snow-wreath	CNPS List 1B.2/BLMS/FSS	A	Follow SOPs.
			B	<p>Vehicle access will be permitted only on well-established roads until the site has been cleared by a qualified biologist. All vehicles will have rubber tires. Off-road travel will be avoided to the extent possible.</p> <p>A qualified biologist will mark plant populations (including a 50-foot buffer zone) prior to O&M activity. Within 100 feet of the marked area, the following work area limits will be provided: 1) only manual clearing of vegetation will be allowed within 50 feet of the edge of the flagged area, and 2) mechanical treatment of all kinds (including mowers, tractors, chippers, dozers) will be prohibited.</p> <p>Herbicide use will be prohibited at all times with the exception of direct application to target vegetation.</p> <p>Ground-disturbing activities require a survey by a qualified biologist to flag existing plant populations or clear the site. Ground disturbance will be prohibited within the flagged boundary unless otherwise directed by BLM and/or USFS.</p> <p>All work will be hauled off site.</p> <p>Standard erosion- and sediment-control measures will be installed for all ground-disturbing activities in compliance with best management practices adopted by Western to prevent impacts to plants.</p>
			C	<p>Follow all measures listed for A and B.</p> <p>Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.</p>

PCM-ID	Species Name	Status	Activity Category	PCM
PCM-B016	<i>Pseudobahia bahiifolia</i> Hartweg's golden sunburst	FE/SE/ CNPS List 1B.1	A	Follow SOPs.
			B	<p>From March 1 to May 31, vehicle access will be permitted only on well-established roads until the site has been cleared by a qualified biologist. All vehicles will have rubber tires. Off-road travel will be avoided to the extent possible.</p> <p>If vegetation-management activities are proposed between March 1 and May 31, a qualified biologist will mark plant populations (including a 50-foot buffer zone) prior to O&M activity. Within 100 feet of the marked area, the following work area limits will be provided: 1) only manual clearing of vegetation will be allowed within 50 feet of the edge of the flagged area, and 2) mechanical treatment of all kinds (including mowers, tractors, chippers, dozers) will be prohibited.</p> <p>Herbicide use will be prohibited at all times with the exception of direct application to target vegetation.</p> <p>Ground-disturbing activities proposed between March 1 and May 31 require a survey by a qualified biologist to flag existing plant populations or clear the site. Ground disturbance will be prohibited within the flagged boundary unless otherwise directed by all appropriate resource agencies.</p> <p>All work will be hauled off site.</p> <p>Standard erosion- and sediment-control measures will be installed for all ground-disturbing activities in compliance with best management practices adopted by Western to prevent impacts to plants.</p> <p>If ground disturbance is required within a plant population, it must be completed after the plant has set seed (after May 31) and the top 4 inches of topsoil will be stockpiled separately during excavations. When this topsoil is replaced, compaction will be minimized to the extent consistent with utility standards.</p> <p>A description of the O&M activity, including location and duration, will be kept on file at Western's Natural Resources Department in support of USFWS reporting requirements.</p>
			C	<p>Follow all measures listed for A and B.</p> <p>Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.</p>

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PCM-ID	Species Name	Status	Activity Category	PCM
PCM-B017	<i>Sedum paradisum</i> Canyon Creek stonecrop	CNPS List 1B.2/NPS/ BLMS/FSS	A	Follow SOPs.
			B	<p>If vegetation-management activities are proposed between May 1 and June 30, a qualified biologist will mark plant populations (including a 50-foot buffer zone) prior to O&M activity. Within 100 feet of the marked area, the following work area limits will be provided: 1) only manual clearing of vegetation will be allowed within 50 feet of the edge of the flagged area, and 2) mechanical treatment of all kinds (including mowers, tractors, chippers, dozers) will be prohibited.</p> <p>Herbicide use will be prohibited at all times with the exception of direct application to target vegetation.</p> <p>All work will be hauled off site.</p> <p>Standard erosion- and sediment-control measures will be installed for all ground-disturbing activities in compliance with best management practices adopted by Western to prevent impacts to plants.</p>
			C	<p>Follow all measures listed for A and B.</p> <p>Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.</p>
PCM-B018	<i>Sidalcea robusta</i> Butte County checkerbloom	BLMS	A	Follow SOPs.
			B	<p>From April 1 to June 30 vehicle access will be permitted only on well-established roads until the site has been cleared by a qualified biologist. All vehicles will have rubber tires. Off-road travel will be avoided to the extent possible.</p> <p>If vegetation-management activities are proposed between April 1 and June 30, a qualified biologist will mark plant populations (including a 50-foot buffer zone) prior to O&M activity. Within 100 feet of the marked area, the following work area limits will be provided: 1) only manual clearing of vegetation will be allowed within 50 feet of the edge of the flagged area, and 2) mechanical treatment of all kinds (including mowers, tractors, chippers, dozers) will be prohibited.</p> <p>Herbicide use will be prohibited at all times with the exception of direct application to target vegetation.</p> <p>Ground-disturbing activities require a survey by a qualified biologist to flag existing plant populations or clear the site. Ground disturbance will be prohibited within the flagged boundary unless otherwise directed by BLM.</p> <p>All work will be hauled off site.</p> <p>Standard erosion- and sediment-control measures will be installed for all ground-disturbing activities in compliance with best management practices adopted by Western to prevent impacts to plants.</p>

PCM-ID	Species Name	Status	Activity Category	PCM
PCM-B018 (cont.)	<i>Sidalcea robusta</i> Butte County checkerbloom	BLMS	C	Follow all measures listed for A and B. Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.
PCM-B019	<i>Triteleia crocea</i> var. <i>crocea</i> Yellow triteleia	CNPS List 4/ NPS	A	Follow SOPs.
			B	From May 1 to June 30, vehicle access will be permitted only on well-established roads until the site has been cleared by a qualified biologist. All vehicles will have rubber tires. Off-road travel will be avoided to the extent possible. If vegetation-management activities are proposed between May 1 and June 30, a qualified biologist will mark plant populations (including a 50-foot buffer zone) prior to O&M activity. Within 100 feet of the marked area, the following work area limits will be provided: 1) only manual clearing of vegetation will be allowed within 50 feet of the edge of the marked area, 2) mechanical treatment of all kinds (including mowers, tractors, chippers, dozers) will be prohibited. Herbicide use will be prohibited at all times with the exception of direct application to target vegetation. All work will be hauled off site. Ground-disturbing activities require a survey by a qualified biologist to mark existing plant populations or clear the site. Ground disturbance will be prohibited within the flagged boundary unless otherwise directed by NPS. Standard erosion- and sediment-control measures will be installed for all ground-disturbing activities in compliance with best management practices adopted by Western to prevent impacts to plants.
			C	Follow all measures listed for A and B. Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.

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PCM-ID	Species Name	Status	Activity Category	PCM
VERNAL POOLS, VERNAL POOL GRASSLANDS, AND SEASONAL WETLANDS				
PCM-B020	<i>Calochortus longebarbatus</i> var. <i>longebarbatus</i> Long-haired star tulip	CNPS List 1B.2/BLMS/FSS	A	Follow SOPs, PCM-W001, and PCM-W002 (in appropriate habitat).
			B	<p>Follow all measures listed for A.</p> <p>From May 1 to June 30, vehicle access will be permitted only on well-established roads until the site has been cleared by a qualified biologist. All vehicles will have rubber tires. Off-road travel will be avoided to the extent possible.</p> <p>If vegetation-management activities are proposed between May 1 and June 30, a qualified biologist will mark plant populations (including a 50-foot buffer zone) prior to O&M activity. Within 100 feet of the marked area, the following work area limits will be provided: 1) only manual clearing of vegetation will be allowed within 50 feet of the edge of the marked area, 2) mechanical treatment of all kinds (including mowers, tractors, chippers, dozers) will be prohibited.</p> <p>Herbicide use will be prohibited at all times with the exception of direct application to target vegetation.</p> <p>All work will be hauled off site.</p> <p>Ground disturbing activities require a survey by a qualified biologist to mark existing plant populations or clear the site. Ground disturbance will be prohibited within the flagged boundary unless otherwise directed by NPS.</p> <p>Standard erosion- and sediment-control measures will be installed for all ground-disturbing activities in compliance with best management practices adopted by Western to prevent impacts to plants.</p>
			C	<p>Follow all measures listed for A and B.</p> <p>Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.</p>
PCM-B021	<i>Chamaesyce hooveri</i> Hoover's spurge	FT/CNPS List 1B.1	A and B	<p>Follow SOPs and PCM-W001.</p> <p>A description of the O&M activity, including location and duration, will be kept on file at Western's Natural Resources Department in support of USFWS reporting requirements.</p>
			C	<p>Follow all measures listed for A and B.</p> <p>Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.</p>
PCM-B021a			A, B, and C	<u>Critical Habitat</u> : Follow SOPs, PCM-W001a, and PCM-B021.

PCM-ID	Species Name	Status	Activity Category	PCM
PCM-B022	<i>Gratiola heterosepala</i> Boggs Lake hedge-hyssop	SE/ CNPS List 1B.1	A and B	Follow SOPs, PCM-W001, and PCM-W002. Where impacts to listed plants cannot be avoided, the top 4 inches of topsoil will be stockpiled separately during excavations. When this topsoil is replaced, compaction will be minimized to the extent consistent with utility standards.
			C	Follow all measures listed for A and B. Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.
PCM-B023	<i>Juncus leiospermus</i> var. <i>ahartii</i> Ahart's dwarf rush	CNPS List 1B.1	A and B	Follow SOPs and PCM-W001.
			C	Follow all measures listed for A and B. Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.
PCM-B024	<i>Juncus leiospermus</i> var. <i>leiospermus</i> Red Bluff dwarf rush	CNPS List 1B.1/BLMS/FSS	A and B	Follow SOPs and PCM-W001.
			C	Follow all measures listed for A and B. Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.
PCM-B025	<i>Limnanthes floccosa</i> ssp. <i>californica</i> Butte County meadowfoam	FE/SE/ CNPS List 1B.1	A and B	Follow SOPs, PCM-W001, and PCM-W002. A description of the O&M activity, including location and duration, will be kept on file at Western's Natural Resources Department in support of USFWS reporting requirements.
			C	Follow all measures listed for A and B. Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.
PCM-B025a			A, B, and C	<u>Critical Habitat</u> : Follow PCM-W001a and PCM-B025.

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PCM-ID	Species Name	Status	Activity Category	PCM
PCM-B026	<i>Paronychia ahartii</i> Ahart's paronychia	CNPS List 1B.1/BLMS	A	Follow SOPs and PCM-W001 (in appropriate habitat).
			B	<p>Follow all measures listed for A</p> <p>From March 1 to June 30, vehicle access will be permitted only on well-established roads until the site has been cleared by a qualified biologist. All vehicles will have rubber tires. Off-road travel will be avoided to the extent possible.</p> <p>If vegetation-management activities are proposed between March 1 and June 30, a qualified biologist will mark plant populations (including a 50-foot buffer zone) prior to O&M activity. Within 100 feet of the marked area, the following work area limits will be provided: 1) only manual clearing of vegetation will be allowed within 50 feet of the edge of the flagged area, and 2) mechanical treatment of all kinds (including mowers, tractors, chippers, dozers) will be prohibited.</p> <p>Herbicide use will be prohibited at all times with the exception of direct application to target vegetation.</p> <p>Ground-disturbing activities proposed between March 1 and June 30 require a survey by a qualified biologist to flag existing plant populations or clear the site. Ground disturbance will be prohibited within the flagged boundary unless otherwise directed by BLM.</p> <p>All work will be hauled off site.</p> <p>Standard erosion- and sediment-control measures will be installed for all ground-disturbing activities in compliance with best management practices adopted by Western to prevent impacts to plants.</p>
			C	<p>Follow all measures listed for A and B.</p> <p>Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.</p>
PCM-B027	<i>Navarretia heterandra</i> Tehama navarretia	CNPS List 4/NPS	A and B	Follow SOPs and PCM-W001.
			C	<p>Follow all measures listed for A and B.</p> <p>Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.</p>
PCM-B028	<i>Neostapfia colusana</i> Colusa grass	FT/SE/ CNPS List 1B.1	A and B	<p>Follow SOPs and PCM-W001.</p> <p>A description of the O&M activity, including location and duration, will be kept on file at Western's Natural Resources Department in support of USFWS reporting requirements.</p>
			C	<p>Follow all measures listed for A and B.</p> <p>Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.</p>

PCM-ID	Species Name	Status	Activity Category	PCM
PCM-B029	<i>Oenothera deltooides</i> ssp. <i>howellii</i> Antioch Dunes evening primrose	FE/SE/CNPS List 1B.1	A	Follow SOPs
			B	If vegetation-management activities are proposed between March 1 and September 30, a qualified biologist will mark plant populations (including a 50-foot buffer zone) prior to O&M activity. Within 100 feet of the marked area, the following work area limits will be provided: 1) only manual clearing of vegetation will be allowed within 50 feet of the edge of the flagged area, and 2) mechanical treatment of all kinds (including mowers, tractors, chippers, dozers) will be prohibited. Ground-disturbing activities require a survey by a qualified biologist to flag existing plant populations or clear the site. Ground disturbance will be prohibited within the flagged boundary unless otherwise directed by USFWS.
			C	Follow all measures listed for A and B. Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.
PCM-B030	<i>Orcuttia pilosa</i> Hairy Orcutt grass	FE/SE/ CNPS List 1B.1	A and B	Follow SOPs and PCM-W001. A description of the O&M activity, including location and duration, will be kept on file at Western's Natural Resources Department in support of USFWS reporting requirements.
			C	Follow all measures listed for A and B. Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.
PCM-B030a			A, B, and C	<u>Critical Habitat</u> : Follow PCM-W001a and PCM-B030
PCM-B031	<i>Orcuttia tenuis</i> Slender Orcutt grass	FT/SE/ CNPS List 1B.1/FSS	A and B	Follow SOPs and PCM-W001. A description of the O&M activity, including location and duration, will be kept on file at Western's Natural Resources Department in support of USFWS reporting requirements.
			C	Follow all measures listed for A and B. Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.

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PCM-ID	Species Name	Status	Activity Category	PCM
PCM-B031a			A, B, and C	<u>Critical Habitat:</u> Follow PCM-W001a and PCM-B031.
PCM-B032	<i>Tuctoria greenii</i> Greene's tuctoria	FE/SR/ CNPS List 1B.1	A and B	Follow SOPs and PCM-W001. A description of the O&M activity, including location and duration, will be kept on file at Western's Natural Resources Department in support of USFWS reporting requirements.
			C	Follow all measures listed for A and B. Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.
PCM-B032a			A, B, and C	<u>Critical Habitat:</u> Follow PCM-W001a, and PCM-B032.
PCM-B033	<i>Tuctoria mucronata</i> Solano grass	FE/SE/ CNPS List 1B.1	A and B	Follow SOPs and PCM-W001. A description of the O&M activity, including location and duration, will be kept on file at Western's Natural Resources Department in support of USFWS reporting requirements.
			C	Follow all measures listed for A and B. Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.
SEEP, SPRING, POND, LAKE, CREEK, MARSH SPECIES				
PCM-B034	<i>Astragalus tener</i> var. <i>ferrisiae</i> Ferris's milkvetch	CNPS List 1B.1/BLMS	A	Follow SOPs and PCM-W002.
			B	Follow PCM-W002. If vegetation-management activities are proposed between April 1 and May 31, a qualified biologist will mark plant populations (including a 50-foot buffer zone) and the perimeter of the spring or wet meadow prior to O&M activity. Within 100 feet of the marked area, the following work area limits will be provided: 1) only manual clearing of vegetation will be allowed within 50 feet of the edge of the flagged area, and 2) mechanical treatment of all kinds (including mowers, tractors, chippers, dozers) will be prohibited. Ground-disturbing activities proposed between April 1 and May 31 require a survey by a qualified biologist to flag existing plant populations or clear the site. Ground disturbance will be prohibited within the flagged boundary unless otherwise directed by BLM.
			C	Follow all measures listed for A and B. Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.

PCM-ID	Species Name	Status	Activity Category	PCM
PCM-B035	<i>Carex vulpinoidea</i> Fox sedge	CNPS List 2.2/NPS	A	Follow SOPs and PCM-W002.
			B	Follow PCM-W002. If vegetation-management activities are proposed between May 1 and June 30, a qualified biologist will mark plant populations (including a 50-foot buffer zone) prior to O&M activity. Within 100 feet of the marked area, the following work area limits will be provided: 1) only manual clearing of vegetation will be allowed within 50 feet of the edge of the flagged area, and 2) mechanical treatment of all kinds (including mowers, tractors, chippers, dozers) will be prohibited. Ground-disturbing activities require a survey by a qualified biologist to flag existing plant populations or clear the site. Ground disturbance will be prohibited within the flagged boundary unless otherwise directed by NPS.
			C	Follow all measures listed for A and B. Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.
PCM-B036	<i>Cryptantha crinita</i> Silky cryptantha	CNPS List 1B.2/BLMS	A	Follow SOPs, PCM-W002, and PCM-W001.
			B	Follow PCM-W002. If vegetation-management activities are proposed between April 1 and May 31, a qualified biologist will mark plant populations (including a 50-foot buffer zone) and the perimeter of the spring or wet meadow prior to O&M activity. Within 100 feet of the marked area, the following work area limits will be provided: 1) only manual clearing of vegetation will be allowed within 50 feet of the edge of the flagged area, and 2) mechanical treatment of all kinds (including mowers, tractors, chippers, dozers) will be prohibited. Ground-disturbing activities proposed between April 1 and May 31 require a survey by a qualified biologist to flag existing plant populations or clear the site. Ground disturbance will be prohibited within the flagged boundary unless otherwise directed by BLM.
			C	Follow all measures listed for A and B. Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.

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PCM-ID	Species Name	Status	Activity Category	PCM
PCM-B037	<i>Eryngium racemosum</i> Delta button celery	SE/CNPS List 1B.1	A	Follow SOPs and PCM-W002.
			B	Follow PCM-W002. If vegetation-management activities are proposed between June 1 and September 30, a qualified biologist will mark plant populations (including a 50-foot buffer zone) and the perimeter of the spring or wet meadow prior to O&M activity. Within 100 feet of the marked area, the following work area limits will be provided: 1) only manual clearing of vegetation will be allowed within 50 feet of the edge of the flagged area, and 2) mechanical treatment of all kinds (including mowers, tractors, chippers, dozers) will be prohibited. Ground-disturbing activities require a survey by a qualified biologist to flag existing plant populations or clear the site. Ground disturbance will be prohibited within the flagged boundary unless otherwise directed by Western after discussion with CDFG.
			C	Follow all measures listed for A and B. Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.
PCM-B038	<i>Lilaeopsis masonii</i> Mason's lilaeopsis	SR/CNPS List 1B.1	A	Follow SOPs and PCM-W002.
			B	Follow PCM-W002. If vegetation-management activities are proposed between April 1 and November 30, a qualified biologist will mark plant populations (including a 50-foot buffer zone) prior to O&M activity. Within 100 feet of the marked area, the following work area limits will be provided: 1) only manual clearing of vegetation will be allowed within 50 feet of the edge of the flagged area, and 2) mechanical treatment of all kinds (including mowers, tractors, chippers, dozers) will be prohibited. Ground-disturbing activities require a survey by a qualified biologist to flag existing plant populations or clear the site. Ground disturbance will be prohibited within the flagged boundary unless otherwise directed by Western after discussion with CDFG.
			C	Follow all measures listed for A and B. Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.

PCM-ID	Species Name	Status	Activity Category	PCM
PCM-B039	<i>Puccinellia howellii</i> Howell's alkali grass	CNPS List 1B.1/BLMS/NPS	A	Follow SOPs and PCM-W002.
			B and C	Follow PCM-W002. If vegetation-management activities are proposed between April 1 and June 30, a qualified biologist will mark plant populations (including a 50-foot buffer zone) prior to O&M activity. Within 100 feet of the marked area, the following work area limits will be provided: 1) only manual clearing of vegetation will be allowed within 50 feet of the edge of the flagged area, and 2) mechanical treatment of all kinds (including mowers, tractors, chippers, dozers) will be prohibited. Ground-disturbing activities require a survey by a qualified biologist to flag existing plant populations or clear the site. Ground disturbance will be prohibited within the flagged boundary unless otherwise directed by BLM and/or NPS.
			C	Follow all measures listed for A and B. Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.
PCM-B040	<i>Smilax jamesii</i> English Peak greenbriar	1B.3/FSS/BLMS	A	Follow SOPs and PCM-W002.
			B	Follow PCM-W002. If vegetation-management activities are proposed between May 1 and July 31, a qualified biologist will mark plant populations (including a 50-foot buffer zone) prior to O&M activity. Within 100 feet of the marked area, the following work area limits will be provided: 1) only manual clearing of vegetation will be allowed within 50 feet of the edge of the flagged area, and 2) mechanical treatment of all kinds (including mowers, tractors, chippers, dozers) will be prohibited. Ground-disturbing activities require a survey by a qualified biologist to flag existing plant populations or clear the site. Ground disturbance will be prohibited within the flagged boundary unless otherwise directed by USFS or BLM.
			C	Follow all measures listed for A and B. Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.

PCM-ID	Species Name	Status	Activity Category	PCM
PCM-B041	<i>Trillium ovatum</i> ssp. <i>oettingeri</i> Salmon Mountains wakerobin	CNPS List 4.2/NPS	A	Follow SOPs and PCM-W002.
			B	Follow PCM-W002. If vegetation-management activities are proposed between May 31 and July 31, a qualified biologist will mark plant populations (including a 50-foot buffer zone) prior to O&M activity. Within 100 feet of the marked area, the following work area limits will be provided: 1) only manual clearing of vegetation will be allowed within 50 feet of the edge of the flagged area, and 2) mechanical treatment of all kinds (including mowers, tractors, chippers, dozers) will be prohibited. Ground-disturbing activities require a survey by a qualified biologist to flag existing plant populations or clear the site. Ground disturbance will be prohibited within the flagged boundary unless otherwise directed by NPS.
			C	Follow all measures listed for A and B. Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.

- Annual herbs have limited operating periods (LOPs) for off-road travel, vegetation management, and ground disturbance that correspond to the life history of the plant (e.g., when the plant sets seed and/or is non-vegetative).
- In general, perennial herbs have LOPs for off-road travel and vegetation management that correspond to the life history of the plant (e.g., when the plant sets seed and/or is non-vegetative).
- Ground disturbance in suitable habitat for perennials requires a survey due to the presence of underground plant parts (e.g., roots, bulbs).
- There are no LOPs for shrubs because there is not a non-vegetative period.
- Herbicide use will be prohibited at all times (with the exception of direct application to target vegetation) in areas that could support special-status plants. Western will refer to the PRESCRIBE database for specific measures regarding herbicide application.

Table 2-3 Special-status Wildlife and Fish Project Conservation Measures

PCM-ID	Species Name	Status ¹	Activity Category	PCM
INVERTEBRATES				
PCM-B042	Conservancy fairy shrimp <i>Branchinecta conservatio</i>	FE	A, B, and C	Follow SOPs and PCM-W001. If conservancy fairy shrimp habitat cannot be avoided, the following will be implemented. Protocol-level preconstruction surveys will be required or species presence will be assumed. If conservancy fairy shrimp are present or assumed present, Western will initiate formal consultation with FWS. For Category B and C activities, a description of the O&M activity, including location and duration, will be kept on file at Western's Natural Resources Department in support of USFWS reporting requirements.
PCM-B042a			A, B, and C	<u>Critical habitat:</u> Follow PCM-B042. For Category B and C activities, a description of the O&M activity, including location and duration, will be kept on file at Western's Natural Resources Department in support of USFWS reporting requirements.
PCM-B043	Delta green ground beetle <i>Elaphrus viridis</i>	FT	A, B, and C	Follow SOPs and PCM-W001. For Category B and C activities, a description of the O&M activity, including location and duration, will be kept on file at Western's Natural Resources Department in support of USFWS reporting requirements.
PCM-B043a			A, B, and C	<u>Critical habitat:</u> Follow PCM-B043. For Category B and C activities, a description of the O&M activity, including location and duration, will be kept on file at Western's Natural Resources Department in support of USFWS reporting requirements.
PCM-B044	Longhorn fairy shrimp <i>Branchinecta lynchi</i>	FE	A, B, and C	Follow SOPs and PCM-W001. If longhorn fairy shrimp habitat cannot be avoided, the following will be implemented. Protocol-level preconstruction surveys will be required or species presence will be assumed. If longhorn fairy shrimp are present or assumed present, Western will initiate formal consultation with USFWS. For Category B and C activities, a description of the O&M activity, including location and duration, will be kept on file at Western's Natural Resources Department in support of USFWS reporting requirements.

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PCM-ID	Species Name	Status ¹	Activity Category	PCM
PCM-B045	Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	FT	A	Follow SOPs at all times and PCM-W002 for elderberries in riparian habitat.
			B	<p>Prior to initiating vegetation clearance in the Central Valley below 3,000 feet with elderberry plants present, qualified personnel² will clearly flag or fence each elderberry plant that has a stem measuring one inch or greater in diameter at ground level. If an elderberry plant meeting this criterion is present:</p> <p>A minimum buffer zone of 20 feet outside of the dripline of each elderberry plant will be provided during all routine O&M activities, within which only manual methods for vegetation clearing will be allowed.</p> <p>No insecticides, herbicides, fertilizers, or other chemicals will be used within 100 feet of an elderberry plant, except direct application to target vegetation (e.g. injection or cut-stump.) Trimming, rather than removal of shrubs, will be used where feasible. Directional felling of trees and manual cutting of trees prior to removal will be used to minimize impacts to elderberries.</p> <p>Replacement of existing conductor or installation of additional lines will be performed by pulling the line from tower to tower without touching the vegetation in areas where elderberry plants are present.</p> <p>If elderberry plants meeting the size criterion cannot be avoided, Western would refer back to its 2005 BO (USFWS File # 1-1-03-F-0107) in which the take of 10 elderberry shrubs per year for 10 years was addressed and authorized for the counties of Sacramento, Sutter, and Placer. Western is not requesting additional take of the Valley elderberry longhorn beetle, but would like to expand the area where take is allowed to include the North Area ROW Maintenance Project area. Take within this expanded area was previously addressed in Western's 1998 BA (USFWS File # 1-1-97-F-140). Additionally, the 10 take per year for 10 years (started in 2007) is already mitigated for in Western's 27-acre mitigation site in River Bend Park (formerly Goethe Park) in the American River Parkway.</p> <p>A description of the O&M activity, including location and duration, will be kept on file at Western's Natural Resources Department in support of USFWS reporting requirements.</p>
			C	<p>Follow all measures listed for A and B above.</p> <p>Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate Federal land manager, land owner, or agency, as necessary.</p>

PCM-ID	Species Name	Status ¹	Activity Category	PCM
PCM-B046	Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	FT	A, B, and C	<p>Follow SOPs and PCM-W001.</p> <p>If vernal pool fairy shrimp habitat cannot be avoided, the following will be implemented. Protocol-level preconstruction surveys will be required or species presence will be assumed. If vernal pool fairy shrimp are present or assumed present, Western will initiate formal consultation with FWS.</p> <p>For Category B and C activities, a description of the O&M activity, including location and duration, will be kept on file at Western's Natural Resources Department in support of USFWS reporting requirements.</p>
PCM-B046a			A, B, and C	<p><u>Critical habitat:</u> Follow PCM-B046.</p> <p>For Category B and C activities, a description of the O&M activity, including location and duration, will be kept on file at Western's Natural Resources Department in support of USFWS reporting requirements.</p>
PCM-B047	Vernal pool tadpole shrimp <i>Lepidurus packardii</i>	FE	A, B, and C	<p>Follow PCM-W001.</p> <p>If vernal pool tadpole shrimp habitat cannot be avoided, the following will be implemented. Protocol-level preconstruction surveys will be required or species presence will be assumed. If vernal pool tadpole shrimp are present or assumed present, Western will initiate formal consultation with USFWS.</p> <p>For Category B and C activities, a description of the O&M activity, including location and duration, will be kept on file at Western's Natural Resources Department in support of USFWS reporting requirements.</p>
PCM-B047a			A, B, and C	<p><u>Critical habitat:</u> Follow PCM-B047.</p> <p>For Category B and C activities, a description of the O&M activity, including location and duration, will be kept on file at Western's Natural Resources Department in support of USFWS reporting requirements.</p>

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PCM-ID	Species Name	Status ¹	Activity Category	PCM
FISHES				
PCM-B048	Central Valley fall/late fall-run chinook salmon <i>Oncorhynchus tshawytscha</i>	SSC/FSS	A	Follow SOPs and PCM-W002.
			B	<p>Follow PCM-W002.</p> <p>To comply with the salmon injunction for herbicide applications, Western will ensure that there will be no ground application of any of the chemicals named in the injunction (http://www.cdpr.ca.gov/docs/endspec/salmonid.htm). Currently, the no-use buffer is 60 feet from any salmonid-supporting waters.</p> <p>In-water or near-shore work within the five sub-areas located within the North Area ROW will be performed within the date ranges below, unless otherwise authorized by NMFS:</p> <ul style="list-style-type: none"> • The Delta: Any of the waterways in the action area that are south and west of the City of Sacramento. June 1 and October 15 of any given year. • The Mainstem Sacramento River - South: The waters of the Sacramento River from the City of Sacramento north to Hamilton City. June 1 and October 15 of any given year. • The Mainstem Sacramento River - North: The waters of the Sacramento River from Hamilton City north to Keswick Dam. December 1 and April 1 of any given year. • Butte, Mill, Deer, and Battle Creeks: Any of the waters that comprise the forks or mainstems of these four named creeks. December 1 and April 1 of any given year. • The North State Tributary Area: Any of the waterways in the action area that are north of the City of Sacramento and flow into the mainstem Sacramento River, excluding Butte, Mill, Deer, and Battle Creeks, as described above. June 1 and October 15 of any given year. <p>Instream O&M activities will be completely isolated from the active flowing stream. This will be accomplished by building cofferdams or temporary berms to keep O&M activities out of stream channels. Cofferdams or temporary berms will be constructed using non-erodible, clean materials. Water from these O&M envelopes will be transported off site or pumped to sediment or percolation basins. Cofferdams or berms will not impede the movement of fish at any time, and pump intakes will be screened to meet NMFS criteria.</p>
			C	<p>Follow all measures listed for A and B above.</p> <p>Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate Federal land manager, land owner, or agency.</p>

PCM-ID	Species Name	Status ¹	Activity Category	PCM
PCM-B049	Central Valley spring-run chinook salmon <i>Oncorhynchus tshawytscha</i>	FT/ST/FSS	A	Follow SOPs and PCM-W002.
			B	<p>Follow PCM-W002.</p> <p>To comply with the salmon injunction for herbicide applications, Western will ensure that there will be no ground application of any of the chemicals named in the injunction (http://www.cdpr.ca.gov/docs/endspec/salmonid.htm). Currently, the no-use buffer is 60 feet from any salmonid-supporting waters.</p> <p>In-water or near-shore work within the five sub-areas located within the North Area ROW will be performed within the date ranges below, unless otherwise authorized by NMFS:</p> <ul style="list-style-type: none"> • The Delta: Any of the waterways in the action area that are south and west of the City of Sacramento. June 1 and October 15 of any given year. • The Mainstem Sacramento River - South: The waters of the Sacramento River from the City of Sacramento north to Hamilton City. June 1 and October 15 of any given year. • The Mainstem Sacramento River - North: The waters of the Sacramento River from Hamilton City north to Keswick Dam. December 1 and April 1 of any given year. • Butte, Mill, Deer, and Battle Creeks: Any of the waters that comprise the forks or mainstems of these four named creeks. December 1 and April 1 of any given year. • The North State Tributary Area: Any of the waterways in the action area that are north of the City of Sacramento and flow into the mainstem Sacramento River, excluding Butte, Mill, Deer, and Battle Creeks, as described above. June 1 and October 15 of any given year.. <p>Instream O&M activities will be completely isolated from the active flowing stream. This will be accomplished by building cofferdams or temporary berms to keep O&M activities out of stream channels. Cofferdams or temporary berms will be constructed using non-erodable, clean materials. Water from these O&M envelopes will be transported off site or pumped to sediment or percolation basins. Cofferdams or berms will not impede the movement of fish at any time, and pump intakes will be screened to meet NMFS criteria.</p> <p>A description of the O&M activity, including location and duration, will be kept on file at Western's Natural Resources Department in support of NMFS reporting requirements.</p>
			C	<p>Follow all measures listed for A and B above.</p> <p>Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate Federal land manager, land owner, or agency.</p>

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PCM-ID	Species Name	Status ¹	Activity Category	PCM
PCM-B049a	Central Valley spring-run chinook salmon <i>Oncorhynchus tshawytscha</i> (cont.)	FT/ST/FSS	A, B, and C	<u>Critical habitat:</u> Follow PCM-B049. For Category B and C activities, a description of the O&M activity, including location and duration, will be kept on file at Western's Natural Resources Department in support of NMFS reporting requirements.
PCM-B050	Central Valley steelhead <i>Oncorhynchus mykiss</i>	FT	A	Follow SOPs and PCM-W002.
			B	Follow PCM-W002. To comply with the salmon injunction for herbicide applications, Western will ensure that there will be no ground application of any of the chemicals named in the injunction (http://www.cdpr.ca.gov/docs/endspec/salmonid.htm). Currently, the no-use buffer is 60 feet from any salmonid-supporting waters. In-water or near-shore work within the five sub-areas located within the North Area ROW will be performed within the date ranges below, unless otherwise authorized by NMFS: <ul style="list-style-type: none"> • The Delta: Any of the waterways in the action area that are south and west of the City of Sacramento. June 1 and October 15 of any given year. • The Mainstem Sacramento River - South: The waters of the Sacramento River from the City of Sacramento north to Hamilton City. June 1 and October 15 of any given year. • The Mainstem Sacramento River - North: The waters of the Sacramento River from Hamilton City north to Keswick Dam. December 1 and April 1 of any given year. • Butte, Mill, Deer, and Battle Creeks: Any of the waters that comprise the forks or mainstems of these four named creeks. December 1 and April 1 of any given year. • The North State Tributary Area: Any of the waterways in the action area that are north of the City of Sacramento and flow into the mainstem Sacramento River, excluding Butte, Mill, Deer, and Battle Creeks, as described above. June 1 and October 15 of any given year. Instream O&M activities will be completely isolated from the active flowing stream. This will be accomplished by building cofferdams or temporary berms to keep O&M activities out of stream channels. Cofferdams or temporary berms will be constructed using non-erodable, clean materials. Water from these O&M envelopes will be transported off site or pumped to sediment or percolation basins. Cofferdams or berms will not impede the movement of fish at any time, and pump intakes will be screened to meet NMFS criteria. A description of the O&M activity, including location and duration, will be kept on file at Western's Natural Resources Department in support of NMFS reporting requirements.

PCM-ID	Species Name	Status ¹	Activity Category	PCM
PCM-B050 (cont.)	Central Valley steelhead <i>Oncorhynchus mykiss</i>	FT	C	Follow all measures listed for A and B above. Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate Federal land manager, land owner, or agency.
PCM-B050a			A, B, and C	<u>Critical habitat:</u> Follow PCM-B050. For Category B and C activities, a description of the O&M activity, including location and duration, will be kept on file at Western's Natural Resources Department in support of NMFS reporting requirements.
PCM-B051	Delta smelt <i>Hypomesus transpacificus</i>	FT/ST	A	Follow SOPs and PCM-W002.
			B	Follow PCM-W002. In-water or near-shore work within the five sub-areas located within the North Area ROW will be preformed within the date ranges below, unless otherwise authorized by NMFS: Instream O&M activities will be completely isolated from the active flowing stream. This will be accomplished by building cofferdams or temporary berms to keep O&M activities out of stream channels. Cofferdams or temporary berms will be constructed using non-erodible, clean materials. Water from these O&M envelopes will be transported off site or pumped to sediment or percolation basins. Cofferdams or berms will not impede the movement of fish at any time, and pump intakes will adhere to the NMFS and CDFG screen criteria (http://swr.ucsd.edu/hcd/fishscrn.htm and http://iep.water.ca.gov/cvffrt/DFGCriteria2.htm) or more recent guidance. All instream work will adhere to an approach velocity of 0.2 feet/second during pumping. A description of the O&M activity, including location and duration, will be kept on file at Western's Natural Resources Department in support of USFWS reporting requirements.
			C	Follow all measures listed for A and B above. Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate Federal land manager, land owner, or agency.
PCM-B051a			A, B, and C	<u>Critical habitat:</u> Follow PCM B051. For Category B and C activities, a description of the O&M activity, including location and duration, will be kept on file at Western's Natural Resources Department in support of USFWS reporting requirements.

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PCM-ID	Species Name	Status ¹	Activity Category	PCM
PCM-B052	Green sturgeon <i>Acipenser medirostris</i>	FT/SSC	A	Follow SOPs and PCM-W002.
			B	<p>Follow PCM-W002.</p> <p>In-water or near-shore work within the five sub-areas located within the North Area ROW will be preformed within the date ranges below, unless otherwise authorized by NMFS:</p> <ul style="list-style-type: none"> • The Delta: Any of the waterways in the action area that are south and west of the City of Sacramento. June 1 and October 15 of any given year. • The Mainstem Sacramento River - South: The waters of the Sacramento River from the City of Sacramento north to Hamilton City. June 1 and October 15 of any given year. • The Mainstem Sacramento River - North: The waters of the Sacramento River from Hamilton City north to Keswick Dam. December 1 and April 1 of any given year. • Butte, Mill, Deer, and Battle Creeks: Any of the waters that comprise the forks or mainstems of these four named creeks. December 1 and April 1 of any given year. • The North State Tributary Area: Any of the waterways in the action area that are north of the City of Sacramento and flow into the mainstem Sacramento River, excluding Butte, Mill, Deer, and Battle Creeks, as described above. June 1 and October 15 of any given year. <p>Instream O&M activities will be completely isolated from the active flowing stream. This will be accomplished by building cofferdams or temporary berms to keep O&M activities out of stream channels. Cofferdams or temporary berms will be constructed using non-erodible, clean materials. Water from these O&M envelopes will be transported off site or pumped to sediment or percolation basins. Cofferdams or berms will not impede the movement of fish at any time, and pump intakes will be screened to meet NMFS criteria.</p> <p>A description of the O&M activity, including location and duration, will be kept on file at Western's Natural Resources Department in support of NMFS reporting requirements.</p>
			C	<p>Follow all measures listed for A and B above.</p> <p>Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate Federal land manager, land owner, or agency.</p>

PCM-ID	Species Name	Status ¹	Activity Category	PCM
PCM-B053	Hardhead <i>Mylopharodon conocephalus</i>	FSS	A	Follow SOPs and PCM-W002.
			B and C	<p>Follow PCM-W002.</p> <p>Because of potential range overlap with listed salmonids, In-water or near-shore work within the five sub-areas located within the North Area ROW will be preformed within the date ranges below, unless otherwise authorized by USFS:</p> <ul style="list-style-type: none"> • The Delta: Any of the waterways in the action area that are south and west of the City of Sacramento. June 1 and October 15 of any given year. • The Mainstem Sacramento River - South: The waters of the Sacramento River from the City of Sacramento north to Hamilton City. June 1 and October 15 of any given year. • The Mainstem Sacramento River - North: The waters of the Sacramento River from Hamilton City north to Keswick Dam. December 1 and April 1 of any given year. • Butte, Mill, Deer, and Battle Creeks: Any of the waters that comprise the forks or mainstems of these four named creeks. December 1 and April 1 of any given year. • The North State Tributary Area: Any of the waterways in the action area that are north of the City of Sacramento and flow into the mainstem Sacramento River, excluding Butte, Mill, Deer, and Battle Creeks, as described above. June 1 and October 15 of any given year. <p>Instream O&M activities will be completely isolated from the active flowing stream. This will be accomplished by building cofferdams or temporary berms to keep O&M activities out of stream channels. Cofferdams or temporary berms will be constructed using non-erodable, clean materials. Water from these O&M envelopes will be transported off site or pumped to sediment or percolation basins. Cofferdams or berms will not impede the movement of fish at any time.</p>

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PCM-ID	Species Name	Status ¹	Activity Category	PCM
PCM-B054	Lost River sucker <i>Deltistes luxatus</i>	FE/SE	A	Follow SOPs and PCM-W002.
			B	<p>Follow PCM-W002 for instream work within or near habitat for the Lost River sucker, including irrigation canals operated by the Tule Lake Irrigation District.</p> <p>Because of potential range overlap with listed salmonids, in-water or near-shore work will only occur between June 1 and October 15 within the North State Tributary Area (any of the waterways in the action area that are north of the City of Sacramento and flow into the mainstem Sacramento River, excluding Butte, Mill, Deer, and Battle Creeks), unless otherwise authorized by USFWS.</p> <p>Instream O&M activities will be completely isolated from the active flowing stream. This will be accomplished by building cofferdams or temporary berms to keep O&M activities out of stream channels. Cofferdams or temporary berms will be constructed using non-erodible, clean materials. Water from these O&M envelopes will be transported off site or pumped to sediment or percolation basins. Cofferdams or berms will not impede the movement of fish at any time.</p> <p>A description of the O&M activity, including location and duration, will be kept on file at Western's Natural Resources Department in support of USFWS reporting requirements.</p>
			C	<p>Follow all measures listed for A and B above.</p> <p>Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate Federal land manager, land owner, or agency.</p>
PCM-B055	Rough sculpin <i>Cottus asperrimus</i>	ST	A	Follow SOPs and PCM-W002.
			B	<p>Follow PCM-W002.</p> <p>Because of potential range overlap with listed salmonids, in-water or near-shore work will only occur between June 1 and October 15 within the North State Tributary Area (any of the waterways in the action area that are north of the City of Sacramento and flow into the mainstem Sacramento River, excluding Butte, Mill, Deer, and Battle Creeks).</p> <p>Instream O&M activities will be completely isolated from the active flowing stream. This will be accomplished by building cofferdams or temporary berms to keep O&M activities out of stream channels. Cofferdams or temporary berms will be constructed using non-erodible, clean materials. Water from these O&M envelopes will be transported off site or pumped to sediment or percolation basins. Cofferdams or berms will not impede the movement of fish at any time.</p>
			C	<p>Follow all measures listed for A and B above.</p> <p>Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.</p>

PCM-ID	Species Name	Status ¹	Activity Category	PCM
PCM-B056	Sacramento River winter-run chinook salmon <i>Oncorhynchus tshawytscha</i>	FE/SE	A	Follow SOPs and PCM-W002.
			B	<p>Follow PCM-W002.</p> <p>To comply with the salmon injunction for herbicide applications, Western will ensure that there will be no ground application of any of the chemicals named in the injunction (http://www.cdpr.ca.gov/docs/endspec/salmonid.htm). Currently, the no-use buffer is 60 feet from any salmonid-supporting waters.</p> <p>In-water or near-shore work within the five sub-areas located within the North Area ROW will be preformed within the date ranges below, unless otherwise authorized by NMFS:</p> <ul style="list-style-type: none"> • The Delta: Any of the waterways in the action area that are south and west of the City of Sacramento. June 1 and October 15 of any given year. • The Mainstem Sacramento River - South: The waters of the Sacramento River from the City of Sacramento north to Hamilton City. June 1 and October 15 of any given year. • The Mainstem Sacramento River - North: The waters of the Sacramento River from Hamilton City north to Keswick Dam. December 1 and April 1 of any given year. • Butte, Mill, Deer, and Battle Creeks: Any of the waters that comprise the forks or mainstems of these four named creeks. December 1 and April 1 of any given year. • The North State Tributary Area: Any of the waterways in the action area that are north of the City of Sacramento and flow into the mainstem Sacramento River, excluding Butte, Mill, Deer, and Battle Creeks, as described above. June 1 and October 15 of any given year. <p>Instream O&M activities will be completely isolated from the active flowing stream. This will be accomplished by building cofferdams or temporary berms to keep O&M activities out of stream channels. Cofferdams or temporary berms will be constructed using non-erodable, clean materials. Water from these O&M envelopes will be transported off site or pumped to sediment or percolation basins. Cofferdams or berms will not impede the movement of fish at any time, and pump intakes will be screened to meet NMFS criteria.</p> <p>A description of the O&M activity, including location and duration, will be kept on file at Western's Natural Resources Department in support of NMFS reporting requirements.</p>
			C	<p>Follow all measures listed for A and B above.</p> <p>Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate federal land manager, land owner, or agency.</p>

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PCM-ID	Species Name	Status ¹	Activity Category	PCM
PCM-B056a	Sacramento River winter-run chinook salmon <i>Oncorhynchus tshawytscha</i> (cont.)		A, B, and C	<u>Critical habitat:</u> Follow PCM-B056. For Category B and C activities, a description of the O&M activity, including location and duration, will be kept on file at Western's Natural Resources Department in support of NMFS reporting requirements.
PCM-B057	Shortnose sucker <i>Chasmistes brevirostris</i>	FE/SE	A	Follow SOPs and PCM-W002.
			B	Follow PCM-W002. Because of potential range overlap with listed salmonids, in-water or near-shore work will only occur between June 1 and October 15 within the North State Tributary Area (any of the waterways in the action area that are north of the City of Sacramento and flow into the mainstem Sacramento River, excluding Butte, Mill, Deer, and Battle Creeks), unless otherwise authorized by USFWS. Instream O&M activities will be completely isolated from the active flowing stream. This will be accomplished by building cofferdams or temporary berms to keep O&M activities out of stream channels. Cofferdams or temporary berms will be constructed using non-erodible, clean materials. Water from these O&M envelopes will be transported off site or pumped to sediment or percolation basins. Cofferdams or berms will not impede the movement of fish at any time. A description of the O&M activity, including location and duration, will be kept on file at Western's Natural Resources Department in support of USFWS reporting requirements.
			C	Follow all measures listed for A and B above. Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate Federal land manager, land owner, or agency.

PCM-ID	Species Name	Status ¹	Activity Category	PCM
AMPHIBIANS				
PCM-B058	California red-legged frog <i>Rana draytonii</i>	FT	A	Follow SOPs and PCM-W002.
			B and C	<p>Follow all measures for Category A above.</p> <p>A Service-approved biologist³ will identify potential California red-legged frog (CRLF) breeding habitat and will flag a 500-foot buffer. The following restrictions apply within the buffer:</p> <ul style="list-style-type: none"> • Vehicles must remain on existing access roads and maintain a speed limit of 15mph; • Only manual vegetation removal is allowed; • Only direct (e.g. injection and cut-stump) herbicide application methods are allowed, except when otherwise restricted; • No ground disturbance (e.g. digging or auguring); and • Erosion-control devices will be of a material that will not entrap amphibians. <p>If it is not possible to follow the above-stated measures, a preactivity survey will be conducted no more than 24 hours before O&M activities begin. A Service-approved biologist will remain on site during all activities to ensure protection of CRLFs OR an exclusion barrier will be constructed around the work site, following Service-approved methods and materials, which will be removed at the end of the work activity. Crews will inspect trenches left open for more than 24 hours for trapped animals. Only a Service-approved biologist will remove trapped animals.</p> <p>To comply with the California red-legged frog injunction for herbicide applications, Western will ensure that, in the counties named in the injunction, there will be no ground application of any of the chemicals named in the injunction (http://www.epa.gov/espp/litstatus/redleg-frog/steps-info.htm) Currently, the no-use buffer is 60 feet from any aquatic feature, aquatic breeding habitat, non-breeding aquatic habitat, and upland habitat.</p> <p>A brief description of the O&M activity, including location and duration, will be sent to Western's Natural Resources Department in support of USFWS reporting requirements.</p>

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PCM-ID	Species Name	Status ¹	Activity Category	PCM
PCM-B059	California tiger salamander <i>Ambystoma californiense</i>	FT	A	Follow SOPs and PCM-W001.
			B and C	<p>Follow all measures for category A above.</p> <p>A Service-approved biologist³ will identify potential California tiger salamander (CTS) breeding habitat and will flag a 500-foot buffer. The following restrictions apply within the buffer:</p> <ul style="list-style-type: none"> • Vehicles must remain on existing access roads and maintain a speed limit of 15mph; • Only manual vegetation removal is allowed; • Only direct (e.g. injection and cut-stump) herbicide application methods are allowed, except when otherwise restricted; • No ground disturbance (e.g. digging or auguring); and • Erosion-control devices will be of a material that will not entrap amphibians. <p>If it is not possible to follow the above-stated measures, a preactivity survey will be conducted no more than 24 hours before O&M activities begin. A Service-approved biologist will remain on site during all activities to ensure protection of CTSS OR an exclusion barrier will be constructed around the work site, following Service-approved methods and materials, which will be removed at the end of the work activity. Crews will inspect trenches left open for more than 24 hours for trapped animals. Only a Service-approved biologist will remove trapped animals.</p> <p>A description of the O&M activity, including location and duration, will be kept on file at Western's Natural Resources Department in support of USFWS reporting requirements.</p>
PCM-B059a			A, B, and C	<p><u>Critical habitat</u>: Follow PCM-B059.</p> <p>For Category B and C activities, a description of the O&M activity, including location and duration, will be kept on file at Western's Natural Resources Department in support of USFWS reporting requirements.</p>
PCM-B060	Cascades frog <i>Rana cascadae</i>	FSS	A	Follow SOPs.
			B and C	Follow PCM-W002.
PCM-B061	Foothill yellow-legged frog <i>Rana boylei</i>	FSS/BLMS	A	Follow SOPs.
			B and C	Follow PCM-W002.
PCM-B062	Oregon spotted frog <i>Rana pretiosa</i>	FSS	A	Follow SOPs.
			B and C	Follow PCM-W002.
PCM-B063	Western spadefoot <i>Spea hammondi</i>	BLMS	A	Follow SOPs.
			B and C	Follow PCM-W001.

PCM-ID	Species Name	Status ¹	Activity Category	PCM
REPTILES				
PCM-B064	Alameda whipsnake <i>Masticophis lateralis euryxanthus</i>	FT	A	Follow SOPs. Vehicles will be restricted to existing access roads and limit speed to 15 mph. Equipment and debris will be placed only in cleared areas where snakes will be readily visible. All activities that will take place on the ground will be conducted during daylight hours to increase chances of sighting in areas where whipsnakes are present.
			B	Follow all measures listed for A above. Shrub removal will be limited in areas of potential habitat; vegetation will be manually cleared and only direct (e.g. injection and cut-stump) herbicide treatment is allowed. A description of the O&M activity, including location and duration, will be kept on file at Western's Natural Resources Department in support of USFWS reporting requirements.
			C	Follow all measures listed for A and B above. Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate Federal land manager, land owner, or agency.
PCM-B065	Coast horned lizard <i>Phrynosoma coronatum frontale</i>	BLMS	A, B, and C	Off-road travel will be minimized. Vehicle speeds will not exceed 15 mph on access and maintenance roads and 10 mph on unimproved access routes.

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PCM-ID	Species Name	Status ¹	Activity Category	PCM
PCM-B066	Giant garter snake <i>Thamnophis gigas</i>	FT/ST	A	Follow SOPs and PCM-W002 in aquatic giant garter snake (GGS) habitat.
			B	<p>Follow PCM-W002 in aquatic GGS habitat, which supersedes those below where they are different.</p> <p>Use of herbicides (with the exception of direct application) within 200 feet of potential giant garter snake habitat will be prohibited at all times.</p> <p>Movement of heavy equipment will be confined to existing roadways to minimize habitat disturbance. Vegetation management will be confined to the minimum area necessary to facilitate O&M activities.</p> <p>GGS aquatic and upland habitats will be flagged as environmentally sensitive areas by a Service-approved biologist within or adjacent to the disturbance footprint. Only manual vegetation removal will be allowed within the flagged area.</p> <p>A Service-approved monitor will be present for O&M activities within the flagged area. Ground-disturbing activities will be avoided within 200 feet from the banks of GGS aquatic habitat. If this is not feasible, O&M activities will be conducted between May 1 and September 30, the giant garter snake active period, and all potentially affected aquatic habitats will be dewatered prior to any ground disturbance. Dewatered areas will remain dry with no puddled water remaining for at least 15 consecutive days prior to excavation or filling of that habitat. If a site can not be completely dewatered, prey items will be netted or otherwise salvaged if present.</p> <p>Any temporary fill and debris will be immediately removed and disturbed areas restored to pre-project conditions prior to October 1. Restoration work could include such activities as replanting species removed from banks or replanting emergent vegetation in the active channel. Filter fences and mesh will be of a material that will not entrap reptiles and amphibians. Erosion-control blankets will be used as a last resort because of their tendency to biodegrade slowly and trap reptiles and amphibians. No monofilament plastics will be used for erosion control near aquatic features.</p> <p>If it is not feasible to conduct O&M activities between May 1 and September 30, Western would initiate consultation with USFWS on that action.</p> <p>A description of the O&M activity, including location and duration, will be kept on file at Western's Natural Resources Department in support of USFWS reporting requirements.</p>
			C	<p>Follow all measures listed for A and B above.</p> <p>Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate Federal land manager, land owner, or agency.</p>

PCM-ID	Species Name	Status ¹	Activity Category	PCM
PCM-B067	Northern sagebrush lizard <i>Sceloporus graciosus graciosus</i>	BLMS	A, B, and C	Off-road travel will be minimized. Vehicle speeds will not exceed 15 mph on access and maintenance roads and 10 mph on unimproved access routes.
PCM-B068	Western pond turtle <i>Actinemys marmorata</i>	FSS	A	Follow SOPs and PCM-W002.
			B and C	From April 15 to July 15, any ground-disturbing activity within 400 feet of a permanent pond, lake, creek, river, or slough that could affect the bed, bank, or water quality of any of these features will be prohibited OR a qualified biologist ⁴ will inspect the project area. If adult or juvenile pond turtles are present, a qualified biologist will monitor project activities to ensure that no turtles are harmed. If a qualified biologist determined that nests could be adversely affected, potential nesting areas will be avoided between June 1 and October 31. Follow PCM-W002.
BIRDS				
PCM-B069	American peregrine falcon <i>Falco peregrinus</i> (nesting)	SE/FSS	A	Follow SOPs.
			B and C	From January 1 to July 31 herbicide applications and noisy or disturbing O&M activities (e.g., power saws, mechanical chippers) will be prohibited in the vicinity of potential peregrine falcon nesting habitat (cliffs) OR a qualified biologist ⁴ will conduct nesting surveys to verify absence. If a nest is detected, all O&M activities and all herbicide applications will be prohibited at a distance determined by the qualified biologist, based on topography and/or other environmental considerations.
PCM-B070	Bald eagle <i>Haliaeetus leucocephalus</i> (nesting and wintering)	SE	A	Follow SOPs.
			B and C	From February 1 to August 15 herbicide application or noisy or disturbing O&M activities (e.g., power saws, mechanical chippers) will be prohibited anywhere that bald eagles are known to nest OR a qualified biologist ⁴ will conduct nesting surveys using methods described in Jackman and Jenkins 2004. If a nest is detected, all herbicide application and O&M activities will be prohibited at a distance determined by the qualified biologist, based on topography and/or other environmental considerations.

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PCM-ID	Species Name	Status ¹	Activity Category	PCM
PCM-B071	Bank swallow <i>Riparia riparia</i> (nesting)	ST	A	Follow SOPs.
			B and C	From April 1 to August 15 rip-rapping of vertical streambanks greater than 3 feet in height and herbicide application within 150 feet of such habitats will be prohibited OR a qualified biologist ⁴ will conduct nesting surveys prior to O&M activities that involve modifications to such streambanks. If a nesting colony is detected, a qualified biologist will mark and monitor an appropriate buffer zone within which all O&M activities and herbicide applications will be prohibited from April 1 to August 15. Follow PCM-W002.
PCM-B072	California black rail <i>Laterallus jamaicensis coturniculus</i>	ST	A	Follow SOPs and PCM-W002.
			B and C	Because black rails are resident where they occur (i.e., not migratory), herbicide use in potential black rail habitat will be prohibited (with the exception of direct application) all year long unless, under guidance of CDFG, the habitat is determined to be unoccupied. From February 15 to July 31, surface disturbances including noise or changes to the hydrological regime will be prohibited in potential black rail habitat (shallowly flooded wetlands or irrigated pasture) OR a qualified biologist ⁴ will conduct nesting surveys to verify absence. If nesting activity is detected or likely, a qualified biologist will mark and monitor an appropriate buffer zone around the nest within which all O&M activities will be prohibited from February 15 to July 31. Follow PCM-W002.
PCM-B073	California spotted owl <i>Strix occidentalis occidentalis</i>	FSS/BLMS	A	Follow SOPs.
			B and C	From April 1 to June 15 herbicide application (with the exception of direct application), tree removal, pruning, topping, and other disturbances will be prohibited in suitable habitat (forest) OR a qualified biologist ⁴ will conduct nest surveys using methods described in CDFG 1992. If a nest was detected, a qualified biologist will mark and monitor an appropriate buffer zone around the nest within which all O&M activities and herbicide applications will be prohibited from April 1 to June 15.
PCM-B074	Great gray owl <i>Strix nebulosa</i> (nesting)	SE/FSS	A	Follow SOPs.
			B	From March 15 to July 31 herbicide application (with the exception of direct application) and removal of snags or trees will be prohibited OR a qualified biologist ⁴ will conduct nesting surveys using methods described in Beck & Winter 2000 or the most current USFS protocols to verify absence. If a nest was detected, a qualified biologist will mark and monitor an appropriate buffer zone around the nest within which all O&M activities and herbicide applications will be prohibited from March 15 – July 31.

PCM-ID	Species Name	Status ¹	Activity Category	PCM
PCM-B074 (cont.)	Great gray owl <i>Strix nebulosa</i> (nesting)	SE/FSS	C	Follow all measures listed for A and B above. Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate Federal land manager, land owner, or agency.
PCM-B075	Greater sage grouse <i>Centrocercus urophasianus</i> (nesting and leks)	FSS/BLMS	A	Follow SOPs.
			B and C	From March 1 to September 31 herbicide application (with the exception of direct application), vegetation clearing, and surface disturbance will be prohibited in sagebrush habitats OR a qualified biologist ⁴ will conduct surveys for leks and nests to verify absence. If nesting activity or leks are detected or known, a qualified biologist will mark and monitor an appropriate buffer zone around nests or leks within which all O&M activities and herbicide applications will be prohibited from March 1 to September 31.
PCM-B076	Greater sandhill crane <i>Grus canadensis tabida</i> (nesting and wintering)	ST/FSS	A	Follow SOPs and PCM-W002.
			B and C	From March 15 to August 31 herbicide application (with the exception of direct application), vegetation clearing, and ground disturbance will be prohibited in marshes, uplands adjacent to marshes, pastures, and meadows OR a qualified biologist ⁴ will conduct nesting surveys prior to O&M activities. If nesting activity is detected, a qualified biologist will mark and monitor an appropriate buffer zone around the nest within which all O&M activities and herbicide applications will be prohibited from March 15 to August 31. Follow PCM-W002.
PCM-B077	Little willow flycatcher <i>Empidonax traillii brewsteri</i> (nesting)	SE/FSS	A	Follow SOPs and PCM-W002.
			B and C	From May 15 to August 31 herbicide application (with the exception of direct application) and vegetation clearing will be prohibited in wetlands or thickets of willows and low-growing shrubs OR a qualified biologist ⁴ will conduct nesting surveys prior to O&M activity using methods described in Bombay et al. 2000. If nesting activity is detected, a qualified biologist will mark and monitor an appropriate buffer zone around the nest within which all O&M activities and herbicide applications will be prohibited from May 15 to August 31. Follow PCM-W002.
PCM-B078	Northern goshawk <i>Accipiter gentilis</i> (nesting)	FSS/BLMS	A	Follow SOPs.
			B and C	From February 15 to August 15 herbicide application (with the exception of direct application), tree removal, and noisy or disturbing O&M activities (e.g., chain saws, mechanical chippers) will be prohibited OR a qualified biologist ⁴ will conduct nest surveys using methods described in USDA 2005. If a nest is detected, a qualified biologist will mark and monitor an appropriate buffer zone around the nest within which all O&M activities and herbicide applications will be prohibited from February 15 to August 15.

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PCM-ID	Species Name	Status ¹	Activity Category	PCM
PCM-B079	Northern spotted owl <i>Strix occidentalis caurina</i>	FT	A	<p>Follow SOPs. Aerial and ground patrols are permissible year-round. From February 1 to July 31 any noisy O&M activities that require equipment other than hand tools and pickup trucks will be prohibited.</p> <p>If O&M activities need to be conducted between February 1 and July 31, a Service-approved biologist³ will conduct protocol nest surveys using methods described in CDFG 1992 (or the most current survey protocol) under guidance of US Fish and Wildlife Service. If a nest is detected, the US Fish and Wildlife Service will be contacted for further guidance.</p>
			B	<p>From February 1 to July 31 herbicide application (with the exception of direct application), tree removal, and any noisy or disturbing O&M activities (e.g., chain saw, mechanical chipper) will be prohibited. O&M activities that only require the use of hand tools and pickup trucks are allowable within this time frame.</p> <p>If O&M activities need to be conducted between February 1 and July 31, a Service-approved biologist³ will conduct protocol nest surveys using methods described in CDFG 1992 (or the most current survey protocol) under guidance of US Fish and Wildlife Service. If a nest is detected, the US Fish and Wildlife Service will be contacted for further guidance.</p> <p>A description of the O&M activity, including location and duration, will be kept on file at Western's Natural Resources Department in support of USFWS reporting requirements.</p>
			C	<p>Follow all measures listed for A and B above.</p> <p>Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate Federal land manager, land owner, or agency.</p>
PCM-B079a			A, B, and C	<p><u>Critical habitat</u>: Follow PCM-B079.</p> <p>For Category B and C activities, a description of the O&M activity, including location and duration, will be kept on file at Western's Natural Resources Department in support of USFWS reporting requirements.</p>

PCM-ID	Species Name	Status ¹	Activity Category	PCM
PCM-B080	Swainson's hawk <i>Buteo swainsoni</i> (nesting)	ST/FSS	A, B, and C	<p>From April 1 to July 31 herbicide application and tree removal will be prohibited.</p> <p>A 0.25-mile buffer zone will be established and maintained around potential Swainson's hawk nest trees, within which there will be no intensive disturbance (e.g., use of heavy equipment, power saws, chippers, cranes, or draglines). This buffer may be adjusted, as assessed by a qualified biologist⁴, based on changes in sensitivity exhibited by birds over the course of the nesting season and the type of O&M activity performed (e.g., high noise or human activity such as mechanical vegetation maintenance versus low noise or human activity such as semi-annual patrols). Within 0.25 mile of an active nest (as confirmed by a qualified biologist), routine O&M activities will be deferred until after the young have fledged or until it was determined by a qualified biologist that the activities will not adversely affect adults or young</p> <p>OR a qualified biologist will conduct nest surveys using methods described in SHTAC 2000 (or the most recent survey protocol) to determine absence.</p>
PCM-B081	Tricolored blackbird <i>Agelaius tricolor</i> (nesting colony)	BLMS	A	Follow SOPs.
			B and C	<p>From March 15 to August 15 herbicide application (with the exception of direct application) and vegetation clearing/disturbance will be prohibited in marshes, willows, and blackberry thickets OR a qualified biologist⁴ will conduct a nesting survey prior to O&M activities. If nesting activity is detected, a qualified biologist will mark and monitor an appropriate buffer zone around the nesting colony within which all O&M activities and herbicide applications will be prohibited from March 15 to August 15.</p> <p>Follow PCM-W002.</p>
PCM-B082	Western burrowing owl <i>Athene cunicularia</i> (burrow sites winter and summer)	SSC/BLMS	A	Follow SOPs.
			B and C	<p>From February 1 to August 31 herbicide application (with the exception of direct application) and other O&M activity will be prohibited within 250 feet of potential burrowing owl nesting dens (ground squirrel burrows, culverts, concrete slabs, debris piles that could support nesting burrowing owls).</p> <p>From September 1 through January 31, disturbance will be prohibited within 160 feet of potential burrowing owl dens.</p> <p>OR a qualified biologist⁴ will conduct nesting and wintering surveys using methods described in California Burrowing Owl Consortium 1993. If nesting or wintering activity is detected, a qualified biologist will mark and monitor an appropriate non-disturbance buffer in the vicinity of burrows that have been active within the last three years. Within the buffer zone, all O&M activities and herbicide applications will be prohibited from February 1 to August 31.</p>

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PCM-ID	Species Name	Status ¹	Activity Category	PCM
PCM-B083	Western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i> (nesting)	SE/FSS	A	Follow SOPs and PCM-W002.
			B and C	Follow PCM-W002. From March 15 to September 31 herbicide application (with the exception of direct application) or tree/vegetation disturbance will be prohibited in riparian forest OR a qualified biologist ⁴ will conduct nest surveys. If nesting activity is detected, a qualified biologist will mark and monitor an appropriate buffer zone around the nest within which all O&M activities and herbicide applications will be prohibited from March 15 to September 31.
MAMMALS				
PCM-B084	American marten <i>Martes americana sierra</i>	FSS	A, B, and C	Between March 1 and August 31, off-road vehicle travel will be avoided. If off-road travel or ground disturbance is required in potential marten habitat at any time of year, disturbance to downfall, snags, downed trees/logs, and stumps will be avoided. Snags, downfall, and stumps will never be moved or removed unless they are a specific safety concern.
PCM-B085	California wolverine <i>Gulo gulo luteus</i>	ST/FSS	A, B, and C	Between January 1 and August 31, off-road vehicle travel and activity will be avoided. If off-road travel or ground disturbance is required in potential wolverine habitat, a qualified biologist ⁴ will determine the presence or absence of wolverines.
PCM-B086	Fringed myotis <i>Myotis thysanodes</i>	BLMS	A	Follow SOPs.
			B and C	Noisy or disturbing O&M activities (e.g., power saws, mechanical chippers) will be minimized in the vicinity of caves, mine tunnels, and rock outcrops. Snags and live trees will be left standing to the maximum extent possible.
PCM-B087	Greater western mastiff bat <i>Eumops perotis californicus</i>	BLMS	A	Follow SOPs.
			B and C	Noisy or disturbing O&M activities (e.g., power saws, mechanical chippers) will be minimized in the vicinity of significant rock outcrops.
PCM-B088	Long-eared myotis <i>Myotis evotis</i>	BLMS	A	Follow SOPs.
			B and C	Noisy or disturbing O&M activities (e.g., power saws, mechanical chippers) will be minimized in the vicinity of caves, mine tunnels, and rock outcrops. Snags and live trees will be left standing to the maximum extent possible.

PCM-ID	Species Name	Status ¹	Activity Category	PCM
PCM-B089	Pacific fisher <i>Martes pennanti</i>	FSS/BLMS	A, B, and C	Between February 1 and August 1, off-road vehicle travel and activity will be avoided. If off-road travel or ground disturbance is required in potential fisher habitat at any time of year, disturbance to downfall, snags, downed trees/logs, and stumps will be minimized. Snags, downfall, and stumps will never be moved or removed unless they are a specific safety concern.
PCM-B090	Pallid bat <i>Antrozous pallidus</i>	FSS/BLMS	A	Follow SOPs.
			B and C	Noisy or disturbing O&M activities (e.g., power saws, mechanical chippers) will be minimized in the vicinity of caves, mine tunnels, and rock outcrops. Snags and live trees will be left standing to the maximum extent possible.
PCM-B091	Pygmy rabbit <i>Brachylagus idahoensis</i>	BLMS	A	Follow SOPs.
			B and C	Off-road travel will be prohibited in pygmy rabbit habitat. Where off-road travel or activities is required, trampling or driving over sagebrush and other shrubs of any size will be prohibited.

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PCM-ID	Species Name	Status ¹	Activity Category	PCM
PCM-B092	San Joaquin kit fox <i>Vulpes macrotis mutica</i>	FE/ST	A	Follow SOPs
			B	<p>O&M activities will be avoided between Interstate 580 and the Tesla Substation from February 1 through May 31, the kit fox breeding season.</p> <p>Prior to O&M activities that involve ground disturbance, a qualified biologist⁴ will survey the proposed disturbance footprint and all areas within 250 feet of the proposed activity for potential kit fox den sites. Survey methods and protection measures will be consistent with those described in USFWS 1999b and USFWS 1999c or by other more current methods approved by the USFWS. The status of all dens will be determined and mapped; results will be submitted to USFWS within 5 working days after survey completion and before start of ground disturbance.</p> <p>All potential den sites outside the disturbance footprint will be conspicuously marked with stakes and flagging 30 days prior to ground-disturbing activities using materials that do not prevent access by kit foxes. Circular exclusion zones will be established around kit fox dens, and will have a radius measured outward from the entrance or cluster of entrances of 50 feet for potential dens, 100 feet for known dens; the distance for natal or pupping dens will be determined in coordination with USFWS and CDFG. No ground-disturbing activities will be permitted within exclusion zones.</p> <p>If destruction of a potential or known den is unavoidable within the disturbance footprint, the den site will be monitored by a Service-approved biologist³ for a period of at least three days prior to disturbance. Unoccupied dens could be blocked with a sand bag or hand excavated to prevent occupation until O&M activities are completed. Procedures for monitoring and excavating will be consistent with those described in USFWS 1999c. If the den is occupied, Western would initiate consultation with USFWS for that project.</p> <p>O&M activities will take place only between one hour after sunrise and one hour before sunset except when emergencies necessitate night work. If nighttime construction is required, lights will be directed to the minimum area needed to illuminate project work areas.</p> <p>All trash, especially food-related trash, will be deposited into closed containers and removed on a daily basis.</p> <p>Excavations greater than three feet deep will be fenced, covered, or filled at the end of each working day, or will have escape ramps provided to prevent the entrapment of foxes. Pipes will be capped at all times until they are used. Any mortalities or injuries to kit foxes that occur as a result of project-related or O&M-related actions will be reported to the Western Natural Resources Department, who will report the incident to the USFWS.</p> <p>A description of the O&M activity, including location and duration, will be kept on file at Western's Natural Resources Department in support of USFWS reporting requirements.</p>

PCM-ID	Species Name	Status ¹	Activity Category	PCM
PCM-B092 (cont.)	San Joaquin kit fox <i>Vulpes macrotis mutica</i>	FE/ST	C	Follow all measures listed for A and B above. Prior to site mobilization, Western will provide notification of the O&M activity to the appropriate Federal land manager, land owner, or agency.
PCM-B093	San Joaquin pocket mouse <i>Perognathus inornatus inornatus</i>	BLMS	A, B, and C	Off-road travel and activity will be avoided to the maximum extent possible.
PCM-B094	Sierra Nevada red fox <i>Vulpes vulpes necator</i>	ST/FSS	A	Follow SOPs.
			B and C	From March 1 through August 31, any off-road travel and activity, noise-generating equipment use, vegetation removal, herbicide use, or ground-disturbing activities will be avoided. If this is not feasible, a pre-activity survey by a qualified biologist ⁴ will be conducted to determine whether pupping dens are present. Activities within 500 feet of pupping dens will be avoided between March 1 and August 31. If this is not feasible, Western will coordinate with CDFG.
PCM-B095	Spotted bat <i>Euderma maculatum</i>	BLMS	A	Follow SOPs.
			B and C	Noisy or disturbing O&M activities (e.g., power saws, mechanical chippers) will be minimized in the vicinity of cliffs and rock outcrops.
PCM-B096	Townsend's big-eared bat <i>Corynorhinus townsendii</i>	FSS/BLMS	A	Follow SOPs.
			B and C	Noisy or disturbing O&M activities (e.g., power saws, mechanical chippers) will be minimized in the vicinity of caves, mines, and tunnels.
PCM-B097	Western red bat <i>Lasiurus blossevillii</i>	FSS	A	Follow SOPs.
			B and C	Noisy or disturbing O&M activities (e.g., power saws, mechanical chippers) will be minimized in the vicinity of broadleaf woodlands in riparian areas. Live broadleaf trees will be left standing to the maximum extent possible.
PCM-B098	Western small-footed myotis <i>Myotis ciliolabrum</i>	BLMS	A	Follow SOPs.
			B and C	Noisy or disturbing O&M activities (e.g., power saws, mechanical chippers) will be minimized in the vicinity of caves, mine tunnels, and rock outcrops. Snags and live trees will be left standing to the maximum extent possible.

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PCM-ID	Species Name	Status ¹	Activity Category	PCM
PCM-B099	Yuma myotis <i>Myotis yumanensis</i>	BLMS	A	Follow SOPs.
			B and C	Noisy or disturbing O&M activities (e.g., power saws, mechanical chippers) will be minimized in the vicinity of caves, mine tunnels, and rock outcrops. Snags and live trees will be left standing to the maximum extent possible.

¹ Status codes: BLMS= BLM sensitive, FE = Federally endangered, FSS= Forest Service sensitive, FT = Federally threatened, SE = state endangered, SSC = state species of special concern, ST = state threatened

² Qualified personnel are those who are capable of consistently and accurately identifying the subject resource and have been approved by Western's Natural Resource Department.

³ A Service-approved biologist is one whose resume has been submitted to and who has been formally approved by the US Fish and Wildlife Service. This biologist's resume reflects a high level of experience with the Federally listed species covered by a particular PCM.

⁴ A qualified biologist is one who has previous experience with the species covered by a particular PCM and who understands the habitat requirements of the species such that he/she can make a well-informed decision about potential presence, potential project-related impacts, and appropriate avoidance/minimization measures.

Table 2-4 Water Resources/Aquatic Habitat Project Conservation Measures

PCM-ID	Activity Category	PCM
VERNAL POOLS, VERNAL POOL GRASSLANDS, AND SEASONAL WETLANDS		
PCM-W001	A	<p>Vehicle access will be permitted only on well-established roads unless soils are dry. Soils will be considered sufficiently dry for vehicle access when they resist compaction, and after annual plants have set seed (generally June 1 to September 30, or as determined by qualified personnel based on personal observation of the soils).</p> <p>For patrolling the ROW off of established roads in a pickup truck, or for inspecting hardware on structures with a bucket truck, vernal pools, vernal pool grasslands, and seasonal wetlands will be avoided by 50 feet during the wet season. No avoidance will be necessary if soils are completely dry (generally June 1 to September 30).</p>
	B and C	<p>Vehicle access will be permitted only on well-established roads unless soils are dry. Soils will be considered sufficiently dry for vehicle access when they resist compaction, and after annual plants have set seed (generally June 1 to September 30, or as determined by a qualified biologist based on personal observation of the soils).</p> <p>If vegetation-management activities are proposed within 250 feet of a vernal pool, vernal pool grassland, or seasonal wetland, a qualified biologist will be present at all times to ensure the protection of the work-area limits below OR qualified personnel will clearly fence the limits of the work area, according to limits presented in the following, prior to the maintenance activity. (The herbicide restriction measures generated by the PRESCRIBE database supersede those below where they are different.)</p> <ul style="list-style-type: none"> • Mixing or application of pesticides, herbicides, or other potentially toxic chemicals will be prohibited. • Herbicide application to target vegetation by direct application methods (e.g. injection or cut-stump treatment) will be prohibited within 50 feet in the wet season (generally October 1 to May 31) and allowed up to the edge of the pool or seasonal wetland in the dry season (generally June 1 to September 30). • Herbicide application by basal spray and foliage spray methods will be prohibited within 100 feet in any season. • Manual clearing of vegetation (chainsaw, axe, clippers) will be allowed up to the edge of the pool or seasonal wetland in the wet season (generally October 1 to May 31); a buffer will not be necessary in the dry season (generally June 1 to September 30). • Mechanical clearing of vegetation (heavy-duty mowers, crawler tractors, or chippers) will be prohibited within 100 feet in the wet season (generally October 1 to May 31); a buffer will not necessary in the dry season (generally June 1 to September 30). <p>All equipment will be stored, fueled, and maintained in a vehicle staging area 300 feet or the maximum distance possible from any vernal pool, vernal pool grassland, or seasonal wetland, and no closer than 200 feet unless a bermed (no ground disturbance) and lined refueling area is constructed and hazardous-material absorbent pads are available in the event of a spill. Vehicles will be inspected daily for fluid leaks before leaving the staging area.</p> <p>When feasible, all maintenance activities will be routed around wet areas while ensuring that the route does not cross sensitive resource areas.</p> <p>For ground-disturbing activities, a 100-foot (wet season) or 50-foot (dry season) buffer zone from the edge of the vernal pool or wetland will be maintained and the vernal pool or wetland will be protected from siltation and contaminant run-off by use of erosion control. Erosion-control materials will be of a tightly woven natural fiber netting or similar material that will not entrap reptiles and amphibians (e.g., coconut coir matting). No monofilament plastics will be used for erosion control near vernal pools and seasonal wetlands. Erosion-control measures will be placed between the outer edge of the buffer and the activity area. All fiber rolls and hay bales used for erosion control will be certified as free of noxious weed seed.</p>

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PCM-ID	Activity Category	PCM
PCM-W001 (cont.)	B and C	For ground-disturbing activities, such as installation or repair of underground components (water, power, communication, or ground electrical line) or soil borings, a 250-foot buffer zone will be maintained.
PCM-W001a	A, B, and C	Follow PCM-W001.

PCM-ID	Activity Category	PCM
SEEP, SPRING, POND, LAKE, RIVER, STREAM, AND MARSH		
PCM-W002	A	<p>The following activities will be prohibited at all times within 100 feet of a seep, spring, pond, lake, river, stream, or marsh, and their associated habitats:</p> <ul style="list-style-type: none"> • vehicle access, except on existing access and maintenance roads • dumping, stockpiling, or burying of any material • mixing of pesticides, herbicides, or other potentially toxic chemicals • open petroleum products <p>All equipment will be stored, fueled, and maintained in a vehicle staging area 300 feet or the maximum distance possible from any seep, spring, pond, lake, river, stream, marsh, or their associated habitats. Vehicles will be inspected daily for fluid leaks before leaving the staging area.</p> <p>When feasible, all maintenance activities will be routed around wet areas while ensuring that the route does not cross sensitive resource areas.</p>
	B and C	<p>The following activities will be prohibited at all times within 100 feet of a seep, spring, pond, lake, river, stream, or marsh, and their associated habitats:</p> <ul style="list-style-type: none"> • vehicle access, except on existing access and maintenance roads • dumping, stockpiling, or burying of any material, except as required for specific O&M activities (e.g., rip-rap) • mixing of pesticides, herbicides, or other potentially toxic chemicals • open petroleum products <p>Equipment will be stored, fueled, and maintained in a vehicle staging area 300 feet or the maximum distance possible from any seep, spring, pond, lake, river, stream, marsh, or their associated habitats. Vehicles will be inspected daily for fluid leaks before leaving the staging area.</p> <p>When feasible, all maintenance activities will be routed around wet areas while ensuring that the route does not cross sensitive resource areas.</p> <p>For vegetation management or maintenance within 100 feet of any seep, spring, pond, lake, river, stream, or marsh, or any of their associated habitats, the following work-area limits will be provided (the herbicide restriction measures generated by the PRESCRIBE database supersede those below where they are different):</p> <ul style="list-style-type: none"> • Only manual-clearing of vegetation will be permitted • Basal and foliar application of herbicides will be prohibited. Only direct application treatments (e.g. injection and cut-stump) of target vegetation will be allowed using herbicide approved for aquatic use by the U.S. EPA and in coordination with the appropriate federal land manager. <p>All instream work, such as culvert replacement or installation, bank recontouring, or placement of bank protection below the high-water line, will be conducted during no-flow or low-flow conditions and in a manner to avoid impacts to water flow, and will be restricted to the minimum area necessary for completion of the work.</p> <p>All equipment used below the ordinary high-water mark will be free of exterior contamination.</p> <p>For ground-disturbing activities, a 100-foot buffer zone will be maintained from the edge of the seep, spring, pond, lake, river, stream,</p>

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PCM-ID	Activity Category	PCM
PCM-W002 (cont.)	B and C	<p>marsh, or their associated habitats for protection from siltation and run-off of contaminants by use of erosion-control measures. Erosion-control materials will be of a tightly woven natural fiber netting or similar material that will not entrap reptiles and amphibians (e.g., coconut coir matting). No monofilament plastics will be used for erosion control near vernal pools and seasonal wetlands. Erosion-control measures will be placed between the outer edge of the buffer and the activity area. All fiber rolls and hay bales used for erosion control will be certified as free of noxious weed seed.</p> <p>Seed mixtures applied for erosion control and restoration will be certified as free of noxious weed seed, and will be composed of native species or sterile nonnative species.</p> <p>Western will obtain appropriate 404 discharge and 401 water-quality permits prior to any maintenance activities that must take place within jurisdictional wetlands or other waters of the US. These will be coordinated with USACE and RWQCB as needed.</p> <p>Dewatering work for maintenance operations adjacent to or encroaching on seeps, springs, ponds, lakes, rivers, streams, or marshes will be conducted to prevent muddy water and eroded materials from entering the water or marsh.</p> <p>All stream crossings will be constructed such that they permit fish to pass and reduce the potential for stream flows to result in increased scour, washout, or disruption of water flow. Wherever possible, stream crossings will be located in stream segments without riparian vegetation, and structure footings will be installed outside of stream banks. Should Western need to modify existing access roads or install new access roads, they will be built at right angles to streams and washes to the extent practicable.</p> <p>Trees providing shade to water bodies will be trimmed only to the extent necessary and will not be removed unless they present a specific safety concern. Trees that must be removed will be felled to avoid damaging riparian habitat. They will be felled out of and away from the stream maintenance zone and riparian habitat, including springs, seeps, bogs, and any other wet or saturated areas. Trees will not be felled into streams in a way that will obstruct or impair the flow of water, unless instructed otherwise. Tree removal that could cause stream-bank erosion or result in increased water temperatures will not be conducted in and around streams. Tree removal in riparian or wetland areas will be done only by manual methods.</p>

Table 2-5. Cultural Resources Project Conservation Measures

PCM-ID	Activity Category	Description
Surveyed Areas (Resource Present) – PCMs		
PCM-C001	A	Avoid driving vehicles or equipment over archeological sites. If infeasible, only vehicles with rubberized tires/treads are allowed within sites; no skidding or steel-tracked equipment.
		Stage vehicles and equipment outside of cultural resource sites.
		Only the following activities are allowed in cultural sites: manual clearing of vegetation, and chip/broadcast disposal of cut vegetation.
	B and C	Cultural resource sites that are located within an area where ground-disturbing activity will take place shall be flagged for avoidance and ground-disturbing activities shall avoid all cultural resource sites. Sites that cannot be avoided will require further consultation with SHPO prior to any ground-disturbing activity.
		Use of petroleum-based herbicides is prohibited in cultural sites.
		A Western-approved archeological monitor may be required during ground disturbing activities. Contact Western's Natural Resource Department.
PCM-ID	Activity Category	Description
Not Protocol Surveyed Areas and Not Surveyed Areas – PCMs		
PCM-C002	A	Instruct crews to pay particular attention for the presence or discovery of cultural materials in areas where protocol-level surveys were not previously conducted.
		Upon discovery of potential buried cultural materials, work within 50 feet of the find will be halted and the discovery will be reported immediately to the Western Natural Resources Department or other designated point of contact. Western will comply with provisions in the National Historic Preservation Act and consult with the California State Historic Preservation Officer to determine measures to avoid the resource or mitigate during maintenance activities.
		If cultural resources are discovered, provisions in PCM-C001 shall be followed.
	B	Follow all measures listed for A above.
		A Western-approved archeological monitor may be required during ground-disturbing activities. Contact Western's Natural Resource Department.

PCM-ID	Activity Category	Description
PCM-C002 (cont.)	B (cont.)	<p>Mastication activities shall adhere to the following BMPs:</p> <ul style="list-style-type: none"> • Western will require mastication operators to prevent blading devices from removing vegetation at ground level to avoid soil disturbance. All mowed vegetation shall not be cut below 6 inches. • Mastication equipment will not be used within areas recently subjected to heavy rains in order to prevent rutting in wet soils from equipment tires. • A qualified archaeologist will be on site during mastication activities to monitor survey areas being cleared of vegetation. Should any cultural resources be detected, mastication activities will cease in the area until an assessment and the significance of the find is made. Results of the monitoring and survey activities will be provided in the annual report.
	C	<p>Follow measures listed for A and B above.</p> <p>A Western-approved archeological monitor may be required. Contact Western's Natural Resource Department.</p>

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 Introduction and Methodology

This section provides discussion and full disclosure of the potential adverse effects of the Proposed Action and No Action Alternative. The potential adverse effects are examined as they relate to the following 17 issue areas:

3.2	Habitats and Vegetation	3.11	Aesthetics
3.3	Special-status Plants	3.12	Hydrology and Water Quality
3.4	Wildlife	3.13	Geology and Soils
3.5	Special-status Wildlife	3.14	Public Health
3.6	Fisheries	3.15	Air Quality
3.7	Special-status Fishes	3.16	Noise
3.8	Cultural Resources	3.17	Transportation
3.9	Land Use	3.18	Intentional Destructive Acts
3.10	Recreation		

3.1.1 Environmental Assessment Methodology

Within each issue area, a description of the existing environmental setting or affected environment is provided. The description of the affected environment for each section is organized into the following geographic sub-areas (see Figure 1-1):

- Valley
- Redding/Trinity
- Round Mountain/Modoc

Potential adverse effects were assessed based on a comparison of potential changes to the affected environment with pre-determined significance criteria specific to each issue area. The impact analysis assumed that all SOPs (Table 2-1) and PCMs (Tables 2-2 through 2-5) would be implemented as committed to by Western. The description of the environmental consequences for each section is organized into the following categories, which are described in detail in section 2.2.5:

- Category A – Inspection and Minor Maintenance Activities
- Category B – Routine Maintenance Activities
- Category C – New Infrastructure

3.1.2 Resources Not Evaluated

The Proposed Action includes periodic and routine maintenance of existing facilities and short-term construction of new and relatively minor infrastructure modifications (e.g., culverts). No major construction would be conducted under the Proposed Action. In addition, all SOPs (Table 2-1) and PCMs (Tables 2-2 through 2-5) would be implemented as committed to by Western.

Given the facts that the project is an existing and functioning transmission line system, that the activities associated with maintaining a transmission system are limited and generally non-intrusive, that the study area is well defined and has been previously disturbed, it was determined that the Proposed Action would have little or no adverse effect on certain sensitive resources in the study area. Resource areas falling into this category include radiation and hazardous chemical environment, waste management, paleontological resources, socioeconomics, and environmental justice. These issue areas were not carried forward for full analysis.

3.2 Habitats and Vegetation (including wetlands)

3.2.1 Affected Environment

A variety of vegetation and wetland types occur within the project area. In general, the vegetation communities were categorized during biological resource surveys of the project area using *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986) and the Sawyer and Keeler Wolf system (CNPS 1995). Riverine, lacustrine, pasture, cropland, orchard/vineyard, and urban habitat types were categorized based on *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer 1988). Following are brief descriptions of the vegetation and wetland communities based on the classification systems listed above. Note that not every habitat type described below is found within each corridor. Refer to section 1.4.1 for a description of survey methods.

Upland Habitats

- **Agricultural Cropland** – Agricultural cropland is typically a monoculture. Most croplands support annuals planted in spring and harvested during summer or fall. Croplands present within the project area include row crops (Agrc), grain crops (Aggr), orchards (Agor), vineyards (Agvn), and rice fields (Agri). A major portion of the cropland in the project area is used for rice fields, which are seasonally flooded and provide habitat for wildlife such as waterfowl and giant garter snakes.
- **Agricultural pasture (Agps)** – Pasture vegetation is a mix of annual and perennial grasses and legumes that normally provide 100 percent ground cover. The mix of grasses and legumes varies according to management practices such as seed mixture, fertilization, soil type, irrigation methods, weed control, and livestock type.
- **Barren (Bar)** – This habitat type is devoid of vegetation and includes rock, pavement, sand, and dirt, including roads.
- **Chaparral, mixed (Cmi)** – Mixed chaparral is a structurally homogeneous brushland type dominated by shrubs with thick, stiff, heavily cutinized evergreen leaves. Shrub height and crown cover vary considerably with growing conditions including burn cycle, precipitation regime, aspect, and soil type. Considerable leaf litter and standing dead material may accumulate in stands that have not burned for several decades. Commonly associated shrubs include chamise (*Adenostoma* sp.), mountain mahogany (*Cercocarpus montanus*), silk-tassel (*Garrya* sp.), toyon (*Heteromeles arbutifolia*), yerba-santa (*Eriodictyon californicum*), California buckeye (*Aesculus californica*), poison oak (*Toxicodendron diversilobum*), sumac (*Rhus* sp.), California buckthorn (*Frangula californica*), and California fremontia (*Fremontodendron californicum*). Mixed chaparral generally occurs below 5,000 feet in mountain ranges throughout California. Mixed chaparral occurs on all slope aspects, but at lower elevations is generally found on north-facing slopes.

- **Chaparral, montane (Cmo)** – Montane chaparral is characterized by evergreen species; however, deciduous or partially deciduous species may also be present. Understory vegetation in mature chaparral is largely absent. The growth form of species can vary from treelike (up to 3 meters) to prostrate. When mature, montane chaparral is often impenetrable to large mammals. Its structure is affected by site quality, history of disturbance (such as fire, erosion, and logging), and the influence of browsing animals. Following fire, whitethorn ceanothus-dominated chaparral may persist as a subclimax community for many years. Associated species vary markedly throughout California. One or more of the following species usually characterizes montane chaparral communities: whitethorn ceanothus (*Ceanothus cordulatus*), snowbrush ceanothus (*Ceanothus velutinus*), greenleaf manzanita (*Arctostaphylos patula*), pinemat manzanita (*Arctostaphylos nevadensis*), hoary manzanita (*Arctostaphylos canescens*), bitter cherry (*Prunus emarginata*), huckleberry oak (*Quercus vacciniifolia*), Sierra chinquapin (*Castanopsis sempervirens*), juneberry (*Amelanchier alnifolia*), Fremont silktassel (*Garrya fremontii*), Greene goldenweed (*Ericameria greenei*), mountain mahogany, toyon, sumac, and California buckthorn. In the project area, montane chaparral occurs in the higher reaches of the Trinity Alps and Round Mountain areas.
- **Chaparral, oak (Coa)** – The oak-chaparral habitat type is characterized as dense, tall (up to 20 feet) chaparral dominated by interior live oak with several other sclerophylls also in the canopy. Little understory is present due to persistent leaf litter and dense canopy. This is a fairly mesic chaparral of valleys and foothills and often integrates with the blue oak woodland on adjacent south-facing slopes or on sites with shallower soils or poorer drainage. Interior live oak chaparral integrates at higher elevations with interior live oak or canyon live oak forests. Dominant species include interior live oak (*Quercus wislizenii*), True's and viscid manzanita (*Arctostaphylos* spp.), buck brush (*Ceanothus cuneatus* var. *cuneatus*), toyon, hoary coffeeberry (*Rhamnus tomentella*), and poison oak. This habitat type is extensive within the project area near Redding.
- **Commercial, industrial (Com)** – This habitat type is developed land that is used for purposes other than residential or farming.
- **Elderberry, isolates and savannah (Ebis, Ebsv)** – This habitat is an open, winter-deciduous shrub savannah dominated by elderberry (*Sambucus* spp.). Elderberry savannah occurs on deep, fine-textured alluvium on elevated stream terraces within the active floodplain. Non-native annual grasses and forbs dominate the understory.
- **Forest, mixed conifer (Fmc)** – This habitat is characterized by three or more conifer species prominent in the canopy layer, with a variable understory of shrubs and herbaceous vegetation. In the project area, dominant species include Douglas-fir (*Pseudotsuga menziesii*), ponderosa pine (*Pinus ponderosa*), and incense cedar (*Calocedrus decurrens*), which are common at lower elevations. The understory in these areas is characterized by bush chinquapin (*Chrysolepis sempervirens*), snowberry (*Symphoricarpos mollis*), Sierra gooseberry (*Ribes roezlii*),

red-flowering currant (*Ribes sanguineum*), starflower (*Trientalis latifolia*), Prince's pine (*Chimaphila umbellata*), and bleeding heart (*Dicentra formosa*).

- **Forest, ponderosa pine (Fpp)** – In northern California, stands of ponderosa pine occur above coastal oak woodland, valley oak woodland, blue oak woodland, blue oak-foothill pine woodland, and mixed conifer communities. Montane hardwood stands may be below or interspersed within ponderosa pine forests. Dominant species include pure stands of ponderosa pine as well as stands of mixed species in which at least 50 percent of the canopy area is ponderosa pine. Typical tree associates include white fir (*Abies concolor*), incense cedar, Coulter pine (*Pinus coulteri*), Jeffrey pine (*Pinus jeffreyi*), sugar pine (*Pinus lambertiana*), Douglas-fir, bigcone Douglas-fir (*Pseudotsuga macrocarpa*), canyon live oak (*Quercus virginiana*), California black oak (*Quercus kelloggii*), Oregon white oak (*Quercus garryana*), Pacific madrone (*Arbutus menziesii*), and tan oak (*Lithocarpus densiflorus*).
- **Forest, white fir (Fwf)** – The white fir habitat is characterized by nearly monotypic even-aged overstory. Overlapping crowns that cast deep shade are characteristic, although open stands are common. The dominant species is white fir (*Abies concolor*) as shade and downed woody material tend to inhibit understory species. In the Klamath Mountains, canyon live oak and chinquapin are the predominant understory species and open stands usually include squawcarpet (*Ceanothus prostratus*) and barberry (*Berberis* sp.). Dense stands, however, include herbaceous species such as wake robin (*Trillium chloropetalum*), vetch (*Vicia* sp.), and pipsissewa (*Chimaphila umbellata*).
- **Woodland, black oak (Wbla)** – This persistent, sub-climax woodland is dominated by black oak (*Quercus kelloggii*). Most stands are even aged, reflecting past disturbances. Black oak woodlands occur on mountain slopes, benches and coves, canyon bottoms, lower side hills, and upper foothill slopes. Associated species include ponderosa pine, California buckeye, interior live oak, Douglas-fir, foothill pine (*Pinus sabiniana*), and incense cedar. In the project area, the black oak woodland readily integrates with mixed conifer forest on steep south-facing slopes that descend into the river canyons.
- **Woodland, blue oak (Wblu)** – The blue oak woodland is common on well-drained soils below 3,000 to 4,000 feet and is dominated by a variable combination of blue oak, foothill pine (*Pinus sabiniana*), and other oak species. In the project area, the blue oak woodland is characterized by mixed stands of blue oak (*Quercus douglasii*), foothill pine, black oak, and interior live oak. Shrubs include blackberry (*Rubus* sp.), deer brush (*Ceanothus integerrimus*), buckbrush, poison oak, and manzanita (*Arctostaphylos* spp.). The ground layer is sparse in the dense woodland and comprises annual grassland species such as wild oat (*Avena fatua*), foxtail fescue (*Vulpia hirsuta*), broadleaf filaree (*Erodium botrys*), and brome grasses (*Bromus* spp.).
- **Woodland, foothill pine-chaparral (Wfp)** – This climax woodland is a mixture of foothill pine and blue oak. In undisturbed stands, foothill pine is generally much

taller than the blue oak. Non-native grassland forms the typical understory layer. Dominant species include foothill pine and blue oak. Subdominant species typically encountered in this woodland include California buckeye, viscid and True's manzanita, buck brush, and hoary coffeeberry. Live oak is also occasionally present. This habitat type occurs on well-drained sites and is usually found in rocky or exposed sites along ridges or canyons with poor or shallow soils. This habitat is common in the Redding/Trinity area.

- **Woodland, live oak (Wlo)** – This habitat type is characterized as a dense, closed-canopy evergreen forest dominated by interior live oak. Shrub species are usually present in the understory. Live oak woodland is not fire dependent, but following fire or logging, vigorous stump-sprouts grow resulting in even-aged stands. Dominant species include interior live oak, foothill pine, buck brush, toyon, madrone (infrequently), virgin's bower (*Clematis* sp.), and hoary coffeeberry. In the Sierra foothills, interior live oak forest occurs below approximately 2,000 feet.
- **Woodland, juniper (Wju)** – This Great Basin woodland is characterized by sparsely vegetated herb and scrub species. Dominant species include juniper (*Juniperus osteosperma*), big sagebrush (*Artemisia tridentata*), and rabbitbrush (*Chrysothamnus nauseosus*). In the project area, this habitat type is dominant on the Modoc Plateau.
- **Non-native Grassland (Gnn)** – A dense to sparse cover of annual grasses (plants that germinate, mature, set seed, and die in one year) typifies this habitat type, often associated with numerous species of showy-flowered, native annual forbs ("wildflowers"), especially in years of favorable rainfall. Germination occurs with the onset of the late fall rains; growth, flowering, and seed-set occur from winter through spring. With a few exceptions, the plants are dead through the summer-fall dry season, persisting as seeds. Dominant species include soft chess (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), annual fescue (*Vulpia myuros* var. *hirsuta*), quaking grass (*Briza minor*), rose clover (*Trifolium hirtum*), wild hyacinth (*Dichelostemma multiflorum*), and lupine (*Lupinus nanus*). This habitat type is dominant in the Valley region of the project area.
- **Grasslands, native perennial (Gnp)** – Patches of relic native perennial species may still be found in the valley grasslands, now dominated by annual grasses and forbs. Common associates include perennial grasses such as California oatgrass (*Danthonia californica*), Pacific hairgrass (*Deschampsia holciformis*), and sweet vernalgrass (*Anthoxanthum odoratum*). Common inland species include redtop (*Agrostis stolonifera*), silver hairgrass (*Aira caryophyllea*), English daisy (*Bellis perennis*), soft chess (*Bromus hordeaceus*), coast carex (*Carex obnupta*), orchardgrass (*Dactylis glomerata*), California oatgrass (*Danthonia californica*), Idaho fescue (*Festuca idahoensis*), red fescue (*Festuca rubra*), Douglas iris (*Iris douglasiana*), western bracken fern (*Pteridium aquilinum*), and red clover (*Trifolium pratense*). Perennial grassland habitat typically occurs on ridges and south-facing slopes, alternating with forest and scrub in the valleys and on north-facing slopes.

- **Scrub, sagebrush bitterbrush (Ssb)** – Typically, this vegetation type consists of large, open, discontinuous stands of big sagebrush and/or bitterbrush of fairly uniform height. In better sites, sagebrush stands have an understory of perennial grasses and forbs. Dominant species include big sagebrush and bitterbrush (*Purshia tridentata*). Rabbitbrush and wax current (*Ribes cereum*) are common associates. Associated trees include ponderosa pine and western juniper. Habitat occurs in discontinuous strips along the east and northeast borders of California south to the 37th parallel and occupies dry slopes and flats.
- **Urban (Urb)** – The structure of urban vegetation varies with the five types of vegetative structure: tree grove, street strip, shade tree/lawn, lawn, and shrub cover. Tree groves are common in city parks, greenbelts, and cemeteries. Strips of trees along streets show variation in spacing, depending on the species, design, and landowner preferences. Lawns are structurally the most uniform vegetation of the California urban habitat. Shrub cover is more limited in distribution than the other structural types; hedges represent a variation of the urban shrub cover type. Species composition varies with planting design and climate.

Wetland Habitats

- **Meadows (Mot)** – Swales in the valley and foothill grasslands occasionally provide conditions suitable for wet meadow species. These swales are not considered true wet meadows or vernal pools because the sites dry rapidly and thus mostly support annual grasses and forbs, although some wet montane meadow species may occur.
- **Meadow, wet montane (Mwm)** – This habitat has a simple structure consisting of a layer of herbaceous plants. Shrub or tree layers are usually absent or very sparse; they may, however, be an important feature of the meadow edge. Dominant species include camas (*Camassia quamash*), sedges (*Carex* spp.), rushes (*Juncus* spp.), bulrush (*Scirpus microcarpus*), Kentucky bluegrass (*Poa pratensis*), phleum (*Phleum alpinum*), corn lily (*Veratrum californicum* var. *californicum*), western buttercup (*Ranunculus occidentalis*), sheep sorrel (*Rumex acetosella*), clover (*Trifolium longipes*), spiraea (*Spiraea douglasii*), and cinquefoil (*Potentilla gracilis*).
- **Wetlands, seasonal (Wse)** – Seasonal wetlands are isolated depressions or swales with seasonal ponding that provide habitat for wetland species such as ryegrass (*Lolium* spp.), barley (*Hordeum vulgare*), curly dock (*Rumex crispus*), rushes, and spikerushes (*Eleocharis* spp.). Seasonal wetlands are similar in structure to vernal pools but do not support a majority of vernal pool species.
- **Wetlands, vernal pool and vernal pool grassland (Wvpi, Wvpgnn)** – Two types of vernal pool habitat that may occur in the study area are northern hardpan vernal pool and northern claypan vernal pool. The surveys conducted did not distinguish between these two categories. Field surveys did, however, identify low-density and high-density vernal pool areas. Areas with high-density vernal pools (at least every 100 feet) were labeled vernal pool/annual grassland (Wvpgnn) while

isolated vernal pools (with separation greater than 100 feet) were called (isolated) vernal pools (Wvpi).

Vernal pools consist of grass- or mud-bottomed swales, earth sumps, or basalt flow depression pools in unplowed grasslands with an impermeable layer. The impermeable layer allows the pools to retain water much longer than the surrounding uplands; nonetheless, the pools are shallow enough to dry up each season. Vernal pools may fill and empty several times during the rainy season. This habitat type is important in the Central Valley because only plants and animals that are adapted to this cycle of wet and dry can survive in vernal pools. A number of rare and endangered plant and animal species rely on vernal pool habitats resulting in special management consideration. Characteristic plant species include downingia (*Downingia* spp.), spreading alkaliweed (*Cressa truxillensis*), popcorn flower (*Plagiobothrys leptocladus*), Douglas' mesamint (*Pogogyne douglasii*), button celery (*Eryngium aristulatum*), neckweed (*Veronica peregrine*), goldfields (*Lasthenia* spp.), and salt sandspurry (*Spergularia salina*). California endemic vernal pool species with habitat in the project area include slender Orcutt grass (*Orcuttia tenuis*), Hoover's spurge (*Chamaesyce hooveri*), Butte County meadowfoam (*Limnanthes floccosa* ssp. *californica*), Contra Costa goldfields (*Lasthenia conjugans*), and mucronate Orcutt grass (*Tuctoria mucronata*).

- **Wetlands, freshwater marsh (Wfm)** – These wetlands are characterized by erect, rooted, herbaceous hydrophytic (water-loving) vegetation. Dominant plants are generally perennials up to seven feet high. Freshwater emergent wetlands are frequently flooded and associated plants must be able to tolerate an absence of oxygen (anaerobic environment) around their roots. On the upper margins of freshwater emergent wetlands, saturated or periodically flooded soils support several moist plant species including big leaf sedge (*Carex amplifolia*), Baltic rush (*Juncus balticus*), and redroot nutgrass (*Cyperus esculentus*). On wetter sites, common cattail (*Typha angustifolia*), tule bulrush (*Scirpus acutus*), river bulrush (*Scirpus fluviatilis*), and arrowhead (*Sagittaria* sp.) are potential dominant species.
- **Waters, man-made** – Man-made ponding features such as stock ponds (Waim), ditches and agricultural drainages (Wadr), and irrigations canals (Waic) often support wetland vegetation and flowing water that provide habitat for wildlife.
- **Waters, river (Warv), perennial creek (Wacp), and intermittent creek (Waci)** – Riverine habitats have intermittent or continually running water, such as rivers and streams. Within the study area, riverine habitats vary from large rivers, such as the Feather River, to intermittent streams, such as Coon Creek.
- **Waters, pond (Wapd) and lake (Walk)** – Lacustrine habitats, including ponds or lakes, are inland depressions or dammed riverine channels containing standing water. They may vary from small ponds of less than two acres to large areas covering several square miles. Depth can vary from a few inches to hundreds of feet. Lacustrine habitats include permanently flooded lakes and reservoirs, intermittent lakes, and ponds. Ponds are the main lacustrine habitat in the study area.

- **Waters, seeps/springs (Wasp)** – Seeps and springs originate from a groundwater source, and often provide valuable wetlands and water for wildlife and plants.
- **Riparian, Great Valley forest (Rgf)** – This habitat type is a dense, broad-leaved, winter-deciduous riparian forest dominated by Fremont cottonwood (*Populus fremontii*) and Goodding’s willow (*Salix gooddingii* var. *variabilis*). The understory is dense with abundant vegetative reproduction of canopy-dominant species. California wild grape (*Vitis californica*) is the most conspicuous vine. Scattered seedlings of shade-tolerant species such as box-elder (*Acer negundo* ssp. *californica*) or Oregon ash (*Fraxinus latifolia*) may be found within the riparian forest, but frequent flooding prevents their reaching into the canopy.
- **Riparian, Great Valley scrub (Rgs)** – This shrub-dominated habitat type is characterized by an open to dense, broadleaved, winter-deciduous streamside thicket dominated by any of several willow (*Salix* spp.) species. Dominant species include narrow-leaved willow (*Salix exigua*), red willow (*Salix laevigata*), arroyo willow (*Salix lasiolepis*), Goodding’s willow, California button willow (*Cephalanthus occidentalis* var. *californicus*), blue elderberry (*Sambucus mexicana*), verbena species (*Verbena* spp.), and Himalayan blackberry (*Rubus discolor*). This habitat is widespread along major rivers and smaller streams throughout the Great Valley watershed, usually below 1,000 feet.
- **Riparian, montane scrub (Rms)** – This habitat type is an open to dense, broad-leaved, winter-deciduous shrubby riparian thicket usually dominated by any of several species of willows (*Salix* spp.), alders (*Alnus* spp.), or dogwoods (*Cornus* spp.). This scrub habitat occurs on relatively fine-textured alluvium along fairly low-gradient reaches of snowmelt-fed streams, and often occurs as a narrow band in montane meadow habitat. In the project area, this vegetation type is found in the Trinity Alps and Round Mountain area.
- **Riparian, montane white alder (Rma)** – White alder riparian forest is found along rapidly flowing, well-aerated perennial streams that are scoured during high-flow events. Dominant species include white alder (*Alnus rhombifolia*), big leaf maple (*Acer macrophyllum*), Oregon ash, California bay (*Umbellularia californica*), spicebush (*Calycanthus occidentalis*), thimbleberry (*Rubus parviflorus*), American dogwood (*Cornus* spp.), narrow-leaved, arroyo, dusky, Geyer’s, and Sierra willows, cottonwood (*Populus* spp.), and wild mock orange (*Philadelphus lewisii*). White alder riparian forests are common along perennial streams in higher reaches of the project area.

General Setting

The transmission line ROWs, communication facilities, and access roads described in section 1.3 include portions of the Cascade and Klamath ranges, the Modoc Plateau, and the Central Valley. This large and diverse geographical area hosts several bio-regions. General physiographical descriptions of each area were derived from field surveys and the geographic subdivisions as illustrated in the Jepson Manual (Hickman

1993). A general description and acreage of specific habitat present in each area is presented below.

3.2.1.1 Valley

The majority of the project area (excluding the blue oak foothills to the north) follows the east and west perimeters of the Central Valley, which is clearly defined on all borders by oak/pine woodlands. The northern reaches of the project area within the Valley traverse riparian woodlands, valley oak savannah, and annual grasslands. The annual grasslands within the Valley region contain the highest concentration of vernal pools within the project area, as listed in Table 3.2-1. As the transmission lines travel south, these native habitats are replaced by agricultural pastures, row crops, rice fields, and finally the Delta at the southern end of the project area.

Table 3.2-1 Habitat Acreages in the Valley Area

Upland Habitat Type	Acres	Wetland Habitat Type	Acres
Agriculture (grain, vineyard, orchard)	1,957.1	Meadows	27.4
Pasture	250.8	Wetlands, seasonal	73.2
Rice fields	497.8	Wetlands, vernal pool (isolated and high-density vernal pool grassland)	466.1
Chaparral, oak	4.3	Wetlands, freshwater marsh	14.1
Chaparral, mixed	4.2	Waters, man-made (canals, ditches, impoundments)	57.3
Elderberry savannah	0.75	Waters, rivers and creeks	71.4
Woodland, black oak	7.3	Waters, ponds and lakes	6.9
Woodland, blue oak	552.3	Waters, seeps and springs	0.4
Woodland, live oak	6.4	Riparian, Great Valley forest	51.5
Grassland, non-native	2,624.5	Riparian, Great Valley scrub	22.2
Grassland, native-perennial	1.7	Urban/barren/commercial	139.7

3.2.1.2 Redding/Trinity

The ROWs traverse the Redding area and extend northwest into the Trinity Alps, which include portions of the Cascade Range foothills and the eastern flank of the Klamath Range. The metamorphic foothills surrounding the Redding area consist primarily of the blue oak/foothill pine and mixed chaparral. As the line ascends west into the Trinity Alps, pockets of serpentine rock appear and the vegetation type changes to coniferous forest. The habitat types present within the Redding/Trinity area are shown in Table 3.2-2.

Table 3.2-2 Habitat Acreages in the Redding/Trinity Area

Upland Habitat Type	Acres	Wetland Habitat Type	Acres
Agriculture (park, orchard, grain)	15.9	Meadows	1.8
Pasture	50.9	Wetlands, seasonal	12.4
Chaparral, mixed	28.0	Wetlands, vernal pools	4.8
Chaparral, montane	2.3	Wetlands, freshwater marsh	0.6
Chaparral, oak	322.9	Waters, man-made (irrigation canal and impoundment)	1.6
Elderberry savannah	0.22	Waters, rivers and creeks	10.8
Woodland, foothill pine/chaparral	484.3	Waters, ponds and lakes	6.5
Woodland, black oak	40.5	Waters, seeps and springs	0.3
Woodland, blue oak	659.3	Riparian, Great Valley forest	25.1
Woodland, live oak	14.7	Riparian, Great Valley scrub	29.9
Forest, mixed conifer	184.9	Riparian, montane scrub	5.4
Forest, ponderosa pine	80.0	Riparian, white alder	7.1
Grassland, non-native	254.9	Urban/barren/commercial	94.2

3.2.1.3 Round Mountain/Modoc

The ROWs within the Round Mountain/Modoc region traverse foothill and high mountain subregions of the Cascade Range and eventually cross the northwestern corner of the Modoc Plateau. Both regions are generally defined by their volcanic geomorphology. The foothill section is characterized by blue-oak/foothill pine. White fir, ponderosa pine, and lodgepole pine (*Pinus contorta*) persist in the higher regions of the Cascade Range. The Modoc Plateau is characterized by juniper savannah and sagebrush steppe typical of the Great Basin. The ROW crosses extensive stands of ponderosa and Jeffery pine forests. Vernal pool habitat exists in isolated savannah pockets within the ponderosa pine forests and juniper woodlands. The habitat types present within the Round Mountain/Modoc area are shown in Table 3.2-3.

Table 3.2-3 Habitat Acreages in the Round Mountain/Modoc Area

Upland Habitat Type	Acres	Wetland Habitat Type	Acres
Agricultural (orchards, grain)	49.3	Meadows	0.3
Chaparral, mixed	87.1	Wetlands, seasonal	22.7
Chaparral, montane	40.5	Wetlands, vernal pool (isolates and high-density vernal pool grassland)	50.4

Upland Habitat Type	Acres	Wetland Habitat Type	Acres
Chaparral, oak	9.6	Wetlands, freshwater marsh	8.7
Elderberry savannah	17	Waters, man-made (irrigation canal and impoundment)	1.9
Woodland, foothill pine/chaparral	42.5	Waters, rivers and creeks	20.9
Woodland, juniper	222.1	Waters, ponds and lakes	5.0
Woodland, blue oak	477.8	Waters, seeps and springs	13.4
Woodland, black oak	196.8	Riparian, Great Valley forest	12.3
Woodland, live oak	10.8	Riparian, Great Valley scrub	14.7
Pasture	81.5	Riparian, montane scrub	32.4
Forest, mixed conifer	1837.4	Riparian, montane white alder	24.3
Forest, ponderosa pine	1373.5	Scrub, sagebrush bitterbrush	796.2
Forest, white fir	303.7	Urban, barren	21.1
Grassland, non-native	578.7		

3.2.1.4 Communication facilities

The communication facilities addressed in this EA are dispersed throughout the project area between the northwest corner of Lassen County and northeastern Napa County. This area comprises a variety of topographic conditions and habitat types. The habitat types present within the communication facilities and access roads are shown in Table 3.2-4.

Table 3.2-4 Habitat Acreages within Communication Facilities and Access Roads

Upland Habitat Type	Acres	Wetland Habitat Type	Acres
Agricultural (orchards, grain)	3.3	Forest, mixed conifer	16.5
Chaparral, mixed	12.9	Forest, ponderosa pine	26.3
Chaparral, montane	2.8	Forest, white fir	10.0
Chaparral, oak	0.5	Grassland, non-native	5.2
Woodland, blue oak	4.3	Waters, ponds and lakes	0.03
Woodland, black oak	3.6	Riparian, Great Valley forest	2.0
Woodland, live oak	40.1		

3.2.2 Significance Criteria and Approach to Impact Assessment

3.2.2.1 Approach to Impact Assessment

Several types of vegetative and wetland communities occur within the project area as described in the preceding sections. Western must manage the vegetation throughout its system to comply with federal laws, regulations, and directives including those for maintaining system reliability and public and worker safety. Western currently manages vegetation using a combination of manual and mechanical methods, and the spot application of herbicides. In areas where the vegetation is not already of a low-growing habitat type, Western would implement methods to promote low-growing vegetation within the ROW. Under the Proposed Action, Western would utilize the wire zone/border zone and buffered vegetation management methods, and follow their IVM Guide and Transmission Vegetation Management Program (Western 2007) described in section 2. This would include the expanded use of herbicides. The following sections identify potential impacts to vegetation and wetlands resulting from operation and maintenance activities, and discuss PCMs and SOPs to prevent potential impacts.

3.2.2.2 Significance Criteria

A significant impact on vegetation or wetlands would result if any of the following were to occur:

Vegetation

- Loss of rare plants, native plant communities, and other sensitive features identified by a federal resource agency;
- Loss to any population of plants that would result in a species being listed or proposed for listing as threatened or endangered (impacts to threatened and endangered species are analyzed in sections 3.3, 3.5, and 3.7);
- Introduction or increase in the spread of noxious weeds; or
- Noxious-weed infestations replacing native plant communities that harbor sensitive plants and/or plants protected under state law.

Waters/Wetlands/Riparian Areas

- Degradation or loss of any federal or state jurisdictional wetland(s) or waters, as defined by section 404 of the Clean Water Act or other applicable regulations; or
- Indirect loss of wetlands or riparian areas, caused by degradation of water quality, diversion of water sources, or erosion and sedimentation resulting from altered drainage patterns.

3.2.3 Environmental Consequences from the Proposed Action

The project area has a variety of habitats requiring vegetative maintenance. The lower-growing plant communities such as grassland, cropland, and sagebrush would require little maintenance. Conversely, other parts of the project area, particularly in the Redding/Trinity and Round Mountain/Modoc areas, include densely forested coniferous and riparian areas that would require more maintenance. Under the Proposed Action, this type of vegetation in certain areas would be replaced by low-growing plant communities over time, which would require less maintenance. Potential impacts to vegetation and wetlands using manual and mechanical methods and from herbicide use are described below.

Impacts to Vegetation and Wetlands using Manual and Mechanical Methods

The primary impacts from manual and mechanical methods of vegetation maintenance could include damage to surrounding non-target vegetation (i.e., vegetation outside the ROW), sensitive plant communities such as riparian habitats or wetlands, special-status plants, trees that should be left standing, and changes to the overall density and composition of native plant communities, whether or not they are formally recognized as sensitive.

Manual and mechanical methods could also adversely affect wetlands and other aquatic habitats. Wetland and aquatic habitats are susceptible to erosion and compaction from heavy machinery. Removal of vegetation in uplands can increase surface run-off, causing turbidity and sedimentation into wetlands and waterways. Removal of riparian vegetation can affect water temperatures in surrounding rivers, creeks, or ponds, potentially adversely affecting local fish and amphibians.

Implementation of the SOPs presented in Table 2-1 and PCMs presented in Tables 2-2 (special-status plants) and 2-4 (water resources/aquatic habitat) would reduce adverse impacts to general vegetation and wetland habitats.

Impacts to Vegetation and Wetlands from Herbicide Application

Herbicides kill or damage plants by inhibiting or disrupting basic plant processes. Impacts from herbicide treatment to non-target vegetation and wetlands result from misuse. Herbicides can unintentionally contact vegetation and wetlands by drift, leaching, or spilling. The degree to which a habitat is impacted depends on the selectivity of the herbicide, application treatment, and accidental contact. Refer to Appendix G for additional information of the herbicides proposed for use within the project area.

Type of herbicide (selective or non-selective). Impacts to non-target vegetation depend on the selectivity of the herbicide and whether or not the correct herbicide has been chosen for the vegetation type. Non-selective herbicides are toxic to plants regardless of species and have more potential to adversely affect non-target vegetation.

Application spray treatment (stump, basal, and foliar). Stump treatment is highly selective and causes little effect to non-target vegetation. Basal and foliar treatments are more broadly applied and can come in contact with non-target vegetation or habitats, includ-

ing cropland, special-status species, and wetlands. Applying a broadcast application of non-selective herbicide can have highly detrimental effects to overall diversity, composition, and soil chemistry, and can cause a monoculture of weedy vegetation. Using a selective herbicide coupled with a selective application technique would result in the least amount of damage to non-target vegetation and sensitive habitats.

Accidental spills and careless application. Non-target vegetation and other sensitive habitats can be affected by the careless application of herbicides. This would include using the wrong size spray nozzle, the wrong herbicide, not clearly marking and avoiding sensitive areas, and misusing and carelessly applying herbicides. The technician must be familiar with non-target vegetation and sensitive species and habitats that may be affected and must correctly apply the appropriate herbicide to avoid impacts to non-target species. Although unlikely, a large spill may result in the removal of hundreds of cubic yards of soil, along with the loss of many plants.

Implementation of SOPs and PCMs for herbicide use would reduce adverse impacts to non-target vegetation and sensitive habitats.

Impacts from the Spread of Noxious Weeds or from Invasive Plant Species

Routine maintenance and operation of the transmission line may contribute to the spread of noxious weeds and invasive plant species. The introduction of low-growing native plants may promote the invasion of grasses that would compete against native herbaceous and woody species both within and outside of the ROW. Western is required to comply with the Federal Noxious Weed Act of 1974, as amended by section 15, Management of Undesirable Plants on Federal Lands, 1990, which mandates each federal land-management agency to:

- designate a lead office and person trained in the management of undesirable plant species;
- establish and fund an undesirable-plant management program;
- complete and implement cooperative agreements with state agencies; and
- establish integrated management systems to control undesirable plant species.

The most common noxious weeds expected to be encountered in the project area include Russian knapweed (*Actroptilon repens*), hoary cress (*Cardaria draba*), plumeless thistle (*Carduus acanthoides*), musk thistle (*Carduus nutans*), diffuse knapweed (*Centaurea diffusa*), spotted knapweed (*Centaurea maculosa*), yellow starthistle (*Centaurea solstitialis*), Canada thistle (*Cirsium arvense*), field bindweed (*Convolvulus arvensis*), Scotch broom (*Cytisus scoparius*), leafy spurge (*Euphorbia esula*), kochia (*Kochia scoparia*), Dalmatian toadflax (*Linaria dalmatica*), purple loosestrife (*Lythrum salicaria*), Scotch thistle (*Onopordum acnathium*), and Russian thistle (*Salsola kali*).

Other noxious weeds in the area include tree of heaven (*Ailanthus altissima*), goat grass (*Aegilops triuncalis*), giant reed (*Arundo donax*), black mustard (*Brassica nigra*), Asian mustard (*Brassica tournefortii*), cheat grass (*Bromus tectorum*), tocalote (*Centaurea*

melitensis), bull thistle (*Cirsium vulgare*), poison hemlock (*Conium maculatum*), foxglove (*Digitalis purpurea*), fennel (*Foeniculum vulgare*), French broom (*Genista monspesulana*), cut-leaved geranium (*Geranium dissectum*), English ivy (*Hedera helix*), wild mustard (*Hirschfeldia incana*), Dyer's woad (*Isatis tinctoria*), prickly lettuce (*Lactuca serriola*), loosestrife (*Lythrum hyssopifolia*), white sweet clover (*Melilotus alba*), horehound (*Marrubium vulgare*), pennyroyal (*Mentha pulegium*), cut-leaved pondweed (*Potamogeton crispus*), wild radish (*Raphanus sativus*), black locust (*Robinia pseudoacacia*), Himalayan blackberry (*Rubus discolor*), sheep sorrel (*Rumex acetosella*), curly dock (*Rumex crispus*), bouncing bet (*Saponaria officinalis*), Spanish broom (*Spartium junceum*), medusa head (*Taeniatherum caputmedusae*), salt cedar (*Tamarix chinensis*), tansy (*Tanacetum vulgare*), *Toriis arvensis*, wild parsley (*Toriis nodosa*), moth mullein (*Verbascum blattaria*), common mullein (*Verbascum thapsus*), and vinca (*Vinca major*).

To prevent impacts from the spread of noxious weeds or from invasive plant species, Western would implement SOPs (see Table 2-1) and follow the IVM Program. Refer to Appendix I for the noxious weed management portion of Western's IVM Program.

3.2.3.1 Category A – Inspection and Minor Maintenance Activities

Category A activities are primarily inspection-type actions, with some minor repairs that would not cause substantial soil or habitat disturbance (see section 2.2.5.1 for more detail). Equipment used for Category A activities has the potential to contribute to the introduction of noxious weeds. Western would follow the IVM Program and implement SOPs (see Table 2-1) and PCMs (see Tables 2-2 and 2-4) to reduce impacts to less than significant.

3.2.3.2 Category B – Routine Maintenance Activities

Category B maintenance activities may result in temporary and permanent loss of habitat. Primary concerns would be the reduction of rare plants or habitats for special-status species, degradation or loss of jurisdictional wetlands, and introduction of noxious weeds. Western would implement SOPs (see Table 2-1) and PCMs (see Tables 2-2 and 2-4) to minimize impacts to less-than-significant.

Removal of hazard trees within the ROW and access roads may alter plant diversity and composition. However, the implementation of PCMs and the limited removal activities (estimated to be one to ten trees per ROW acre per year) completed over any given area would be a less than significant impact.

Impacts to a variety of sensitive natural communities, such as Great Valley riparian forests or freshwater emergent wetlands, may occur during removal of woody vegetation from the water's edge within forests and riparian areas. Temporary disturbances to sensitive communities may result in the loss of individual rare plants and special-status species described in section 3.3. Soil erosion could result from loss of vegetative cover, and could adversely affect water quality in adjacent aquatic features. Long-term impacts could include increases in the water temperature of adjacent aquatic habitats associated with loss of riparian vegetation.

Vegetation clearing and herbicide use would typically be a short-term impact since vegetation would grow back; however, this may contribute to the introduction of noxious weeds. The introduction of low-growing native plants may promote the invasion of grasses that would compete with native herbaceous and woody species. Western would follow the IVM Program and implement PCMs and SOPs to minimize impacts to less than significant.

Potential direct impacts to jurisdictional wetlands and waters (i.e., areas regulated by the USACE and/or State Water Resources Control Board [SWRCB]) include removal of wetland/riparian vegetation and/or filling of jurisdictional areas during culvert replacement or other access road repair activities. Potential indirect impacts to jurisdictional resources include streambank erosion and sedimentation. Implementation of PCMs W001 and W002 and SOPs pertinent to water resources would avoid and minimize indirect impacts to jurisdictional areas. Direct impacts to jurisdictional waters and wetlands (e.g., placement of fill) would require compliance with the requirements of Clean Water Act Sections 401 and 404, including obtaining certification/permits, as described in WR-SOP-8. Implementation of PCMs, SOPs, and certification/permit requirements would result in less-than-significant impacts.

3.2.3.3 Category C – New Infrastructure

Category C activities are generally those maintenance activities that would disturb large areas and would rely on the use of heavy equipment. Primary concerns would be the reduction of rare plants or habitats for special-status species, degradation or loss of jurisdictional waters and wetlands, and introduction of noxious weeds.

Potential impacts from Category B activities are possible for Category C activities as well. If jurisdictional wetlands or waters are affected, Western would consult with the USACE and/or SWRCB, as described above. Implementation of PCMs W001 and W002 and SOPs pertinent to water resources would avoid and minimize indirect impacts to jurisdictional areas. For direct impacts to jurisdictional waters and wetlands, Western would obtain 404 individual or nationwide permits and 401 water quality certifications, as applicable (see section 3.12, Water Resources for additional information). Compensation or mitigation may be required as described in WR-SOP-8, resulting in a less-than-significant impact. Implementation of PCMs, SOPs, and certification/permit requirements would result in less than significant impacts.

3.2.4 Environmental Consequences from the No Action Alternative

Under the No Action Alternative, Western would continue to inspect and identify areas that need to be repaired or upgraded. These regular aerial and ground patrols would continue to implement established best management practices to avoid disturbances to biological resources. About 500 to 1,000 acres annually would be affected under the No Action Alternative. Impacts to vegetation and wetlands would be similar to those described for the Proposed Action. Routine use of herbicides would not be implemented, resulting in the increase of noxious weed populations following manual/mechanical disturbances. The Proposed Action provides more rigorous protection measures than were previously established for this project. Therefore, habitats and vegetation, including jurisdictional areas, would be more likely to be adversely affected by the No Action Alternative than by the Proposed Action.

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3.3 Special-status Plants and Plant Communities

3.3.1 Affected Environment

Special-status plant species potentially affected were identified from several sources. Prior to project field surveys, a California Natural Diversity Database (CNDDDB) search was performed for the project area to determine potential species, location information, habitats, floristic descriptions, and flowering periods. Additional species lists were provided by USFWS, BLM, NPS, and USFS in March 2005. These lists were again requested and researched in October 2006, July 2007, May 2008, and April 2009 to check for updates. Field surveys of the transmission line ROW and access roads were conducted between April and September 2005. Communication facility surveys were conducted in November 2007.

For the purposes of this document, special-status species are defined as those plants whose geographic range and native habitats overlap with the project area and that are:

- federally or state-listed, proposed for listing, or candidates for listing as threatened or endangered;
- listed on the California Native Plant Society's (CNPS) Inventory of Rare and Endangered Plants (only on NPS lands)¹;
- listed as sensitive by NPS (only on NPS lands);
- listed as sensitive by USFS for national forests affected by the project (only on Shasta-Trinity National Forest, Lassen National Forest, and Modoc National Forest); and/or
- listed as sensitive by BLM (only on BLM lands).

Table 3.3-1 lists the special-status plants with the potential to occur within the project area and includes habitat information for each species including designated critical habitat, general location in the project area, and PCMs developed for species and their associated habitat communities. A number of special-status plants have been eliminated from further consideration because the species was determined to either occur outside the project impact area or to occur in habitats not affected by the project. Species eliminated from consideration are shown in Table 3.3-1 as those for which Area of Potential Occurrence is "none" and PCM-ID is "N/A." As a federal agency, Western affords protection to federally-listed species throughout the project area. In addition, species with agency-specific status (e.g., Forest Service sensitive) are afforded protection on agency-specific lands. Special-status species outside of these parameters (e.g., state species of special concern) are discussed in the EA and listed in Table 3.3-1; however, PCMs were not developed for these species.

¹ NPS does not maintain its own list of special-status species, but it does consider certain CNPS-listed plants, that are not otherwise formally protected by state and federal endangered species acts, as sensitive species.

Table 3.3-1 Special-status Plants

Species Name	Status	Habitat Type	Blooming Period	Area of Potential Occurrence	PCM-ID
<i>Allium sanbornii</i> var. <i>sanbornii</i> Sanborn's onion	CNPS List 4/ NPS	Wblu, Wbla, Wlo, Cmi	May 1–Sep 30	Redding/Trinity	PCM-B001
<i>Amsinckia grandiflora</i> Large-flowered fiddleneck	FE/SE/1B.1	Wblu, Wbla, Wlo, Gnn	April 1–May 31	Valley	PCM-B002
<i>Anisocarpus scabridus</i> Scabrid alpine tarplant	CNPS List 1B.2	Fmc, Fwf	July 1–Aug 31	Round Mountain/Modoc	N/A
<i>Arctostaphylos mallori</i> Mallory's manzanita	CNPS List 4/ NPS	Cmi, Fmc	April 1–May 31	None	PCM-B003
<i>Arnica venosa</i> Shasta County arnica	CNPS List 4/ NPS	Cmo, Cmi, Wbla, Wfp	May 1–July 31	Redding/Trinity	PCM-B004
<i>Astragalus applegatei</i> Applegate's milkvetch	FE/CNPS List 1B.1	Mot, Wse- strongly alkaline	June 1–Aug 31	None	N/A
<i>Astragalus tener</i> var. <i>ferrisiae</i> Ferris's milkvetch	CNPS List 1B.1/BLMS	Gnn, Mot, Wasp (Alkali)	April 1–May 31	Valley	PCM-B034 PCM-W002
<i>Astragalus tener</i> var. <i>tener</i> Alkali milkvetch	CNPS List 1B.2	Wvpi, Wvpgnn, Gnn	March 1–June 30	Valley	N/A
<i>Atriplex depressa</i> Brittlescale	CNPS List 1B.2	Gnn, Mot, Wfm, Wvpg, Wvpi, Wvpgnn	May 1–Oct 31	Valley	N/A
<i>Botrychium virginianum</i> Rattlesnake fern	CNPS List 2.2	Fmc, Rgs, Wasp, Wot	June 1–Sep 30	Round Mountain/Modoc	N/A
<i>Erodium macrophyllum</i> Round-leaved filaree	CNPS List 2.1	Gnn, Wblu, Wbla	March 1–May 31	Valley	N/A
<i>Calochortus longebarbatus</i> var. <i>longebarbatus</i> Long-haired star-tulip	CNPS List 1B.2/BLMS/ FSS	Wvpi, Wvpgnn, Wasp, Ssb, Fmc, Mwm	June 1–Aug 31	Round Mountain/Modoc	PCM-B020 PCM-W001
<i>Calochortus syntrophus</i> Callahan's mariposa lily	CNPS List 3.1	Wblu, Wblu, Wlo, Wfp, Fmc	May 1–June 30	Round Mountain/Modoc	N/A
<i>Calystegia atriplicifolia</i> ssp. <i>buttensis</i> Butte County morning glory	CNPS List 1B.2/BLMS/ FSS	Coa, Cmo, Cmi, Wblu, Wbla, Wlo, Wfp	May 1–July 31	Round Mountain/Modoc	PCM-B005
<i>Carex vulpinoidea</i> Fox sedge	CNPS List 2.2/NPS	Rgf, Rgs, Wfm	May 1–June 30	Valley Redding/Trinity Round Mountain/Modoc	PCM-B035 PCM-W002
<i>Castilleja rubicundula</i> ssp. <i>rubicundula</i> Pink creamsacs	CNPS List 1B.2/BLMS	Cmi, Coa, Gnn, Mot, Wbla, Wblu, Wlo	April 1–June 31	Valley Redding/Trinity	PCM-B006
<i>Chamaesyce hooveri</i> Hoover's spurge	FT/CNPS List 1B.1	Wvpi, Wvpgnn	July 1–Aug 31	Valley	PCM-B021 PCM-W001
				Critical habitat: Valley	PCM-B021a PCM-W001 PCM-W001a
<i>Chamaesyce ocellata</i> ssp. <i>rattanii</i> Stony Creek spurge	CNPS List 1B.2/BLM	Gnn, Waci, Wot	May 1–Oct 31	Valley	PCM-B007 PCM-W002
<i>Clarkia borealis</i> ssp. <i>arida</i> Arid northern clarkia	CNPS List 1B.1/BLMS	Fmc, Wblu, Wbla, Wlo	June 1–Aug 31	None	PCM-B008

Species Name	Status	Habitat Type	Blooming Period	Area of Potential Occurrence	PCM-ID
<i>Cordylanthus palmatus</i> Palmate-bracted bird's beak	FE/SE/CNPS List 1B.1	Gnn, Chenopod scrub	May 1–Oct 31	Valley	PCM-B009
<i>Cryptantha crinita</i> Silky cryptantha	CNPS List 1B.2/BLMS	Rgf, Rgs, Wot, Wse, Waci, Wacp	April 1–May 31	Valley Redding/Trinity Round Mountain/Modoc	PCM-B036 PCM-W001 PCM-W002
<i>Cypripedium fasciculatum</i> Clustered lady's slipper	CNPS List 4/ NPS/BLM/ FSS/NPS	Cmo, Fmc, Fpp, Wacp, Wasp, Waci	March 1–Aug 31	Redding/Trinity Round Mountain/Modoc	PCM-B010 PCM-W002
<i>Eryngium racemosum</i> Delta button celery	SE/CNPS List 1B.1	Rgs	June 1–Sep 30	Valley	PCM-B037
<i>Eschscholzia rhombipetala</i> Diamond-petaled California poppy	CNPS List 1B.1/BLMS	Gnn	March 1–April 30	Valley	PCM-B011
<i>Fritillaria liliaceae</i> White fritillary	CNPS List 1B.3	Gnn	February 1–April 30	Valley	N/A
<i>Fritillaria pluriflora</i> Adobe lily	CNPS List 1B.2/BLMS	Cmi, Coa, Rfs, Rgf, Wbla, Wblu, Wlo	February 1–April 30	Valley	PCM-B012
<i>Gratiola heterosepala</i> Boggs Lake hedge-hyssop	SE/CNPS List 1B.1	Walk, Wapd, Wvpi, Wse, Wvpgnn, Wfm	April 1–Aug 31	Valley Round Mountain/Modoc	PCM-B022 PCM-W001 PCM-W002
<i>Iliamna bakeri</i> Baker's globe mallow	CNPS List 4.2/BLMS/ FSS	Wju, Ssb, Cmi, Cmo, Coa	June 1–Sep 30	Round Mountain/Modoc	PCM-B013
<i>Juncus leiospermus</i> var. <i>ahartii</i> Ahart's dwarf rush	CNPS List 1B.1	Gnn, Wvpi, Wvpgnn	March 1–May 31	Valley	PCM-B023 PCM-W001
<i>Juncus leiospermus</i> var. <i>leiospermus</i> Red Bluff dwarf rush	CNPS List 1B.1/BLMS/ FSS	Wvpi, Wvpgnn	March 1–May 31	Valley Redding/Trinity Round Mountain/Modoc	PCM-B024 PCM-W001
<i>Lasthenia conjugens</i> Contra Costa goldfields	FE/CNPS List 1B.1	Wvpgnn, Gnn, Wblu, Wbla, Wlo	March 1–June 30	Valley	PCM-B014 PCM-W001
<i>Lathyrus jepsonii</i> var. <i>jepsonii</i> Delta tule pea	CNPS List 1B.2	Wfm, salt marsh	May 1–July 31	Valley	N/A
<i>Lewisia cotyledon</i> var. <i>howellii</i> Howell's lewisia	CNPS List 3.2	Cmi, Cmo, Coa, Fmc	March 1–May 31	Round Mountain/Modoc	N/A
<i>Lilaeopsis masonii</i> Mason's lilaeopsis	SR/CNPS List 1B.1	Wfm, Rgs	April 1–Nov 30	Valley	PCM-B038 PCM-W002
<i>Limnanthes floccosa</i> ssp. <i>californica</i> Butte County meadowfoam	FE/SE/CNPS List 1B.1	Waci, Wvpi, Wvpgnn	March 1–May 31	Valley	PCM-B025 PCM-W001 PCM-W002
				Critical habitat: Valley	PCM-B025a PCM-W001 PCM-W001a PCM-W002
<i>Navarretia heterandra</i> Tehama navarretia	CNPS List 4/ NPS	Wvpi, Wvpgnn	April 1–June 30	Valley Redding/Trinity	PCM-B027
<i>Neostapfia colusana</i> Colusa grass	FT/SE/CNPS List 1B.1	Wvpi Wvpgnn	May 1–Aug 31	Valley	PCM-B028 PCM-W001

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Species Name	Status	Habitat Type	Blooming Period	Area of Potential Occurrence	PCM-ID
<i>Neviusia cliffonii</i> Shasta snow-wreath	CNPS List 1B.2/BLMS/ FSS	Fmc, Rgf	April 1–June 30	Redding/Trinity Round Mountain/Modoc	PCM-B015
<i>Oenothera deltooides ssp.</i> <i>howellii</i> Antioch Dunes evening primrose	FE/SE/CNPS List 1B.1	Gnn	March 1–September 30	Valley	PCM-B029
<i>Orcuttia pilosa</i> Hairy Orcutt grass	FE/SE/CNPS List 1B.1	Wvpi, Wvpgnn	May 1–Sep 30	Valley Round Mountain/Modoc	PCM-B030 PCM-W001
				<u>Critical habitat:</u> Valley	PCM-B030a PCM-W001 PCM-W001a
<i>Orcuttia tenuis</i> Slender Orcutt grass	FT/SE/CNPS List 1B.1/FSS	Wvpi, Wvpgnn	May 1–Sep 30	Valley Redding/Trinity Round Mountain/Modoc	PCM-B031 PCM-W001
				<u>Critical habitat:</u> Valley Redding/Trinity Round Mountain/Modoc	PCM-B031a PCM-W001 PCM-W001a
<i>Paronychia ahartii</i> Ahart's paronychia	CNPS List 1B.1/BLMS	Wbla, Wblu, Wlo, Wvpi, Wvpgnn	March 1–June 30	Valley Round Mountain/Modoc	PCM-B026 PCM-W001
<i>Phacelia inundata</i> Playa phacelia	CNPS List 1B.3	Ssb	May 1–June 30	Round Mountain/Modoc	N/A
<i>Phlox hirsuta</i> Yreka phlox	FE/SE/CNPS List 1B.1	Fmc	Feb 15–June 15	None	N/A
<i>Phlox muscoides</i> Musk phlox	CNPS List 2.3	Ssb	June 1–Aug 31	Round Mountain/Modoc	N/A
<i>Picea engelmannii</i> Engelmann spruce	CNPS List 2.2	Fmc, Fwf	N/A	Round Mountain/Modoc	N/A
<i>Pseudobahia bahiifolia</i> Hartweg's golden sunburst	FE/SE/CNPS List 1B.1	Gnn, Wblu	March 1–May 31	Valley	PCM-B016
<i>Puccinellia howellii</i> Howell's alkali grass	CNPS List 1B.1/NPS	Wasp (mineral spring)	April 1–June 30	Redding/Trinity	PCM-B039 PCM-W002
<i>Sedum paradisum</i> Canyon Creek stonecrop	CNPS List 1B.2/BLMS/ FSS/NPS	Fmc, Coa, Cmo, Cmi, Wlo, Wfp	May 1–June 30	Redding/Trinity	PCM-B017
<i>Sidalcea robusta</i> Butte County checkerbloom	FSC/BLMS	Cmo, Cmi, Wblu, Wbla, Wlo, Wfp	April 1–June 30	Valley	PCM-B018
<i>Smilax jamesii</i> English Peak greenbrier	CNPS List 1B.3	Wfm, Fmc	May 1–July 31	Redding/Trinity Round Mountain/Modoc	PCM-B040 PCM-W002
<i>Trillium ovatum ssp. oettingeri</i> Salmon Mountains wakerobin	CNPS List 4.2/NPS	Fmc, Rgs, Rmw	February 1–July 31	Redding/Trinity	PCM-B039 PCM-W001
<i>Triteleia crocea var. crocea</i> Yellow triteleia	CNPS List 4/NPS	Fmc, Fpp	May 1–June 30	Redding/Trinity	PCM-B019
<i>Tropidocarpum capparideum</i> Caper-fruited tropidocarpum	CNPS List 1B.1	Gnn	March 1–April 30	Valley	N/A

Species Name	Status	Habitat Type	Blooming Period	Area of Potential Occurrence	PCM-ID
<i>Tuctoria greenii</i> Greene's tuctoria	FE/SR/ CNPS List1B.1	Wvpi, Wvpgnn	May 31–July 31	Valley	PCM-B032 PCM-W001
				Critical habitat: Valley	PCM-B032a PCM-W001a
<i>Tuctoria mucronata</i> Solano grass	FE/SE/CNPS List 1B.1	Gnn, Wvpi, Wvpgnn	April 1–Aug 31	Valley	PCM-B033 PCM-W001

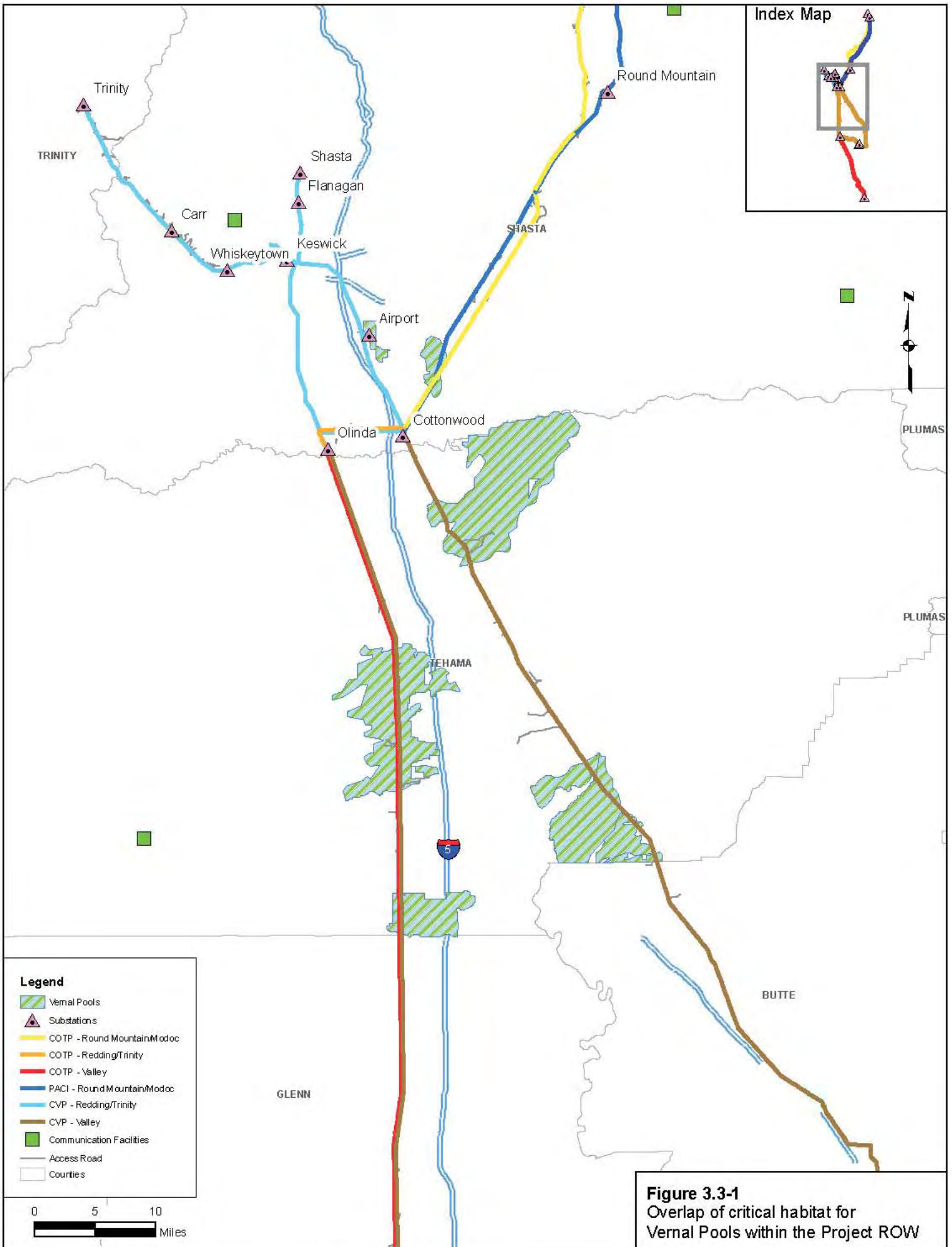
3.3.1.1 Valley

Virtually all native habitats within the Central Valley have been altered by development and agriculture. Once-extensive riparian corridors and vernal pool grasslands have been severely fragmented producing isolated pockets of sensitive habitats and special-status species. Rare habitats of concern requiring special protection in the Valley include vernal pools, freshwater and salt-water wetlands, perennial grasslands, and Great Valley riparian forests. In 2005, USFWS designated critical habitat for 22 vernal pool ecosystem units in California and Oregon. This designation was intended to protect the habitat type and not for any specific species, although portions of previously designated habitat for federally listed vernal pool species may overlap with vernal pool critical habitat. Vernal pool critical habitat is present in the Valley, Redding/Trinity, and Round Mountain/Modoc regions of the project area, as illustrated in Figure 3.3-1. Critical habitat, described more fully in section 3.3.2.3, is a formal designation under the federal Endangered Species Act where specific areas are designated as essential to the conservation and recovery of a federally-listed species. These areas may require special management consideration or protection.

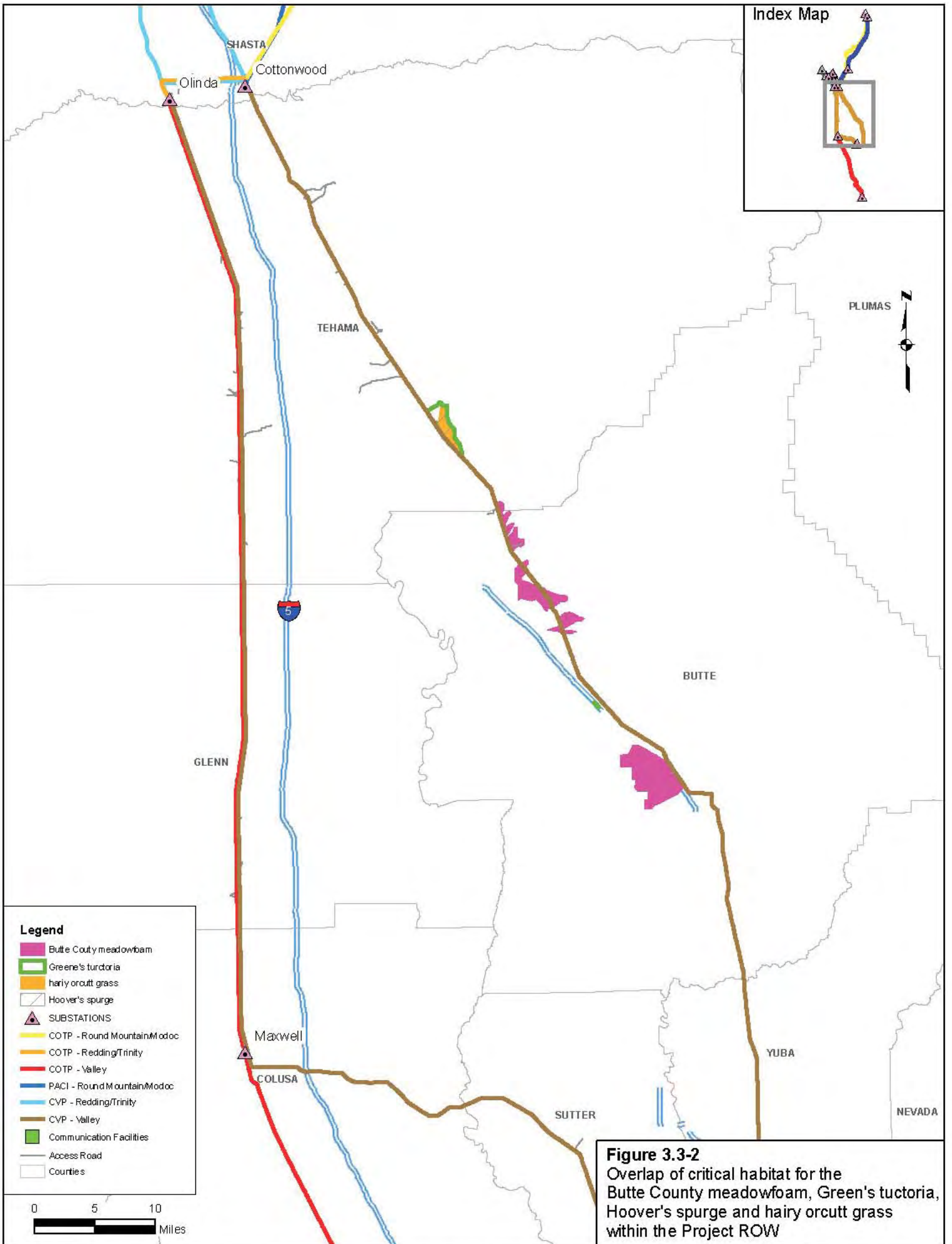
The project area in the Valley covers 466 acres of vernal pools including isolated vernal pools and high-density vernal pool annual grassland. While several vernal pool species require protection, PCMs aim to protect the species (see Table 2-2) and to preserve the habitat as a whole (see Table 2-4). federally listed, California-endemic vernal pool species with habitat in the project area include hairy Orcutt grass, slender Orcutt grass, Hoover's spurge, Butte County meadowfoam, Contra Costa goldfields, Greene's tuctoria Solano grass, and Colusa grass. Critical habitat has been identified in the Valley portion of the project area for *Orcuttia pilosa*, *O. tenuis*, *Limnanthes floccosa* ssp. *californica*, *Tuctoria greenei*, and *Chamaesyce hooveri*. Figures 3.3-2 and 3.3-3 show the locations where critical habitat overlaps with the project area for these five species.

Central Valley grasslands were once dominated by native perennial grasslands. Few patches of relic native-perennial grasslands currently exist in the Central Valley. The project area crosses 1.7 acres of this native bunchgrass habitat with species identified that include nodding needlegrass (*Stipa cernua*) and native bunchgrass (*S. pulchra*).

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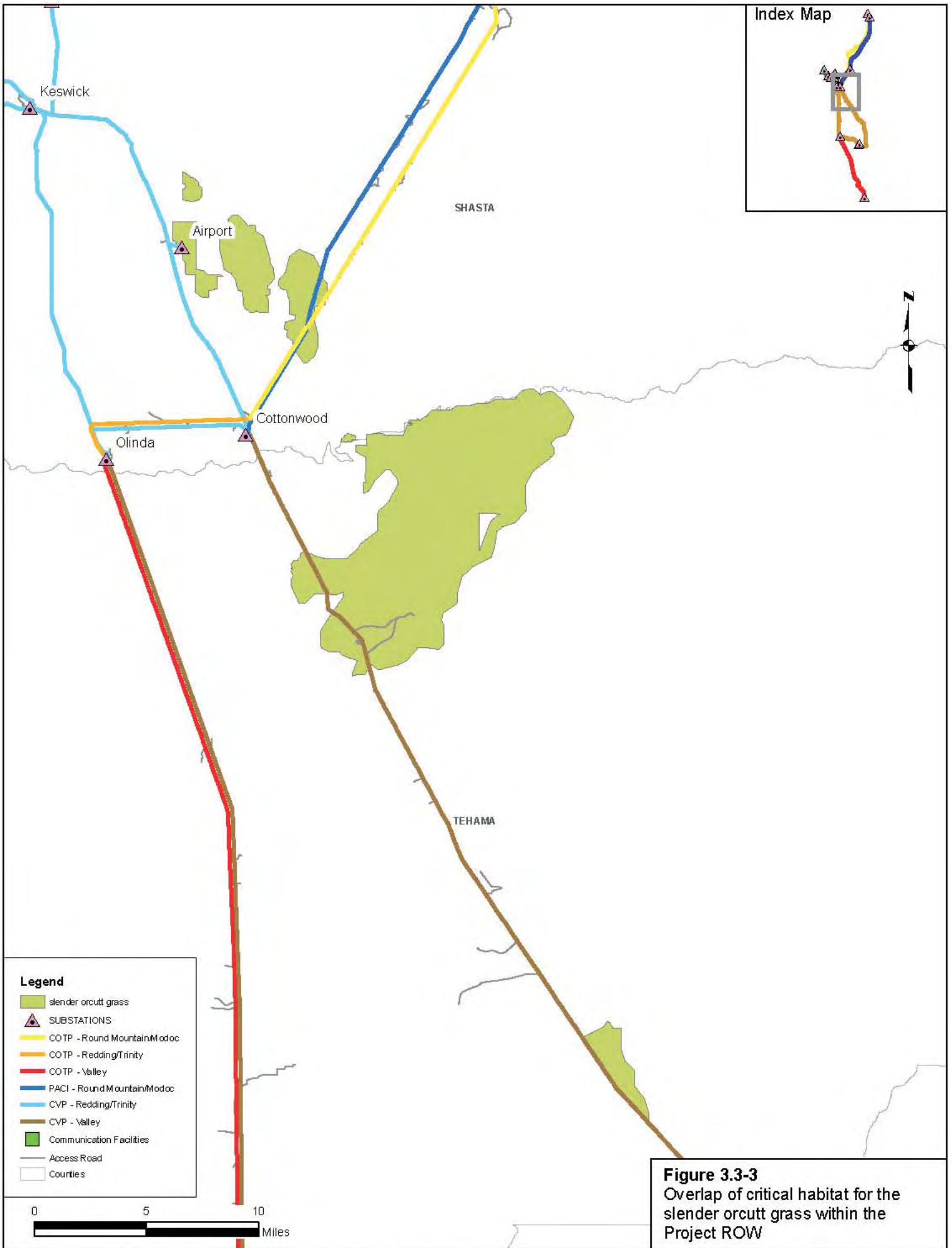


Figure 3.3-3
Overlap of critical habitat for the slender orcutt grass within the Project ROW

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Wetland habitats (122 acres) that potentially support special-status species in the Valley include springs, seasonal wetlands, freshwater and salt marshes, meadows, and ponds and lakes. Transmission lines traverse isolated pockets of riparian forest that once bordered many of the Valley's major rivers and tributaries. The project area crosses 74 acres of Great Valley riparian forest and scrub including willow scrub, cottonwood riparian, mixed riparian forest, and oak riparian forest. Special-status plants with the potential to occur in these wetland habitats include Mason's liliaeopsis (*Liliaeopsis masonii*), silky cryptantha (*Cryptantha crinita*), Delta tule pea (*Lathyrus jepsonii* ssp. *jepsonii*), Stony Creek spurge, alkali milkvetch (*Astragalus tener* ssp. *tener*), and delta button celery (*Eryngium racemosum*).

The project area crosses 575 acres of mixed chaparral and oak woodlands, the most extensive habitat supporting special-status species. Three federally protected species with potential to occur in these habitat types within the Valley region include large-flowered fiddleneck, Hartweg's golden sunburst, and palmate-bracted bird's-beak. Special-status species that have been recorded within the project area include brittlescale, round-leaved filaree, white fritillary, adobe lily, and pink creamsacs.

3.3.1.2 Redding/Trinity

The Redding/Trinity and Valley regions share many of the same habitats including vernal pools, freshwater wetlands, and riparian forests. The main differences are the lack of large expanses of open grassland and the presence of extensive chaparral woodlands (1,552 acres). As the transmission lines climb west into the Trinity Alps, they traverse coniferous forests (265 acres). Canyon Creek stonecrop and Howell's alkali grass have been recorded in the ROW.

The project area near Redding traverses approximately 4.8 acres of vernal pools with critical habitat for one federally-listed species, slender Orcutt grass (see Figure 3.3-2). Additionally, vernal pool critical habitat is present near the Airport Substation (see Figure 3.3-3). Ahart's paronychia and Red Bluff dwarf rush, both species of concern, have been recorded within the project area.

The Redding/Trinity area contains 34 acres of wetlands including meadows, man-made waters, rivers and creeks, ponds and lakes, seeps and springs, freshwater marsh, and seasonal wetlands, and 67.5 acres of riparian forest. Special-status species with suitable habitat in the Redding/Trinity region include silky cryptantha and Shasta snowwreath, which are found in riparian vegetation.

3.3.1.3 Round Mountain/Modoc

The southern section of the COTP and PACI transmission lines between Round Mountain and Cottonwood share similar habitats and special-status species with the Redding area. North of Round Mountain, both lines ascend into the mountains, then descend onto the Modoc Plateau north of Highway 89. Both ROWs near the Oregon border traverse primarily open alkali flatlands. The differences in elevation, latitude, and geology influence the distribution of special-status species potentially present in the project area.

The Round Mountain/Modoc Plateau area contains 50.4 acres of vernal pools and associated special-status species in the southern portion. Vernal pools were generally not observed in the mountainous areas between the Round Mountain Substation and Highway 89. As the ROW descends onto the Modoc Plateau, isolated northern basalt flow vernal pools appear in open meadows in the ponderosa pine and mixed conifer forests. Slender Orcutt grass has been recorded in this region. Red Bluff dwarf rush, Ahart's paronychia, and Boggs Lake hedge-hyssop have been observed in vernal pool habitats within the ROW.

Sagebrush scrub and juniper woodland (1,018 acres) are typical of the Great Basin flora and dominate the northern portion of the project area. Low precipitation and temperature extremes permit the survival of only the hardiest xeric vegetation. Special-status species recorded in the ROW include Baker's globe mallow and playa phacelia

The higher regions of the ROW, near Round Mountain, comprise extensive stands of mixed conifer that total 3,515 acres. Engelmann's spruce (*Picea engelmanni*), a common species in the upper montane forests of the western United States but uncommon in California, was documented within the ROW. Scabrid alpine tarplant, a special-status species found in coniferous forests, was also identified within the ROW.

Wetland habitats, including riparian areas, total 156.6 acres. Special-status species associated with wetland habitats in the Round Mountain/Modoc area include English Peak greenbriar, long-haired star-tulip, and rattlesnake fern.

3.3.2 Significance Criteria and Approach to Impact Assessment

3.3.2.1 Approach to Impact Assessment

The project area supports a number of special-status species. The following sections identify potential impacts to special-status plants and habitats of concern resulting from project activities, and identify PCMs and SOPs to avoid or minimize potential impacts.

3.3.2.2 Significance Criteria

A significant impact on special-status plant species or critical habitat would result if any of the following were to occur:

- The continued existence of a federally or state-listed species was jeopardized;
- Loss of individuals of a population of species would result in a change in species status;
- Adverse modification of critical habitat to the degree it would no longer support the species for which it was designated; or
- Violation of any federal or other applicable statutes and regulations pertaining to special-status species.

3.3.2.3 Critical Habitat

One of the purposes of the federal Endangered Species Act is to provide a means whereby threatened and endangered species and their ecosystem may be conserved. One of those actions is to designate critical habitat.

Critical habitat is a formal term under the federal Endangered Species Act. When a species is listed as threatened or endangered, the USFWS must, in most cases, officially designate specific areas for habitat protection. Critical habitat is defined as specific areas that are essential to the conservation of a federally listed species, and that may require special management consideration or protection. Critical habitat is determined using the best available scientific information about the physical and biological needs of the species. These needs, or “primary constituent elements,” include: space for individual and population growth and for normal behavior; food, water, light, air, minerals, or other nutritional or physiological needs; cover or shelter; sites for breeding, reproduction, and rearing of offspring; and habitat that is protected from disturbance or is representative of the historical geographic and ecological distribution of a species.

Designated critical habitat areas have all the essential elements required for survival of listed species. As such, if project-related actions that take place within critical habitats adversely affect primary constituent elements for listed species, compensation or mitigation may be required at a higher level than would be required in areas outside of critical habitat. Specific requirements are defined in the section 7 consultation process with USFWS.

3.3.3 Environmental Consequences from the Proposed Action

Under the proposed action, the removal of vegetation and alteration of habitats could affect special-status plant species regardless of the method employed. Over time, however, a low-growing plant community would be established and fewer acres of habitat would be disturbed. Effects to vegetation and wetlands are discussed in section 3.2, and can also be applied to special-status species and their habitats. Following SOPs (Table 2-1) and PCMs (Tables 2-2 and 2-4) developed for individual species and habitats would reduce potential impacts to less-than-significant levels. Impacts to special-status plants associated with various habitats are discussed below.

Impacts to Vernal Pool and Seasonal Wetland Species

Vernal pools and seasonal wetlands are often associated with grassland habitat, which requires minimal vegetation maintenance within the ROW; therefore, impacts to vernal pools and wetlands would not be significant provided they are not damaged by off-road travel. The majority of critical plant habitat is associated with vernal pools. Implementing SOPs and PCMs for this habitat type, especially PCM-W001 and PCM-W001a (see Table 2-4), would minimize adverse impacts to critical habitat and the plant species therein. Impacts from vegetative maintenance would be similar for all wetland and vernal pool plant species. Herbicide use could affect vernal pool and wetland habitats through misuse or from drift, leaching, or spilling, potentially killing non-target vegetation including special-status plant species. Mechanical removal of vegetation could increase sur-

face runoff, causing turbidity and sedimentation to wetlands, waterways, and vernal pools, and could result in compaction and/or destruction of the hardpan bottom.

Implementation of the SOPs presented in Table 2-1 and PCMs presented in Tables 2-2 (special-status plants) and 2-4 (water resources/aquatic habitat) would reduce adverse impacts to general vegetation and wetland habitats.

Impacts to Coniferous Forest, Chaparral, Oak Woodland, Savannah, and Riparian Forest Species

Coniferous forests, chaparral, oak woodlands, savannah, and riparian forests would initially require significant vegetative maintenance to facilitate the transition to low-growing plant communities within the ROW, using the wire zone/border zone method and IVM described in section 2. Special-status plants within these communities typically occur in the understory. Vegetation clearing could destroy special-status plants unless PCMs are implemented. Additionally, changes in the vegetative structure of forested areas would change local microclimates, resulting in increased exposure from wind or sun that could affect survival of special-status plants that had not been removed. Implementing SOPs and PCMs, presented in Tables 2-2 and 2-4, would minimize adverse impacts to special-status plants in these habitats

Impacts to Streams, Rivers, and Perennial Wetlands

Streams, rivers, and perennial wetlands could be adversely affected by vegetation clearing and herbicide use. Wetlands and riverine habitats are susceptible to erosion and compaction from heavy machinery. Removal of vegetation can increase surface runoff causing turbidity and sedimentation to wetlands and waterways. Constructing culverts could result in removal or degradation of sensitive habitats and impacts to special-status plants. Implementation of SOPs and PCMs, specifically PCM-W002, would minimize impacts to streams, rivers, and perennial wetlands.

3.3.3.1 Category A – Inspection and Minor Maintenance Activities

Category A activities are minor and of short duration, and the potentially adverse activities are restricted to existing fenced facilities where sensitive habitats and sensitive species are less likely to occur. Western would use the results of the biological survey to determine locations of special-status plants and sensitive habitats and would follow SOPs in Table 2-1 and PCMs in Tables 2-2 and 2-4 to minimize impacts to critical habitat and special-status species.

3.3.3.2 Category B – Routine Maintenance Activities

Category B activities may result in temporary and permanent loss of habitat, including impacts to special-status plants. Vehicles accessing the ROW for maintenance activities could damage vernal pools and destroy plant species or alter the vernal pool topography. Routine maintenance and such activities as replacing culverts could introduce non-native and invasive plant species, which would jeopardize the survival of existing special-status plant populations. Western would use the results of the biological survey to determine locations of special-status plants and sensitive habitats and would follow

SOPs in Table 2-1 and PCMs listed in Tables 2-2 and 2-4 to minimize impacts associated with introduction of nonnative, invasive plants and impacts to critical habitat and special-status species.

The use of a backhoe to replace a culvert could alter vegetation and create erosion on the banks. Temporary disturbances to sensitive communities may result in the loss of individual rare and special-status plants. Removal of hazard trees within the ROW and access roads could result in the loss of individual special-status species. Implementation of SOPs and PCMs would minimize impacts.

3.3.3.3 Category C – New Infrastructure

Category C activities are generally those that would disturb large areas and would rely on the use of heavy equipment. Category C activities could impact more habitats than Categories A or B and have the greatest potential to cause the introduction of non-native and invasive plant species. Primary concerns would be the reduction of rare plants or special-status species, loss of sensitive species that would result in a change in species status, critical habitat modification, and violation of any applicable statutes and regulations pertaining to special-status species.

The use of a backhoe to install a new culvert or recontour river banks could remove riparian vegetation and create erosion along the banks. Temporary disturbances to sensitive communities may result in the loss of individual rare and special-status plants. Changing water flow patterns could alter habitat conditions downstream, creating unfavorable conditions for special-status species. Western would use the results of the biological survey to determine locations of special-status plants and sensitive habitats and follow SOPs in Table 2-1 and PCMs listed in Tables 2-2 and 2-4 to minimize impacts.

3.3.4 Environmental Consequences from the No Action Alternative

Under the No Action Alternative, Western would continue to inspect and identify areas that need to be repaired or upgraded. These regular aerial and ground patrols would continue to implement established best management practices to avoid impacts to special-status plants and critical habitat. About 500 to 1,000 acres annually would be affected under the No Action Alternative. Impacts to vegetation and wetlands would be similar to those described for the Proposed Action. Routine use of herbicides would not be implemented, resulting in the increase in noxious weed populations following manual/mechanical disturbances. The Proposed Action provides more rigorous protection measures than were previously established for this project. Therefore, habitats and vegetation, including wetlands, would be more likely to be adversely affected by the No Action Alternative than by the Proposed Action.

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3.4 Wildlife

The project area extends from Tracy, California, north to the Oregon border, encompassing a variety of habitat types and therefore a variety of wildlife species. This section presents a description of general wildlife resources within the project area and an assessment of the potential impacts to wildlife that could occur from implementation of the Proposed Action and No Action Alternative. Within this section, general wildlife refers to all mammal, bird, invertebrate, reptile, and amphibian species that are not protected under state or federal laws or regulations. Section 3.5 presents information and analyses for special-status wildlife.

In order to gather information on the effects of the Proposed Action to general wildlife, Western conducted an extensive survey of the entire project area, which included habitat mapping and a wildlife inventory, as described in section 1.4. Additionally, data were gathered through literature review and previous visits to the project area. The following section describes the environmental baseline conditions throughout the project area, including identification of general wildlife species known to occur.

3.4.1 Affected Environment

The project area is divided into three distinct regions: the Valley region, the Redding/Trinity region, and the Round Mountain/Modoc region. Figure 1-1 shows the limits of each region. Certain wildlife species would be likely to occur only in one region, whereas others could be expected in two or all three.

3.4.1.1 Valley

The survey documented approximately 36 habitat types or plant communities (including urban, commercial, and other unnatural and nonnative habitats) in the Valley region; eight of these types were dominant from a total acreage standpoint, comprising roughly 92 percent of the total habitat area. They include, from largest (2,488 acres) to smallest (246 acres): nonnative/native annual grassland, grain crop, orchard, blue oak woodland, rice field, vernal pool grassland, row crop, and pasture. Each type comprises more than 200 total acres and, when considered from the perspective of total acreage, these dominant habitat types provide an indication of the general habitat composition of the Valley region.

General wildlife species that occur in the Valley region include:

- nonnative red fox (*Vulpes vulpes*), black-tailed hare (*Lepus californicus*), coyote (*Canis latrans*), and California ground squirrel (*Spermophilus beecheyi*);
- many species of waterfowl including mallard (*Anas platyrhynchos*) and northern pintail (*Anas acuta*);
- a variety of ground- and tree-nesting birds including western meadowlark (*Sturnella neglecta*), lark sparrow (*Chondestes grammacus*), western kingbird (*Tyrannus verticalis*), and yellow-billed magpie (*Pica nuttalli*);

- wetland birds including black-crowned night-heron (*Nycticorax nycticorax*), great blue heron (*Ardea herodias*), and American bittern (*Botaurus lentiginosus*);
- birds of prey such as red-tailed hawk (*Buteo jamaicensis*) and barn owl (*Tyto alba*); and
- many common reptiles and amphibians including western fence lizard (*Sceloporus occidentalis*), terrestrial and common garter snakes (*Thamnophis* spp.), and Pacific treefrog (*Hyla regilla*).

3.4.1.2 Redding/Trinity

The Redding/Trinity region includes roughly 38 habitat types or plant communities (including commercial, urban, and otherwise nonnative), of which five comprise approximately 82 percent of the total acreage. Each of these five types covers more than 100 acres and they include, from largest (636 acres) to smallest (137 acres): blue oak woodland, foothill pine-chaparral habitat, oak chaparral habitat, nonnative/native annual grassland, and mixed conifer forest. When considered from the perspective of total acreage, these dominant habitat types provide an indication of the general habitat composition of the Redding/Trinity region.

The following wildlife species are typical of the Redding/Trinity area:

- Mammals such as mule deer (*Odocoileus hemionus*), mountain lion (*Puma concolor*), river otter (*Lutra canadensis*), and black bear (*Ursus americanus*);
- Woodland birds such as acorn woodpecker (*Melanerpes formicivorus*), dark-eyed junco (*Junco hyemalis*), and oak titmouse (*Baeolophus inornatus*);
- Waterfowl such as common merganser (*Mergus merganser*);
- Birds of prey such as flammulated owl (*Otus flammeolus*); and
- Amphibians and reptiles such as rough-skinned newt (*Taricha granulosa*) and western skink (*Eumeces skiltonianus*).

3.4.1.3 Round Mountain/Modoc

Of the 35 habitat types or plant classifications found in the Round Mountain/Modoc region, eight comprise roughly 91 percent of the total project area. They are, from largest (1,648 acres) to smallest (180 acres): mixed conifer forest, ponderosa pine forest, sagebrush/bitterbrush scrub, nonnative/native annual grassland, blue oak woodland, white fir forest, juniper woodland, and black oak woodland. Each of these types encompasses a minimum of 180 acres and, when considered from the perspective of total acreage, they provide an indication of the general habitat composition of the Round Mountain/Modoc region.

General wildlife typical of the habitats and geographic range of this northernmost part of the state includes:

- Mammals such as pronghorn (*Antilocapra americana*) and elk (*Cervus elaphus*);
- Waterfowl such as blue-winged teal (*Anas discors*), northern pintail (*Anas acuta*), and Canada goose (*Branta canadensis*);
- Birds of prey such as northern pygmy-owl (*Glaucidium gnoma*);
- Woodland birds such as green-tailed towhee (*Pipilo chlorurus*) and Townsend's solitaire (*Myadestes townsendi*); and
- Amphibians and reptiles such as long-toed salamander (*Ambystoma macrodactylum*) and California mountain kingsnake (*Lampropeltis zonata*).

Western's communication facilities are dispersed throughout the project area. The general wildlife baseline is consistent with that described for the Valley, Redding/Trinity, and Round Mountain/Modoc areas above.

3.4.2 Significance Criteria and Approach to Impact Assessment

3.4.2.1 Approach to Impact Assessment

A variety of laws and regulations protect general wildlife. Impacts were assessed by evaluating the potential of the Proposed Action to violate any of these statutes. The federal Endangered Species Act protects certain wildlife species that have been formally listed as threatened or endangered; these species are discussed in sections 3.5 and 3.7. The following federal laws were incorporated into the impact assessment for general wildlife:

- The National Environmental Policy Act (42 U.S.C. Section 4321 *et seq.*), the provisions of which require consideration of impacts of federal actions on a variety of resources;
- The federal Migratory Bird Treaty Act (16 U.S.C. Sections 703-712), which protects all migratory birds against take; and
- The federal Bald Eagle Protection Act (16 U.S.C. Sections 668-668d), which additionally protects bald and golden eagles against take.

3.4.2.2 Significance Criteria

Impacts to wildlife could occur when habitats or individuals are disturbed or lost during the project activities. The significance of the impact depends, in part, on the sensitivity of the population. A significant impact on wildlife would result if any of the following were to occur from implementation of the Proposed Action:

- Loss of individuals of a population of wildlife that would result in the species being listed or proposed for listing as threatened or endangered;
- Violation of any federal statutes and regulations pertaining to wildlife;

- Introduction of constituents in any water body in concentrations that cause adverse effects on wildlife;
- Substantial interference with the movement of any native, resident, or migratory wildlife species;
- Substantial local loss of wildlife habitat (as compared to total available resources within the area) or habitat productivity;
- Nest or reproductive failure (e.g., nest destruction or abandonment, or death of chicks or adults) in any migratory bird species; or
- Range reduction for any wildlife species.

3.4.3 Environmental Consequences from the Proposed Action

Managing vegetation along the ROWs in the project area has the potential to adversely affect wildlife in a variety of ways, ranging from direct harm to indirect loss of habitat, from short-term and/or temporary impacts to long-term and/or permanent impacts. Adverse impacts may occur indirectly through habitat fragmentation or degradation (e.g., surface run-off from upland vegetation removal or access road maintenance). Additionally, adverse impacts may occur from the direct loss of life through disruption of breeding and consequent loss of eggs, chicks, or fledglings, through collision mortality on roads, or through direct or indirect contact with herbicides and/or mechanical equipment.

To minimize impacts, SOPs and PCMs have been developed. SOPs and PCMs will be implemented as appropriate and will be included, along with environmental laws and regulations and applicable agency requirements, in an annual training program for Western O&M personnel. Section 2.2.4 describes coordination with regulatory and land-management agencies, which will ensure that specific actions have the lowest potential for adverse effect. Section 2.2.2.1 describes the measures that will be taken to minimize adverse effects associated with herbicide use.

The sections below describe the types of general adverse impacts that are possible due to implementation of the Proposed Action. SOPs and PCMs, especially when considered in light of existing degraded or modified conditions along the ROWs, will minimize potential impacts.

3.4.3.1 General Disturbance Considerations

HABITAT LOSS AND DEGRADATION

Relative to the size and limits of the ROW, a significant amount of habitat has already been lost or modified over the years through implementation of Western's vegetation management procedures. Relative to the amount and type of habitats available, future habitat loss is unlikely to be substantial, given Western's current commitment to regulatory compliance.

Wildlife in the immediate vicinity of the project area is currently adapted to modified habitat conditions and associated human activities. Animals that are highly sensitive to human disturbance have undoubtedly permanently moved farther away from existing ROWs. Similarly, animals that tend to avoid openings will no longer use the ROW and animals that prefer openings will have had their habitats modestly improved through past vegetation management. For some species, especially in remote areas where past management activities have been minimal, the Proposed Action could have negative impacts.

The Proposed Action is designed to create permanent changes in habitat conditions through conversion of existing conditions to stable, low-growing vegetation communities. This requires short-term disturbances to create long-term reductions in the need for vegetation management and therefore long-term reductions in disturbance to local wildlife. Section 2.2.4.2 provides a projection of the amount of disturbance that would take place in an average year through implementation of the Proposed Action.

HABITAT FRAGMENTATION

While openings and habitat edges are beneficial for some wildlife, openings also fragment habitats. Habitat fragmentation creates a greater number of habitat patches that are smaller in size than the original tract, and it also changes habitat attributes and characteristics (Garrison 2005). Depending on the size and shape of the original tract and the size and shape of the new opening, the new patches may be either minimally smaller or they may become too small to support a certain species. Fragmentation of primary habitat types can hinder regional wildlife movements, potentially resulting in reduced interaction between individuals and changes to long-term dynamics of populations. This may increase the chance of extinction for certain populations compared to those associated with non-fragmented landscapes (Kupfer et al. 1997, Zuidema et al. 1997). Effects of fragmentation on the movement or dispersal of organisms is crucial to community composition and diversity (Opdam 1991, Tiebout III and Anderson 1997).

The outcome of fragmentation has been defined (Franklin et al. 2002) as: “the discontinuity, resulting from a given set of mechanisms, in the spatial distribution of resources and conditions present in an area at a given scale that affects occupancy, reproduction, or survival in a particular species.” Effects are species-specific. Where one species is adversely affected, another may benefit. Whereas predators may find their prey species more visible in new openings, prey species are more vulnerable because of reduced cover. Additionally, openings change microclimates; they may be warmer and/or drier in summer and colder and/or wetter in winter. Removing trees may increase the presence of shrub layers, which improves nesting conditions for some birds and limits nesting opportunities for others. Keeping ground cover low may improve the ability of certain animals to avoid predators (certain small mammals and birds, such as ground squirrels and horned larks, prefer little or no ground cover) or it may reduce safety for small mammals and birds that rely on ground cover for protection from predators.

Habitat within the project area has been previously disturbed and degraded to varying degrees through past management practices. As such, the Proposed Action is not likely to exacerbate the impacts of habitat fragmentation that have already occurred. Removal of small amounts of additional vegetation is not likely to significantly increase these particular impacts.

HERBICIDE USE AND INSTALLATION OF CELLULAR EQUIPMENT

The primary differences between the Proposed Action and the No Action Alternative are the broader application of herbicide use, the installation of fiber-optic cable, tower relocation/realignment, and installation of cellular equipment on to existing infrastructure. From a wildlife impact standpoint, only two of these differences are significantly different from existing operations and maintenance, and have the greatest potential for significant adverse effect: the broader application of herbicide use and the installation of cellular equipment on to existing infrastructure.

Herbicide Use: Wildlife could be exposed to and adversely affected by herbicides through being directly sprayed, inhaling spray mist or vapors, drinking herbicide-contaminated water or eating herbicide-contaminated seeds or vegetation, or consuming animals, such as mice or grasshoppers, that have themselves consumed contaminated vegetation. The latter effect could result in bioaccumulation of contaminants moving up the food chain, with impacts being much greater to top predators than to animals lower on the food chain.

The potential for wildlife to be affected depends on the length of exposure, the exposure amount, and the toxicity of the herbicide to the animal species. The U.S. Environmental Protection Agency (EPA) has standards for formula registration and application methods intended to reduce risks in the environment to an acceptable level.

Most herbicides approved for use by Western are low in toxicity to wildlife. The amount of chemical to which an animal is exposed is largely a function of its feeding habits. Raptors (such as hawks and owls), small herbivorous mammals, medium-sized omnivorous mammals, and birds that feed on insects would be more susceptible to herbicide exposure. These animals either feed directly on vegetation that might have been treated or they feed on animals that feed on the vegetation.

The end effect of herbicide use with the Proposed Action is the ability to promote a stable, low-growth vegetation community, which results in a long-term reduction in required vegetation maintenance. Because of the low toxicity of herbicides Western proposes for use and the implementation of SOPs and PCMs established to protect sensitive plant communities and aquatic resources, the potential for adverse effects to wildlife is reduced.

Installation of Cellular Equipment: In some locations and under certain circumstances, cellular equipment is responsible for extremely high levels of bird mortality. If they are lighted, they may be disorienting or misorienting to birds migrating during inclement weather (Longcore and Rich 2004). Morris et al. (2003) estimate that up to 5 million birds are killed annually in the U.S. by collision with communication towers.

For these reasons, the installation of cellular equipment could be considered a potentially significant adverse project effect. However, cellular equipment would be erected at existing transmission line towers and, because of this, there would be no need for guy wires. Moreover, cellular equipment would not be lighted. Installation in this manner minimizes some of the risks of isolated cellular towers. Existing transmission line towers are more visible than an isolated cellular tower would be. The lack of lighting would eliminate the potential disorienting/misorienting effects of lights

during inclement weather, and the absence of guy wires would eliminate that as a source of mortality. Cellular equipment would be taller than existing transmission line towers, which could create “blind collision” conditions described above, but their presence on top of existing transmission towers makes them less hazardous to birds than an isolated cellular tower would be.

3.4.3.2 Category A – Inspection and Minor Maintenance Activities

Category A activities are primarily inspection-type actions, with some minor repairs that would not cause substantial soil, habitat, or noise disturbance (see section 2.2.5.1 for more detail). They could result in short-term noise and minor disturbance impacts but would not be likely to significantly adversely affect general wildlife. Implementation of SOPs and PCMs would reduce the potential for adverse impacts to general wildlife to less-than-significant levels.

3.4.3.3 Category B – Routine Maintenance Activities

Category B activities have greater potential to adversely affect wildlife because they may occur in areas where ambient conditions do not include regular human disturbance, and because they potentially disturb more ground. Implementation of SOPs and PCMs developed for special-status species (see section 3.5) would minimize potential adverse impacts to general wildlife.

3.4.3.4 Category C – New Infrastructure

Category C activities may cause adverse effects to sensitive resources if PCMs are not implemented (see section 2.2.5.3 for more detail). They are generally those maintenance activities that would disturb large areas and would rely on the use of heavy equipment. Equipment used may include the use of steel-tracked and/or rubber-tired bulldozers, masticators, graders, backhoes, and front-end loaders.

For Category C activities, implementation of SOPs and PCMs would minimize adverse impacts to general wildlife.

3.4.4 Environmental Consequences from the No Action Alternative

The No Action Alternative eliminates the potential adverse effects of expanding the use of herbicides; however, the No Action Alternative could result in a higher level of repeated disturbance associated with an as-needed vegetation management approach that has not achieved the goal of long-term changes in actual vegetative cover to low-maintenance, low-growing plant communities.

The Proposed Action proposes long-term changes to habitats with the ultimate potential benefit of reduced interference with habitats along Western ROWs. Altering the plant composition of habitats may adversely affect local wildlife species; however, the long-term goal of potentially reducing human disturbance in the ROW, coupled with implementation of the rigorous SOPs and PCMs proposed in this document, could constitute a net benefit to wildlife species when compared to the No Action Alternative. The Proposed Action provides more rigorous protection measures than were previously established for this project. Therefore, wildlife could be more likely to be adversely affected by the No Action Alternative than by the Proposed Action.

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3.5 Special-status Wildlife

This section presents a description of special-status wildlife resources that could occur within the project area and an assessment of the potential impacts to wildlife that could occur from implementation of the Proposed Action and No Action Alternative. Information presented in this section is based on a field survey of the entire project area, which included an assessment of habitat potential for special-status species and identification of special-status species occurrences using a GPS unit with sub-meter accuracy, as described in section 1.4.1. Additionally, data were gathered through literature review, consultation with local species experts, and coordination with USFWS, CDFG, BLM, USFS, and NPS.

For purposes of this document, special-status wildlife species are defined as those animals (invertebrates, amphibians, reptiles, birds, and mammals) whose geographic range and native habitats overlap with the project area and that are:

- federally or state-listed, proposed for listing, or candidates for listing as threatened or endangered;
- California Department of Fish and Game species of special concern;
- listed as sensitive by the USFS for national forests affected by the project; and/or
- listed as sensitive by the BLM.

Special-status Species Eliminated from Consideration

A number of special-status species that could potentially occur in the project area have been dropped from further consideration in this document, either because an agency has indicated that the Proposed Action is unlikely to affect the species or because their essential habitats do not occur in project ROWs. BLM provided guidance that the BLM-sensitive snails are not likely to be adversely affected because project ROWs are already disturbed and therefore considered non-habitat. As such, these are not considered in this document. Other species, such as the montane peaclam, scalloped juga, topaz juga, Shasta crayfish, Shasta salamander, Bell's sage sparrow, and long-billed curlew, were determined to either occur outside the project impact area or to occur in habitats not affected by the project. Species that were initially considered and later dropped are shown in Table 3.5-1 as those for which Area of Potential Occurrence is "None" and PCM-ID is "N/A."

Management Indicator Species. Management Indicator Species (MIS) are identified in the land and resource management plans of each national forest and are generally identified to represent habitat types that occur within the national forest boundary and/or because they are thought to be sensitive to national forest system management activities. In coordination with Shasta-Trinity National Forest representatives, it was determined that the Proposed Action would not meaningfully alter population and/or habitat trends of MIS due to the small area within Western's ROWs requiring vegetation

management relative to the entire USFS property. As such, MIS were not considered in this EA.

Survey and Manage Species. In 1994, BLM and USFS adopted standards and guidelines for the management of late-successional and old-growth-forest-related species within the Northwest Forest Plan. Mitigation measures for hundreds of rare and little-known species were also included in the Northwest Forest Plan as the Survey and Manage Standards and Guidelines. These standards and guidelines are directive of the management of known species occurrence locations, site-specific pre-disturbance surveys, and/or landscape level surveys for these species (USFS and BLM 2007). As stated in Forest Service Memorandum/BLM Information Bulletin No. OR-2002-253: "Routine maintenance of improvements and existing structures is not considered a habitat-disturbing activity. Examples of routine maintenance include pulling ditches, clearing encroaching vegetation, managing existing seed orchards, and falling hazard trees." The Proposed Action is, therefore, in compliance with the Survey and Manage procedures from the *Record of Decision and Standards and Guidelines for Amendments to Survey and Manage, Protection Buffer, and other Mitigation Measure Standards and Guidelines* (USFS and BLM 2001).

Special-status Species Retained for Consideration

Table 3.5-1 below lists the special-status wildlife considered in this document. This list was compiled with the assistance of and/or has been reviewed by USFWS, CDFG, NPS, USFS, and BLM.

Note that, for most bird species, CDFG has determined whether just nesting habitat is of greatest concern or whether both nesting and wintering habitats need to be monitored and/or protected. Table 3.5-1 provides this information for each species. If this distinction is not provided for a particular bird, the entire California range and life history requirements of that bird are of concern. This distinction applies only to birds, and only to certain birds.

Scientific names are provided only in Table 3.5-1. Common names are used within the body of the report. For definitions of the habitat types provided in Table 3.5-1, refer to section 8 for terms and acronyms, and section 3.2 for additional descriptions of habitat codes. Refer to Tables 2-3 and 2-4 for PCMs.

Table 3.5-1 Special-status Wildlife

Species Name	Status	Habitat Types	Area of Potential Occurrence ¹	PCM-ID
INVERTEBRATES				
Conservancy fairy shrimp <i>Branchinecta conservatio</i>	FE	Wvpi, Wvpgnn	Valley	PCM-B042 PCM-W001
		Wvpi, Wvpgnn	<u>Critical habitat</u> : Valley	PCM-B042a PCM-W001
Delta green ground beetle <i>Elaphrus viridis</i>	FT	Wvpi, Wvpgnn	Valley (known from Solano County only)	PCM-B043 PCM-W001
			<u>Critical habitat</u> : Valley	PCM-B043a PCM-W001
Great Basin ram's horn <i>Helisoma newberryi</i>	FSS	Wacp, Wapd, Walk, War, Wasp, Wfm, Wot	None	N/A
Hooded lancetooth <i>Ancotrema voyanum</i>	BLMS	Waci, Wasp, Wacp	None	N/A
Longhorn fairy shrimp <i>Branchinecta lynchi</i>	FE	Wvpi, Wvpgnn	Valley	PCM-B044
Montane (fingernail) peaclam <i>Pisidium ultramontanum</i>	FSS	Wasp	None	N/A
Oregon shoulderband snail <i>Helminthoglypta hertleini</i>	BLMS	Talus slopes, rock outcrops in Fdf, Fkm, Fmc	None	N/A
Pressley's hesperian snail <i>Vespericola pressleyi</i>	BLMS	Seeps, springs in old growth forest, riparian habitat in Wacp, Warv, Wasp	None	N/A
Scalloped juga <i>Juga occata</i>	FSS	Waci, Wacp, Warv, Wasp	None	N/A
Shasta crayfish <i>Pacifastacus fortis</i>	FE/SE	Wacp, Warv	None	N/A
Siskiyou sideband snail <i>Monadenia chaceana</i>	BLMS	Talus slopes, rock outcrops in Fdf, Fkm, Fmc	None	N/A
Tehama chaparral snail <i>Trilobopsis tehamana</i>	BLMS	Limestone outcrops and rocky talus	None	N/A
Topaz juga <i>Juga acutifilosa</i>	FSS	Waci, Wacp, Warv, Wasp, Wfm	None	N/A
Trinity shoulderband snail <i>Helminthoglypta talmadgei</i>	BLMS	Mine tailings, limestone rockslides, shaded streams in Fdf, Fkm, Fmc	None	N/A

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Species Name	Status	Habitat Types	Area of Potential Occurrence ¹	PCM-ID
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	FT	Ebis, Ebsv	Valley Redding/Trinity Round Mountain/Modoc	PCM-B045
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	FT	Wvpi, Wvpgnn	Valley Redding/Trinity Round Mountain/Modoc	PCM-B046 PCM-W001
		Wvpi, Wvpgnn	<u>Critical habitat</u> : Valley	PCM-B046a PCM-W001
Vernal pool tadpole shrimp <i>Lepidurus packardii</i>	FE	Wvpi, Wvpgnn	Valley Redding/Trinity Round Mountain/Modoc	PCM-B047 PCM-W001
		Wvpi, Wvpgnn	<u>Critical habitat</u> : Valley	PCM-B047a PCM-W001
AMPHIBIANS				
California red-legged frog <i>Rana draytonii</i>	FT/SSC	Waci, Wacp, Wapd, Warv, Wasp, Wfm, Waim, Wse	Valley Redding/Trinity	PCM-B058 PCM-W002
California tiger salamander <i>Ambystoma californiense</i>	FT/SSC	Wapd, Walk, Waim, Wse, Wvpi, Wvpgnn in Gnn, Gnp, oak savannah	Valley	PCM-B059 PCM-W001
			<u>Critical habitat</u> : Valley (along COTP in Solano County)	PCM-B059a PCM-W001
Cascades frog <i>Rana cascadae</i>	SSC/FSS	Mwm, Waci, Wacp, Wapd, Walk, Wasp, Wfm	Round Mountain/Modoc	PCM-B060 PCM-W002
Foothill yellow-legged frog <i>Rana boylei</i>	SSC/FSS/BLMS	Waci, Wacp, Warv	Valley (foothill edges) Redding/Trinity Round Mountain/Modoc	PCM-B061 PCM-W002
Oregon spotted frog <i>Rana pretiosa</i>	FC/SSC/FSS	Wacp, Wapd, Walk, Mwm, Wfm	Round Mountain/Modoc	PCM-B062 PCM-W002
Shasta salamander <i>Hydromantes shastae</i>	ST/FSS	Plant communities: Fmc, Fpp, Rms, Wbla, Wblu, Wfp Habitat feature: limestone outcrops, caves, fissures	None	N/A
Tailed frog <i>Ascaphus truei</i>	SSC	Fdf, Fkm Fpp, Fmc, Rmw, Rma, Wacp, Warv – fast water, cascading streams, and waterfalls	Redding/Trinity Round Mountain/Modoc	N/A

Species Name	Status	Habitat Types	Area of Potential Occurrence ¹	PCM-ID
Western spadefoot <i>Spea hammondi</i>	SSC/BLMS	Gnn, Gnp, Wblu, Wbla, Wlo, Wfp, Wapd, Wfm, Wse, Wvpi, Wvpgnn	Valley	PCM-B063 PCM-W001
REPTILES				
Alameda whipsnake <i>Masticophis lateralis euryxanthus</i>	FT	Cmi, Coa, Wbla, Wblo, Gnn	Valley	PCM-B064
Coast horned lizard <i>Phrynosoma coronatum frontale</i>	SSC/BLMS	Bar, Cmi, Coa, Fdf, Fmc, Fpp, Fwf, Gnn, Gnp, Gully, Rfg, Rgs, Rmw, Ssb, Wbla, Wblu, Wfp, Wlo Special features: open areas, sandy washes, scattered shrubs, gravelly areas, xeric conditions	Valley	PCM-B065
Giant garter snake <i>Thamnophis gigas</i>	FT/ST	Wadr, Waic, Wot, Wasp, Waim, Wfm, Rgf, Rgs, Agri, Agps, Aggr, Gnn, Gnp, Wacp, Waci, Wapd, Walk, Warv	Valley	PCM-B066 PCM-W002
Northern sagebrush lizard <i>Sceloporus graciosus graciosus</i>	BLMS	Cmi, Cmo, Coa, Ssb	Round Mountain/Modoc (low potential for range overlap)	PCM-B067
San Joaquin whipsnake <i>Masticophis flagellum ruddocki</i>	SSC	Agps, Aggr, Bar, Cmi, Coa, Gnn, Gnp, Ssb	Valley (small area of potential range overlap in southern COTP and around Sutter Buttes on CW-Roseville)	N/A
Western pond turtle <i>Clemmys marmorata</i>	SSC/FSS	Waci, Wacp, Wapd, Walk, Warv, Waim, Wadr, Waic, Wfm	Valley Redding/Trinity Round Mountain/Modoc	PCM-B068
BIRDS				
American peregrine falcon <i>Falco peregrinus (nesting)</i>	FD/SE-FP/FSS	Cliffs, coastal or inland	Valley Round Mountain/Modoc	PCM-B069
Bald eagle <i>Haliaeetus leucocephalus (nesting and wintering)</i>	FD/SE-FP	Rmw, Rma, Rms, Fwf, Fkm, Fpp, Fmc	Redding/Trinity Round Mountain/Modoc	PCM-B070

North Area ROW Maintenance EA

Species Name	Status	Habitat Types	Area of Potential Occurrence ¹	PCM-ID
Bank swallow <i>Riparia riparia</i> (nesting)	ST	Waci, Wacp, Warv	Valley Round Mountain/Modoc	PCM-B0671 PCM-W002
Bell's sage sparrow <i>Amphispiza belli belli</i>	SSC	Cmi, Coa, Rgs, Ssb	None	N/A
Black tern <i>Chlidonias niger</i> (nesting)	SSC	Waim, Wapd, Wfm, Wot, Wse, Agri	Valley Round Mountain/Modoc	N/A
Black swift <i>Cypseloides niger</i> (nesting)	SSC	Wacp, Warv nests on cliffs/ledges, usually near or behind waterfalls	Redding/Trinity potential for occurrence) ^{(low}	N/A
California black rail <i>Laterallus jamaicensis</i> <i>coterniculus</i>	ST-FP	Wasp, Wfm, Wadr, Waot, Wapd, Mot, Mwm	Valley Round Mountain/Modoc	PCM-B072 PCM-W002
California horned lark <i>Eremophila alpestris actia</i>	SSC	Agps, Aggr, Gnn, Gnp, Ssb	Valley Redding/Trinity Round Mountain/Modoc	N/A
California spotted owl <i>Strix occidentalis</i> <i>occidentalis</i>	SSC/FSS/BLMS	Fdf, Fkm, Fpp, Fmc, Fwf	Round Mountain/Modoc	PCM-B073
Cooper's hawk <i>Accipiter cooperi</i> (nesting)	SSC	Rgf, Rmw, Wbla, Wblu, Wfp, Wlo	Valley Redding/Trinity Round Mountain/Modoc	N/A
Golden eagle <i>Aquila chrysaetos</i> (nesting and wintering)	SSC-FP	Gnn, Gnp, Ssb, Wblu, Wlo	Valley Round Mountain/Modoc	N/A
Great gray owl <i>Strix nebulosa</i> Nesting	SE/FSS	Fdf, Fkm, Fmc, Fpp, Fwf,	Round Mountain/Modoc	PCM-B074
Greater sage grouse <i>Centrocercus urophasianus</i> (nesting and leks)	SSC/FSS/BLMS	Ssb	Round Mountain/Modoc	PCM-B075
Greater sandhill crane <i>Grus canadensis tabida</i> (nesting and wintering)	ST-FP/FSS	Mwm, Mot, Wse, Wsw, Wfm, Wot	Valley	PCM-B076 PCM-W002
Little willow flycatcher <i>Empidonax traillii brewsteri</i> (nesting)	SE/FSS	Mwm, Rmw, Rma, Rms	Redding/Trinity Round Mountain/Modoc	PCM-B077 PCM-W002
Loggerhead shrike <i>Lanius ludovicianus</i> (nesting)	SSC	Cmi, Coa, Mot, Rgf, Rfs, Ssb, Wblu, Wbla, Wlo	Valley Redding/Trinity Round Mountain/Modoc	N/A
Long-billed curlew <i>Numenius americanus</i> (nesting)	SSC	Gnn, Gnp, Mwm, Mot	None	N/A
Long-eared owl <i>Asio otus</i> (nesting)	SSC	Rgf, Rgs, Rma, Rmw	Valley Round Mountain/Modoc	N/A

Species Name	Status	Habitat Types	Area of Potential Occurrence ¹	PCM-ID
Northern goshawk <i>Accipiter gentilis</i> (nesting)	SSC/FSS/BLMS	Fdf, Fpp, Fkm, Fmc, Fwf	Valley Round Mountain/Modoc	PCM-B078
Northern harrier <i>Circus cyaneus</i> (nesting)	SSC	Wfm, Wot, Gnn, Gnp, Ssb	Valley Round Mountain/Modoc	N/A
Northern spotted owl <i>Strix occidentalis caurina</i>	FT	Fdf, Fkm, Fpp, Fmc, Fwf	Redding/Trinity Round Mountain/Modoc	PCM-B079
			<u>Critical habitat</u> : Redding/Trinity Round Mountain/Modoc	PCM-B079a
Osprey <i>Pandion haliaetus</i> (nesting)	SSC	Fpp, Fkm, Fmc	Valley Redding/Trinity Round Mountain/Modoc	N/A
Prairie falcon <i>Falco mexicanus</i> (nesting)	SSC	Ssb, Gnn, Gnp	Round Mountain/Modoc	N/A
Sharp-shinned hawk <i>Accipiter striatus</i> (nesting)	SSC	Fdf, Fkm, Fmc, Fpp, Fwf, Rma, Rmw, Wbla, Wblu, Wlo	Valley Redding/Trinity Round Mountain/Modoc	N/A
Short-eared owl <i>Asio flammeus</i> (nesting)	SSC	Mot, Wfm, Wse, Gnn, Gnp	Round Mountain/Modoc	N/A
Swainson's hawk <i>Buteo swainsoni</i> (nesting)	ST/FSS	Agps, Aggr, Gnn, Gnp, Ssb, Rgf, Wblu, Wbla, Wlo	Valley Round Mountain/Modoc	PCM-B080
Tricolored blackbird <i>Agelaius tricolor</i> (nesting colony)	SSC/BLMS	Mot, Wapd, Wfm, Wadr, Waim, Waic, Wasp, Wot, Agps	Valley Redding/Trinity Round Mountain/Modoc	PCM-B081 PCM-W002
Vaux's swift <i>Chaetura vauxi</i> (nesting)	SSC	Fdf, Fpp, Fkm, Fmc	Redding/Trinity Round Mountain/Modoc	N/A
Western burrowing owl <i>Athene cunicularia</i> (burrow sites winter and summer)	SSC/BLMS	Gnn, Gnp, Ssb	Valley Redding/Trinity Round Mountain/Modoc	PCM-B082
Western yellow-billed cuckoo <i>Coccyzus americanus</i> <i>occidentalis</i> (nesting)	FC/SE/FSS	Rgf	Valley	PCM-B083
White-faced ibis <i>Plegadis chihi</i> (rookery site)	SSC	Wfm, Wse, Wot	Valley	N/A
White-tailed kite <i>Elanus leucurus</i> (nesting)	FP	Agps, Gnn, Gnp, Rgs, Rgf, Wblu, Wfp, Wlo, Mot	Valley Redding/Trinity Round Mountain/Modoc	N/A

Species Name	Status	Habitat Types	Area of Potential Occurrence ¹	PCM-ID
Yellow warbler <i>Dendroica petechia brewsteri</i> (nesting)	SSC	Cmo, Fmc, Fpp, Rgf, Rgs, Rma, Rms, Rmw, Wbla, Wblu, Wfp, Wlo	Valley Redding/Trinity Round Mountain/Modoc	N/A
Yellow-breasted chat <i>Icteria virens</i> (nesting)	SSC	Rgf, Rgs, Rms	Valley	N/A
MAMMALS				
American badger <i>Taxidea taxus</i>	SSC	Agpa, Cmi, Cmo, Coa, Fdf, Fkm, Fmc, Fpp, Fwf, Gnn, Gnp, Gully, Levee, Ssb, Wbla, Wblu, Wfp, Wlo	Valley Redding/Trinity Round Mountain/Modoc	N/A
American marten <i>Martes americana sierra</i>	FSS	Fkm, Fmc, Fpp, Fwf	Redding/Trinity Round Mountain/Modoc	PCM-B084
California wolverine <i>Gulo gulo luteus</i>	ST-FP/FSS	Fdf, Fkm, Fmc, Mwm, Rmw, Rma	Redding/Trinity Round Mountain/Modoc (species extremely rare and may no longer occur in California)	PCM-B085
Fringed myotis <i>Myotis thysanodes</i>	BLMS	Roosts in caves, mine tunnels, rock crevices, buildings, live and dead trees in Fpp, Fdf, Fkm, Fmc, Cmi, Cmo, Gnn, Ssb, Wbla, Wblu, Wfp, Wlo	Redding/Trinity Round Mountain/Modoc	PCM-B086
Greater western mastiff bat <i>Eumops perotis californicus</i>	SSC/BLMS	Significant rock features with crevice roost sites in Cmi, Cmo, Coa, Fmc, Fpp, Rgf, Rma, Rms, Wbla, Wblu, Wfp, Wlo	Valley (small area of potential range overlap in the extreme southern end of the project area)	PCM-B087
Long-eared myotis <i>Myotis evotis</i>	BLMS	Roosts in live and dead trees, crevices in rock outcrops, mines or caves in Fpp, Fmc, Fwf, Mwm, Rma, Rms, Rmw, Wbla	Redding/Trinity	PCM-B088
Marysville California kangaroo rat <i>Dipodomys californicus eximus</i>	SSC/BLMS	Cmi, Gnn, Gnp	None	N/A

Species Name	Status	Habitat Types	Area of Potential Occurrence ¹	PCM-ID
Pacific fisher <i>Martes pennanti</i>	FC/SSC/FSS/ BLMS	Fdf, Fkm, Fpp, Fmc, Fwf, Rmw, Rma	Redding/Trinity Round Mountain/Modoc	PCM-B089
Pallid bat <i>Antrozous pallidus</i>	SSC/FSS/BLMS	Roosts in trees, caves, crevices, buildings, bridges in Mwm, Mot, Rgf, Rgvs, Wfp, Wblu, Wlo, Cmi	Valley Redding/Trinity Round Mountain/Modoc	PCM-B090
Pygmy rabbit <i>Brachylagus idahoensis</i>	SSC/None/BLMS	Ssb	Round Mountain/Modoc	PCM-B091
San Joaquin kit fox <i>Vulpes macrotis mutica</i>	FE/ST	Agor, Agps, Aggr, Agrc, Bar, Gnn, Gnp, Lev, Ssb	Valley	PCM-B092
San Joaquin pocket mouse <i>Perognathus inornatus inornatus</i>	BLMS	Gnn, Gnp, Ssb	Valley	PCM-B093
Sierra Nevada red fox <i>Vulpes vulpes necator</i>	ST/FSS	Cmo, Cmi, Fdf, Fpp, Fkm, Fmc, Fwf, Mwm, Mot, Rmw, Rma, Rms	Round Mountain/Modoc (subspecies is rare and highly localized)	PCM-B094
Spotted bat <i>Euderma maculatum</i>	SSC/BLMS	Substantial cliffs with suitable crevice roost sites in Fpp, Ssb, Wfp, Wbla, Wlo, Gnn	Round Mountain/Modoc	PCM-B095
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	SSC/FSS/BLMS	Roosts in caves, mines, tunnels, buildings in Rgf, Rgs, Rma, Rms, Wfm, Wot, Mwm, and Fdf, Fkm, Fmc, Fpp, Fwf, Fpp, Fmc, Fwf, Gnn, Mot, Wbla, Wblu, Wfp, Wlo	Valley Redding/Trinity Round Mountain/Modoc	PCM-B096
Western red bat <i>Lasiurus blossevillii</i>	FSS	Roosts in trees and shrubs in Rgf, Rgs, Agro, Cmi, Coa, Fmc, Fpp, Wblu, Wfp, Wlo	Redding/Trinity	PCM-B097
Western small-footed myotis <i>Myotis ciliolabrum</i>	BLMS	Roosts in caves, buildings, mines, crevices, bridges and trees in Wblu, Wfp, Wlo, Wbla, Ssb, Cmi, Cmo, Coa, Fmc, Fpp	Round Mountain/Modoc	PCM-B098

Species Name	Status	Habitat Types	Area of Potential Occurrence ¹	PCM-ID
Yuma myotis <i>Myotis yumanensis</i>	BLMS	Roosts near water in buildings, mines, caves, bridges, trees in Wblu, Wfp, Wlo, Rgf, Rgs, Rma, Fmc, Fpp, Cmi, Coa	Valley Redding/Trinity	PCM-B099

¹ Area of Potential Occurrence reflects two factors: 1) the natural geographic range of a species and 2) the presence of suitable habitat within the project area. A species may occur in a particular region, but that region will not be listed for the species if the project ROW does not cross suitable habitat. An example is the greater sandhill crane, which nests in the Round Mountain/Modoc region, but is not listed as occurring in that region because the project area does not cross suitable nesting habitat.

Status codes: BLMS= BLM Sensitive, FD = Federally Delisted, FE = Federally Endangered, FP = Fully Protected, FSS= Forest Service Sensitive, FC = Federal Candidate, FT = Federally Threatened, SSC = State Species of Concern, SE = State Endangered, ST = State Threatened

3.5.1 Affected Environment

Certain special-status species, such as the Sierra Nevada red fox, are extremely localized in occurrence. Others, such as the western pond turtle, are more widely distributed in northern California, and still others, such as the greater western mastiff bat, may be more widely distributed in general but not in northern California. Some special-status species may be found only in a small portion of the project area whereas others may occur throughout the project area.

Table 3.5-1 identifies the project region (Valley, Redding/Trinity, Round Mountain/Modoc) in which a given species has the potential to occur. These are project regions, not intended to correspond with any particular geographic or physiographic region. Because the communication facilities are dispersed throughout the project area, the description of their affected environment is encompassed in the following sections.

3.5.1.1 Valley

For purposes of this document, the Valley region includes not only the Central Valley but also the foothill regions of both the Coast Ranges and the Sierra Nevada. Several special-status species occur only in the Valley region, including invertebrates, amphibians and reptiles, birds, and mammals, as listed in Table 3.5-1.

The Valley region contains designated critical habitat for California tiger salamander, conservancy fairy shrimp, vernal pool fairy shrimp, vernal pool tadpole shrimp, and delta green ground beetle. Figures 3.5-1 through 3.5-4 show the locations where critical habitat overlaps with the project area for these five species. Critical habitat, described more fully in section 3.5.2.3, is a formal designation under the federal Endangered Species Act where specific areas are designated as essential to the conservation and recovery of a federally listed species. These areas may require special management consideration or protection.

INVERTEBRATES

Five special-status invertebrates are known to occur in the Valley region: valley elderberry longhorn beetle, conservancy fairy shrimp, delta green ground beetle, vernal pool fairy shrimp, and vernal pool tadpole shrimp. Suitable habitat for these invertebrates is found in a number of locations throughout the Valley region of the project area.

The valley elderberry longhorn beetle is completely dependent on its host plant, elderberry (*Sambucus* spp). This beetle lays its eggs in the crevices of elderberry shrubs. Larvae tunnel through and feed on the stems, trunks, and roots, emerging in one to two years. Elderberry plants are found in the remaining riparian forests and adjacent uplands of the Central Valley.

The other four invertebrates are all associated with vernal pools. Vernal pools are shallow (usually), natural depressions in level ground, with no permanent above-ground outlet, that hold water for variable periods of time during the winter, and are typically dry all summer and fall. Fairy and tadpole shrimp live their entire lives in vernal pools, over-summering as cysts.

Although it has been found hundreds of meters away from vernal pools, the delta green ground beetle is typically found around the margins of vernal pools within 1.5 meters of the water, where it hunts for soft-bodied insects such as springtails.

AMPHIBIANS

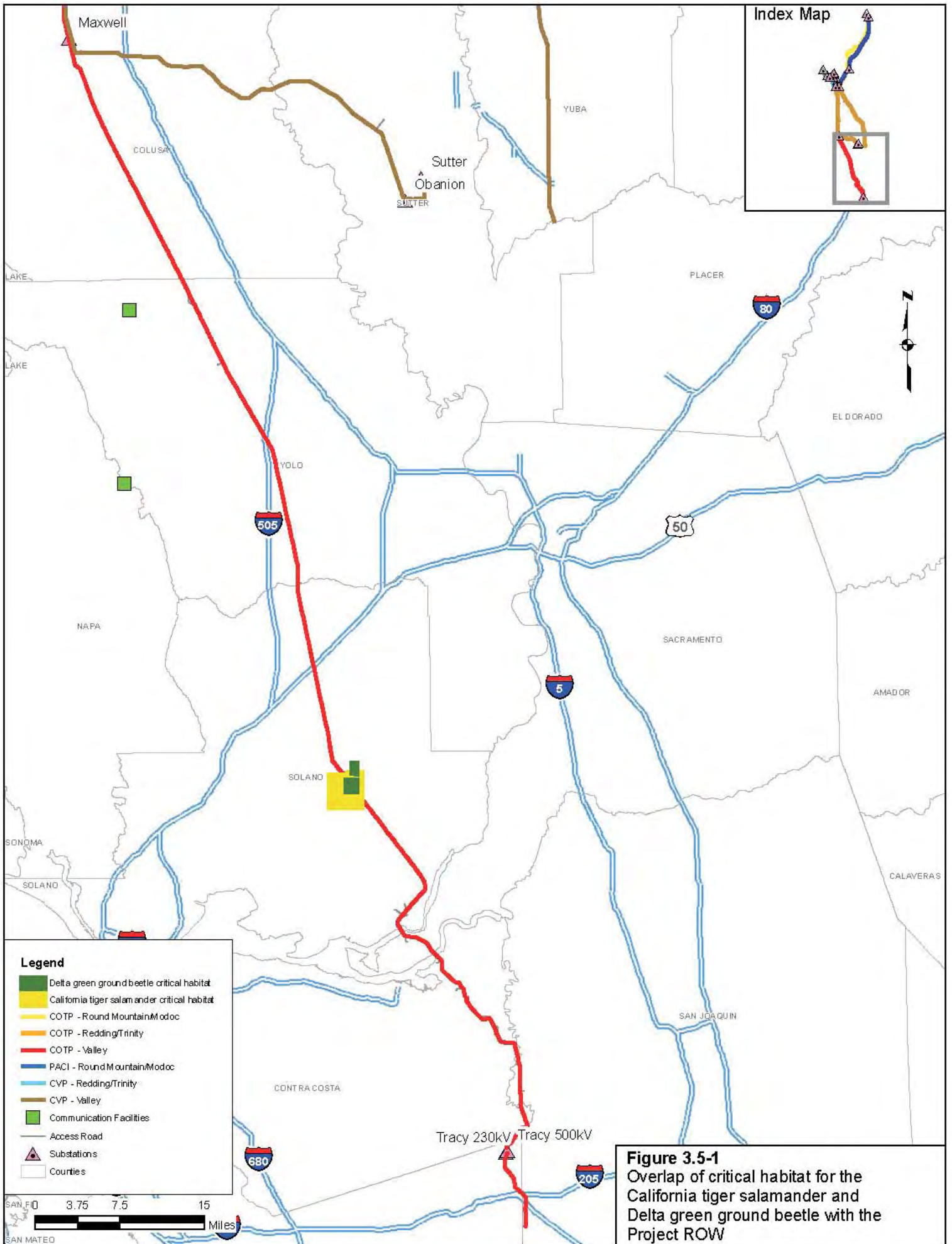
Four special-status amphibians could potentially occur in habitats along project ROWs in the Valley region: California red-legged frog, California tiger salamander, western spadefoot (a toad), and foothill yellow-legged frog.

The California red-legged frog is not known to occur on the floor of the Central Valley, but could occur in foothill regions of the Coast Ranges and the Sierra Nevada. It requires deep (at least 2.3 feet deep), still or slow-moving water for breeding, and upland habitats for cover during the nonbreeding season. In the nonbreeding season, it may also be found in seeps, springs, creeks, and other moist places. It often travels overland in a straight line when it moves from one habitat to another and may be found in transit in habitats far from water.

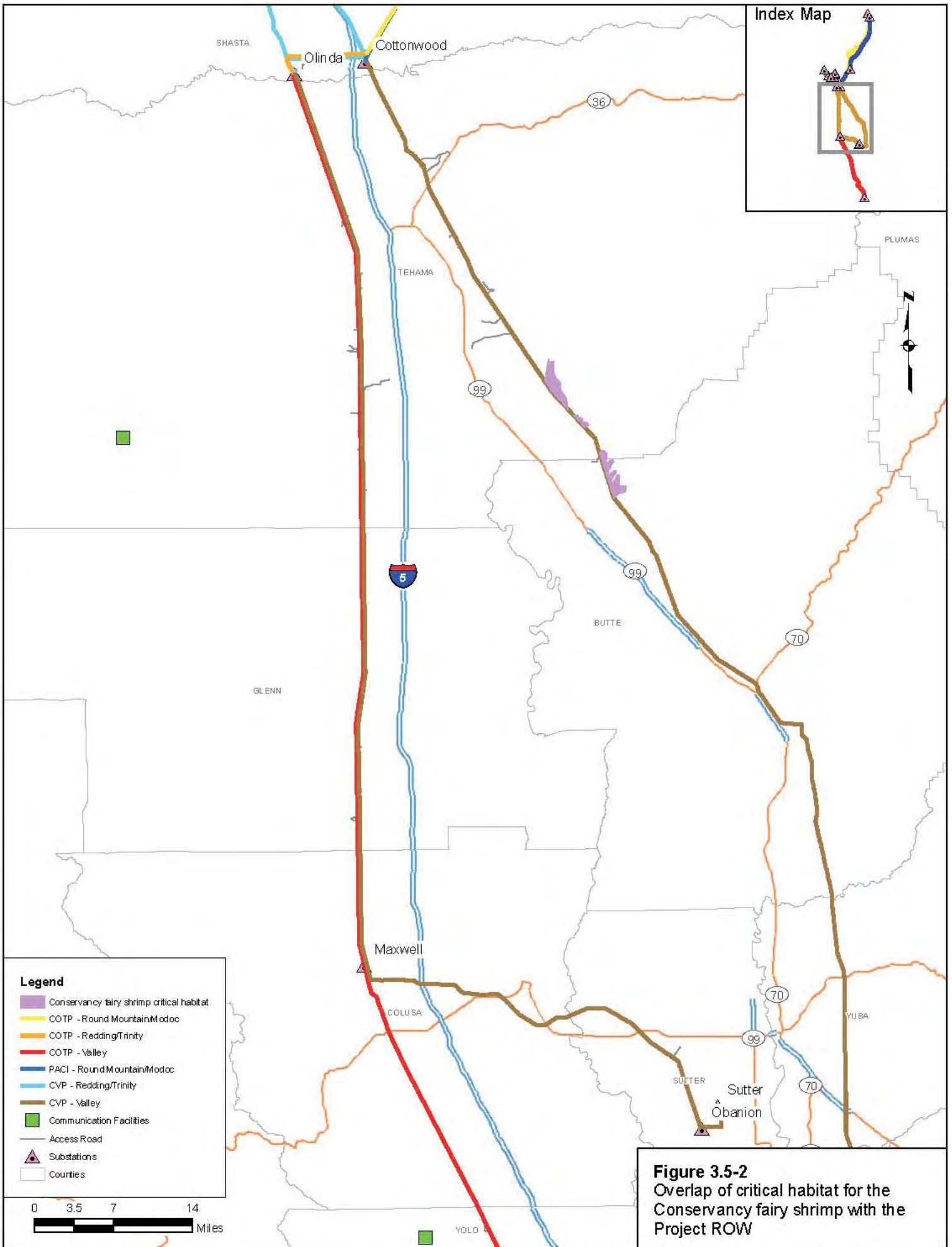
California tiger salamanders and western spadefoots are dependent on vernal pools and other seasonal ponds for breeding. Rarely, tiger salamanders may breed in permanent water bodies such as slow-moving creeks or stock ponds. Both species lay their eggs in water in winter or early spring, and spend most of their lives in the nonbreeding season in underground burrows in uplands as far as 2000 feet from breeding pools.

The foothill yellow-legged frog inhabits clear, fast-flowing, well-oxygenated, rocky streams and rivers. Like the red-legged frog, it is unlikely to occur on the valley floor, but could be found in suitable habitats in foothill regions of both the Coast Ranges and the Sierra Nevada.

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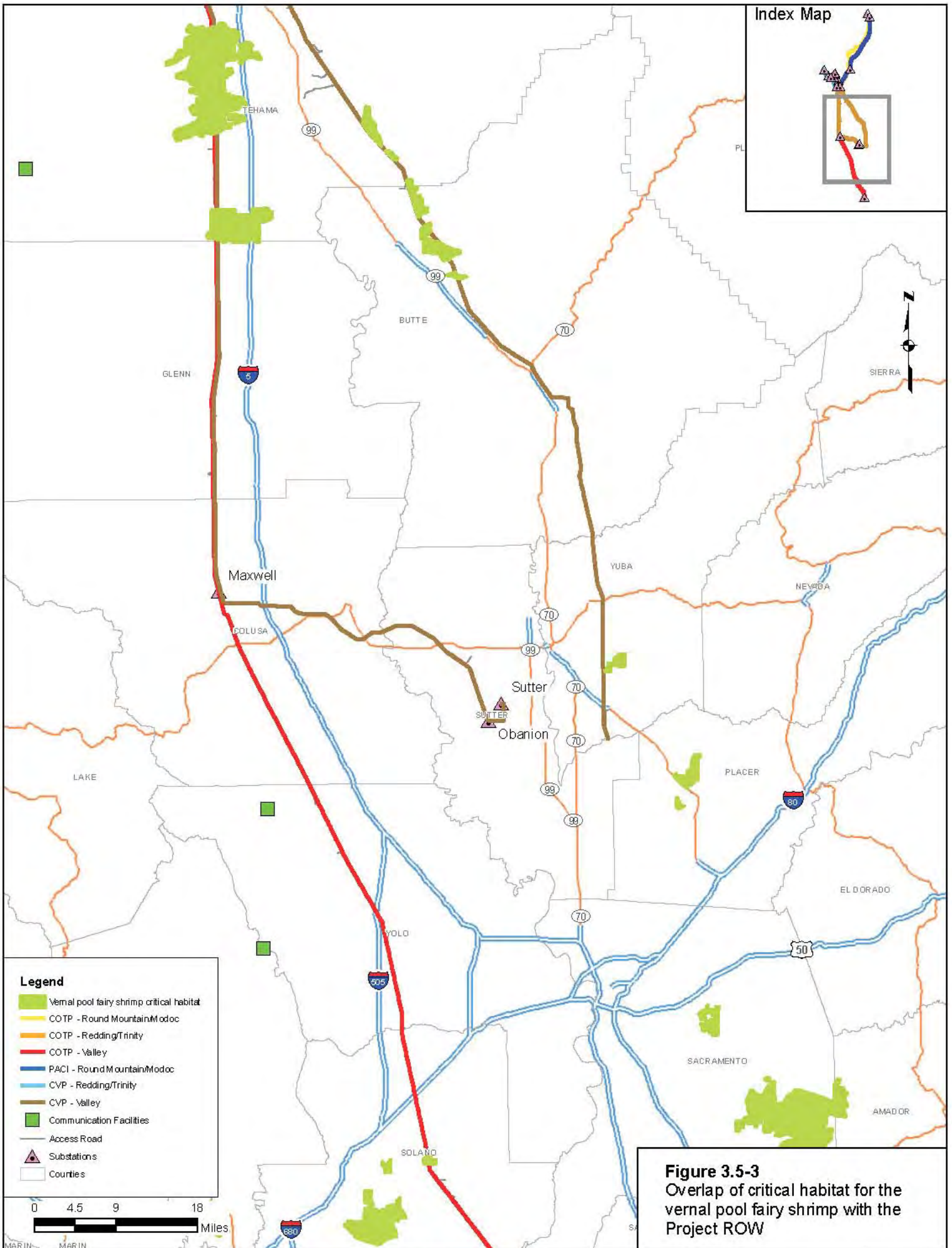
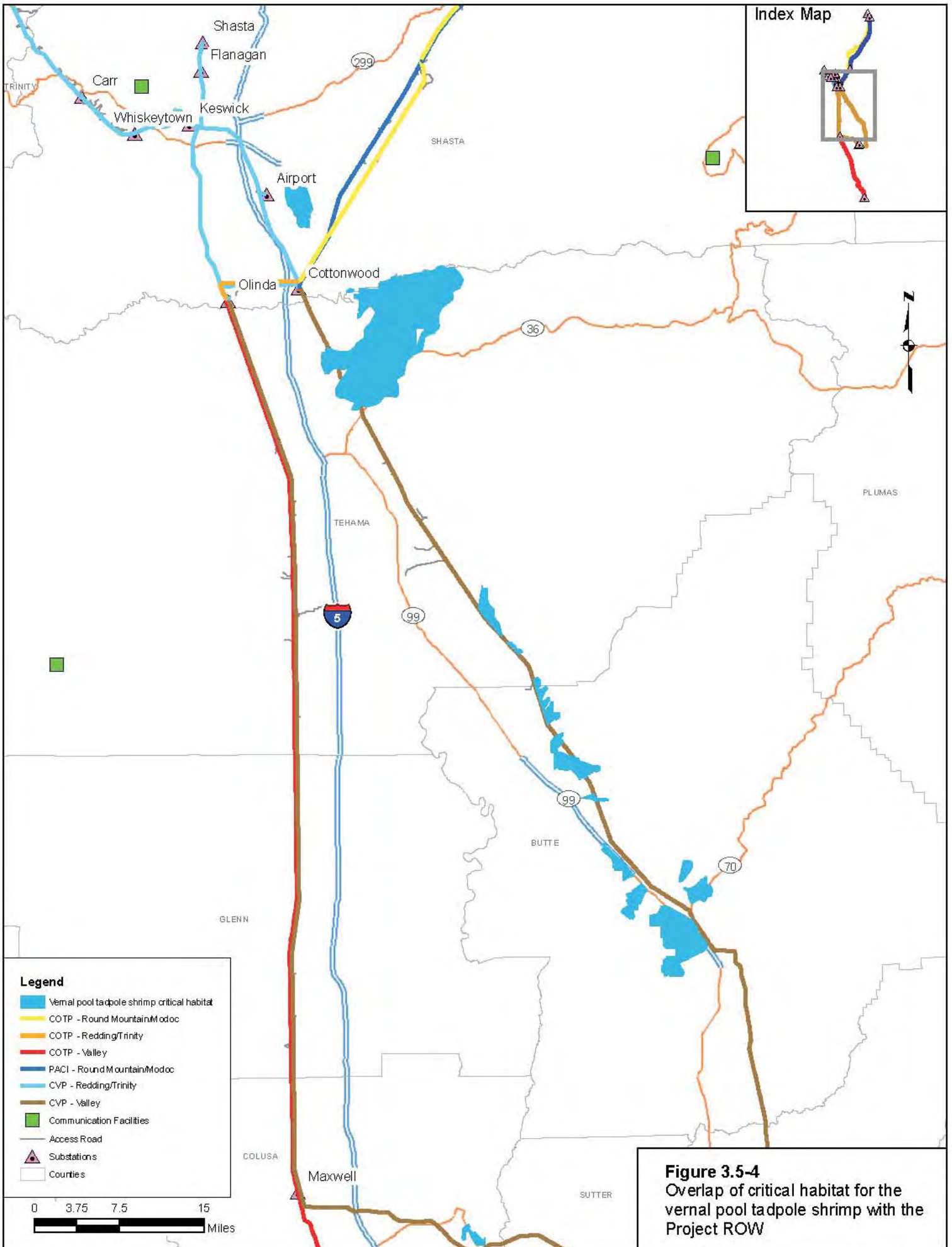


Figure 3.5-3
 Overlap of critical habitat for the vernal pool fairy shrimp with the Project ROW

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REPTILES

Four special-status reptiles occur in the Valley region: coast horned lizard, giant garter snake, San Joaquin whipsnake, and western pond turtle.

The coast horned lizard is generally absent from the valley floor but may be found in the foothills of the Coast Ranges and Sierra Nevada. It occurs in a variety of habitats where it is mostly found in open country, especially sandy areas, washes, floodplains, and windblown deposits.

The giant garter snake, a state and federally threatened species, is found exclusively in the Central Valley, primarily in marshes and sloughs, but also in rice fields, drainage and irrigation ditches, and occasionally in slow-moving creeks. It prefers open, marshy areas where it can bask in the sun and tends to avoid riparian areas or otherwise dense shoreline cover because they are too shady.

The San Joaquin whipsnake is the subspecies of coachwhip that occurs in central and northern California. It occurs in open, dry habitats. It has a small area of potential range overlap with project ROWs in the southern part of the North Area line and the eastern portion of the North Area line near Sutter Buttes.

The western pond turtle is found in many different aquatic habitats, from ponds to sloughs and ditches, creeks and rivers, lakes and reservoirs. Only during the hottest times of year will it be found in shaded areas. It is otherwise found almost exclusively in open water that has deep and/or turbid water for cover, and vegetation mats, logs, rocks, or shallow shores for basking.

BIRDS

Twenty-two special-status birds could occur along project rights-of-way in the Valley region, as listed in Table 3.5-1. Most of them could also occur in other parts of the project area if suitable habitat exists. These 22 species are discussed briefly below, primarily in terms of their general habitat preferences.

In northern California, peregrine falcons nest primarily in cliffs adjacent to or near large bodies of water, typically lakes, where they hunt water birds such as ducks and shorebirds. Osprey also nest near large bodies of water, which can include large rivers, where they hunt fish. Osprey nest in large trees in forested areas. Golden eagles nest in both large trees and cliffs, but they generally hunt mammals such as hares and ground squirrels in open-country fields. Cooper's hawks, sharp-shinned hawks, and northern goshawks nest in woodlands and forests; all three are bird hunters and require reasonable proximity of creeks or rivers for the birds associated with riparian habitats.

Bank swallows, long-eared owls, yellow warblers, western yellow-breasted cuckoos, and yellow-breasted chats require riparian habitat for nesting. Black terns, California black rails, greater sandhill cranes, tricolored blackbirds, and white-faced ibis all require wetlands or wet meadows for breeding. Northern harriers nest in wet meadows or grasslands, occasionally shrublands far from water.

California horned larks and burrowing owls are open-country, grassland birds. The loggerhead shrike is found in a variety of open, arid habitats, including open woodlands, forests, and grasslands. Swainson's hawks and white-tailed kites both nest in riparian areas or in large, isolated trees, and both forage over open terrain that may include grasslands or farm lands. Swainson's hawks also nest in open pinyon-juniper habitats such as those found in northeastern California.

MAMMALS

Seven special-status mammals could occur along project ROWs in the Valley region: American badger, greater western mastiff bat, pallid bat, San Joaquin kit fox, San Joaquin pocket mouse, Townsend's big-eared bat, and Yuma myotis.

American badgers, San Joaquin kit foxes, and San Joaquin pocket mice are all open-country mammals. Badgers occur in many habitats throughout the state including woodlands, but are primarily associated with grasslands, shrublands, and open arid areas. Kit foxes and pocket mice are desert dwellers, both occurring primarily in the extreme southern portions of the project area.

The greater western mastiff bat is an example of a mammal with a generally wide distribution but a small range overlap with the project area. All the bat species may roost in mines, caves, or tunnels, under bridges, in crevices in large rocky outcrops or cliffs, in large trees with exfoliating bark, occasionally in large leaves, or in abandoned buildings. These bats will generally forage over a variety of habitats, but the Yuma myotis is associated with water bodies.

The Townsend's big-eared bat is extremely sensitive to human disturbance and will quickly and permanently abandon even a substantial colonial roost from minimal disturbance.

3.5.1.2 Redding/Trinity

The Redding/Trinity region begins at the Shasta-Tehama county line on the south and extends to the north and west of the Cottonwood Substation, including the urban areas around Redding and the forested areas of Trinity County. Special-status species that could occur in this area are described briefly below. Please refer to Table 3.5-1 for scientific names. Aside from special-status fishes, which are discussed in section 3.7, the one federally listed species that has designated critical habitat in the Redding/Trinity area is the northern spotted owl (see Figure 3.5-5).

INVERTEBRATES

Three special-status invertebrates could occur in the Redding/Trinity region. All three, the valley elderberry longhorn beetle, vernal pool fairy shrimp, and vernal pool tadpole shrimp, are described above for the Valley region. The distribution of all three in the Redding/Trinity region is limited to the south-central portion of Shasta County.

AMPHIBIANS

Three special-status amphibians could occur along project ROWs in the Redding/Trinity region. The California red-legged frog is described above in the Valley region. Its distribution in the Redding/Trinity region is limited to the south-central portion of Shasta County. The foothill yellow-legged frog is also described in the Valley subsection. It could occur in suitable habitat throughout the Redding/Trinity region. The tailed frog is found in or near fast water, cascading streams, and waterfalls in Trinity County and western Shasta County.

REPTILES

The western pond turtle is the only special-status reptile that could be potentially present in the Redding/Trinity region. It is described above in the Valley subsection and could occur in suitable habitat anywhere in the Redding/Trinity region.

BIRDS

Suitable habitat was found in the Redding/Trinity region for 14 special-status birds, discussed below.

Bald eagles nest primarily in large trees in forested habitats close to large lakes or rivers where they hunt for fish. Northern spotted owls and Vaux's swifts also nest in forests. Black swifts nest where cliffs and ledges occur near creeks and rivers. Their distribution is limited in the Redding/Trinity region and there may be no range overlap.

Little willow flycatchers nest in riparian areas with adjacent meadows. California horned larks, Cooper's hawks, loggerhead shrikes, osprey, sharp-shinned hawks, tricolored blackbirds, western burrowing owls, white-tailed kites, and yellow warblers are all described above in the Valley subsection. The distribution of tricolored blackbirds and white-tailed kites in the Redding/Trinity region is limited to south-central Shasta County.

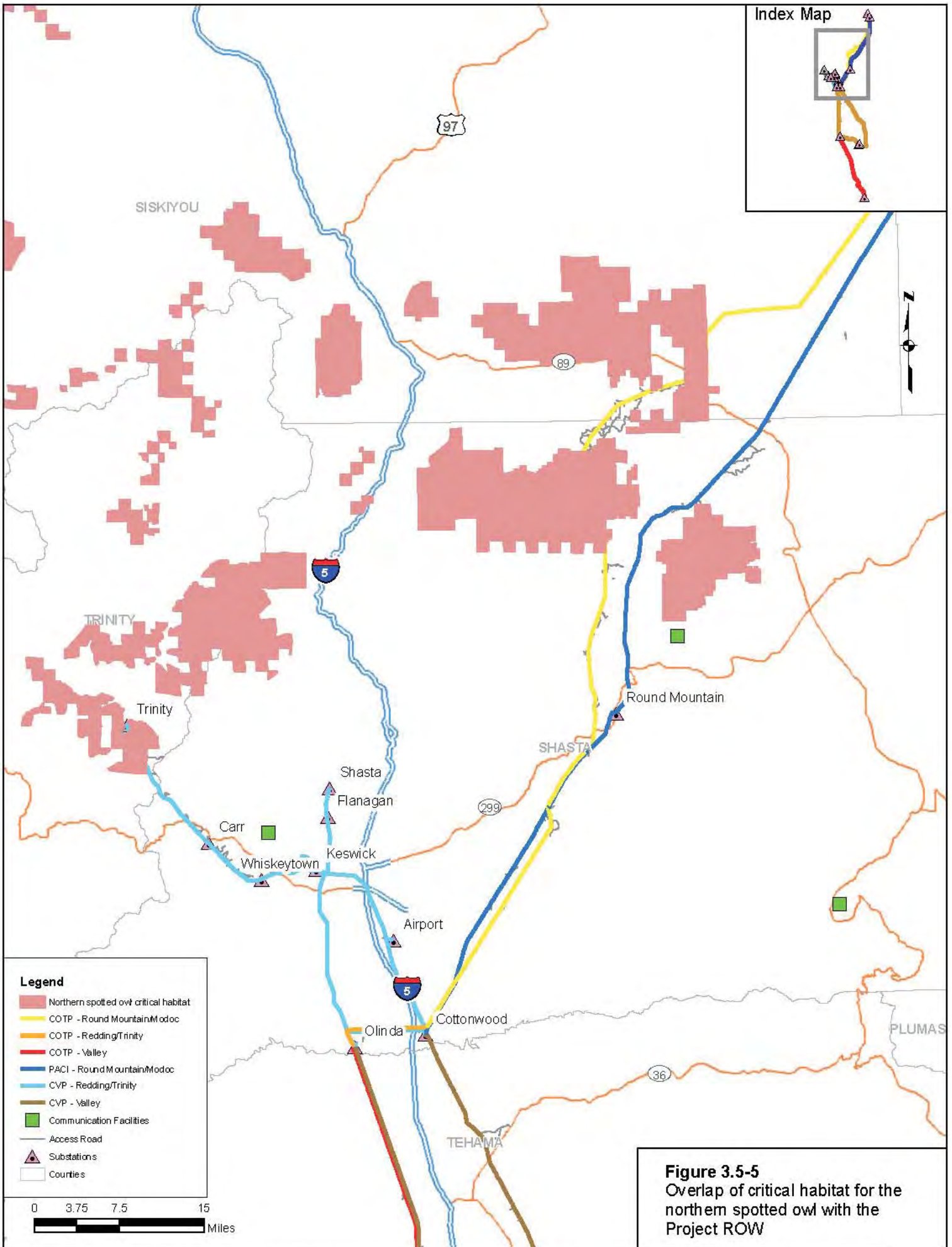
MAMMALS

Ten special-status mammals could occur in the project area within the Redding/Trinity region.

The American badger is described above for the Valley subsection. American marten, Pacific fisher, and California wolverine all require old, relatively dense forests with a high degree of downed logs, old stumps, and other downfall, and limited human disturbance. The wolverine is especially sensitive to human disturbance.

Fringed myotis, long-eared myotis, pallid bat, Townsend's big-eared bat, western red bat, and Yuma myotis may roost in mines, caves, or tunnels, under bridges, in crevices in large rocky outcrops or cliffs, in large trees with exfoliating bark, occasionally individually curled up in leaves, or in abandoned buildings. These bats will generally forage over a variety of habitats, but the Yuma myotis is associated with water bodies.

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The Townsend's big-eared bat is extremely sensitive to human disturbance and will quickly and permanently abandon even a substantial colonial roost with minimal disturbance.

3.5.1.3 Round Mountain/Modoc

The Round Mountain/Modoc region begins at the Shasta-Tehama county line on the south and includes everything north and east of the Cottonwood Substation. The special-status species that could potentially occur in this region are discussed briefly below. Aside from special-status fishes, which are discussed in section 3.7, the only federally-listed species that has designated critical habitat in the Round Mountain/Modoc region area is the northern spotted owl (Figure 3.5-5).

INVERTEBRATES

Three special-status invertebrates could occur in the Round Mountain/Modoc region. All three (valley elderberry longhorn beetle, vernal pool fairy shrimp, and vernal pool tadpole shrimp) are described above for the Valley region. The distribution of all three in the Round Mountain/Modoc region is limited to the south-central portion of Shasta County.

AMPHIBIANS

Four special-status amphibians could occur in project area within the Round Mountain/Modoc region. The foothill yellow-legged frog is described above in the Valley subsection. The tailed frog is described above in the Redding/Trinity subsection.

The Cascades frog and the Oregon spotted frog could both occur in creeks, ponds, lakes, wet meadows, and freshwater marshes. For both species, there is only a small area of potential range overlap with the project area.

REPTILES

Two special-status reptiles could occur in the project area within the Round Mountain/Modoc region. The western pond turtle is described above in the Valley subsection and could occur in suitable habitats anywhere within the Round Mountain/Modoc region. The northern sagebrush lizard occurs in sagebrush habitats in the extreme northeastern portion of the project area.

BIRDS

The presence of open country, forests, and cliffs makes the Round Mountain/Modoc region potential habitat for 25 special-status birds. Peregrine falcon, bald eagle, bank swallow, black tern, California black rail, California horned lark, Cooper's hawk, golden eagle, little willow flycatcher, loggerhead shrike, long-eared owl, northern goshawk, northern spotted owl, osprey, sharp-shinned hawk, Swainson's hawk, tricolored blackbird, Vaux's swift, western burrowing owl, white-tailed kite, and yellow warbler are all described above in Valley and Redding/Trinity subsections.

Tricolored blackbird and white-tailed kite occur in the Round Mountain/Modoc region only in south-central Shasta County. California black rails are not known to occur in north-

eastern California; however, they are continually being detected in previously unknown areas throughout the state. According to expert Jerry Tecklin (pers. comm.), they could occur in suitable habitats in the Round Mountain/Modoc region.

Prairie falcons usually nest in cliffs and, like golden eagles, hunt for mammals over open fields. Great gray owls and California spotted owls occur year round in forested habitats. Greater sage grouse occur year round in sagebrush habitats. Short-eared owls nest in wet meadows and grasslands.

MAMMALS

Eleven special-status mammals could occur in the project area within the Round Mountain/Modoc region. The American badger, American marten, California wolverine, and Pacific fisher have been described in Valley and Redding/Trinity subsections above.

Pygmy rabbits occur in sagebrush habitats where they burrow under large sagebrush plants and other shrubs. The distribution of the Sierra Nevada red fox, the only native red fox in California, is highly localized in the high Sierra. It prefers forest interspersed with open meadows or alpine fell-fields, and, while it has been seen as low as 3900 feet, most sightings are above 7000 feet.

Fringed myotis, pallid bat, spotted bat, Townsend's big-eared bat, and western small-footed myotis may roost in mines, caves, or tunnels, under bridges, in crevices in large rocky outcrops or cliffs, in large trees with exfoliating bark, occasionally individually curled up in leaves, or in abandoned buildings. These bats will generally forage over a variety of habitats.

The Townsend's big-eared bat is extremely sensitive to human disturbance and will quickly and permanently abandon even a substantial colonial roost with minimal disturbance.

3.5.2 Significance Criteria and Approach to Impact Assessment

3.5.2.1 Approach to Impact Assessment

Potential adverse impacts to special-status wildlife have been considered within the context of the federal Endangered Species Act (16 U.S.C. 1531 *et seq.*). In addition there has been a review of the California Endangered Species Act (Fish and Game Code Section 2050 *et seq.*).

Adverse impacts may be direct or indirect, temporary or permanent. These are defined as follows:

Direct: Alteration, disturbance, or removal of biological resources that would result directly from project-related activities on the landscape is considered a direct impact. Examples of direct impacts include the removal of habitat for a new road or building, loss of shading along a river through removal of riparian vegetation, lowered water quality from erosion into a creek, and noise or vibration that affect wildlife behavior at the time of construction.

Indirect: Unintentional consequences of project-related activities are called indirect effects. Indirect effects are the result of a project but generally occur later in time. Examples of indirect effects include wildlife mortality along a new road, increased nest parasitism through habitat fragmentation, or the introduction of nonnative plants from seed found in the hay bales used for erosion control.

Permanent: Impacts that result in the irreversible removal or change in biological resources are considered permanent. Examples include the loss of vegetation and wildlife habitat due to development. Permanent impacts would be limited to the footprints of the developed area. Building construction would be a permanent effect.

Temporary: Impacts considered to have reversible effects on biological resources can be viewed as temporary. A temporary impact would be the use of an equipment-storage area that would recover to natural habitat after completion of the project.

Additionally, direct effects may be permanent (loss of habitat) or temporary (construction noise), and indirect effects may be permanent (wildlife mortality along a new road) or temporary (downwind herbicide vapors that dissipate over time and distance).

For the purposes of this EA, Western affords protection to state and federally listed species throughout the project area. In addition, species with agency-specific status (e.g., Forest Service sensitive) are afforded protection on agency-specific lands. Special-status species outside of these parameters (e.g., state species of concern) are discussed in the EA and listed in Table 3.5-1; however, PCMs were not designated for these species.

3.5.2.2 Significance Criteria

The Proposed Action would result in significant biological impacts if project-related actions directly or indirectly resulted in:

- the take of species (the term 'take', as defined in the federal Endangered Species Act, means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct);
- the temporary or permanent loss of substantial habitat for species that are listed, proposed for listing, or candidates for listing under the state or federal Endangered Species Acts;
- the permanent or temporary loss of critical habitat identified by the USFWS for species listed under the federal Endangered Species Act;
- the loss of, or change in, substantial areas of natural vegetation or wildlife habitats such that the maintenance populations of fish species in the project area would be threatened; or
- the reduction or change in natural vegetation communities or wildlife habitat such that populations of state and locally recognized sensitive species would be reduced to such an extent that they would become listed or candidates for listing under the federal Endangered Species Act.

3.5.2.3 Critical Habitat

One of the purposes of the federal Endangered Species Act is to provide a means whereby threatened and endangered species and their ecosystems may be conserved. One of those actions is to designate critical habitat.

Critical habitat is a formal term under the federal Endangered Species Act. When a species is listed as threatened or endangered, the USFWS must, in most cases, officially designate specific areas for habitat protection. Critical habitat is defined as specific areas that are essential to the conservation of a federally listed species, and that may require special management considerations or protection. Critical habitat is determined using the best available scientific information about the physical and biological needs of the species. These needs, or “primary constituent elements,” include: space for individual and population growth and for normal behavior; food, water, light, air, minerals, or other nutritional or physiological needs; cover or shelter; sites for breeding, reproduction, and rearing of offspring; and habitat that is protected from disturbance or is representative of the historical geographic and ecological distribution of a species.

Designated critical habitat areas have all the essential elements required for survival of listed species. As such, if project-related actions that take place within critical habitats adversely affect “primary constituent elements” for listed species, compensation or mitigation may be required at a higher level than would be required in areas outside of critical habitat. Specific requirements have been developed through consultation with USFWS and presented in PCMs (refer to Table 2-3).

3.5.3 Environmental Consequences from the Proposed Action

The Proposed Action, including expanded use of herbicides, vegetation removal, and installation of cellular equipment on existing infrastructure, has a greater potential to affect special-status wildlife than to affect general wildlife. As a result of their own biological requirements as well as the effects of reduced and degraded habitats, isolation of metapopulations, and low population numbers, special-status species are characteristically less tolerant of environmental changes such as those stemming from the Proposed Action. Section 3.4.3 provides a discussion of the general effects of habitat loss and degradation, habitat fragmentation, herbicide use, cellular equipment installation, and ground disturbance.

Special-status species are especially vulnerable to habitat loss, modification, and fragmentation; human presence, disturbance, and noise; changes to the prey base; and introduction of environmental pollutants. Adverse impacts to special-status species are of greater concern because these species are imperiled and because state and federal regulations require that adverse impacts be avoided, minimized, or compensated for.

To minimize impacts, SOPs have been developed for this project (see Table 2-1). Additionally, PCMs have been developed for special-status fish and wildlife (Table 2-3) and aquatic resources (Table 2-4). SOPs and PCMs would be implemented as appropriate and would be included, along with environmental laws and regulations and applicable agency requirements, in an annual training program for Western O&M personnel. Section 2.2.4 describes coordination with regulatory and land-management agencies, which

would ensure that specific actions have the lowest potential for adverse effect. Section 2.2.2.1, Vegetation Maintenance, describes the measures that would be taken to minimize adverse effects associated with herbicide use.

These measures, especially when considered in light of the existing degraded or modified habitat conditions within the project area, considered adequate to reduce potential impacts to less than significant levels. Consultation with the USFWS resulted in issuance of a Letter of Concurrence with the determination that, with implementation of SOPs and PCMs, the Proposed Action is not likely to adversely affect federally-listed wildlife species (refer to Appendix A).

3.5.3.1 Category A – Inspection and Minor Maintenance Activities

Category A activities could result in short-term noise and minor disturbance impacts but would not be likely to significantly adversely affect special-status wildlife. Implementation of SOPs and PCMs would minimize potential adverse impacts to special-status species.

3.5.3.2 Category B – Routine Maintenance Activities

Category B activities have greater potential to adversely impacts special-status wildlife because they may occur in areas where ambient conditions do not include regular human disturbance, because they potentially disturb more ground, or because they potentially require more time to complete than Category A activities. Implementation of SOPs and PCMs would minimize potential adverse effects to special status-species.

3.5.3.3 Category C – New Infrastructure

For Category C activities, PCMs have been developed that would minimize adverse effects to special-status species. They include such measures as complete avoidance of sensitive habitats during certain seasons or unless specifically authorized by the USFWS, or the requirement for protocol surveys by an approved biologist prior to beginning the activity, or assurance that breeding animals have completed breeding and moved out of the area, or the presence of a qualified biological monitor during completion of the activity.

3.5.4 Environmental Consequences from the No Action Alternative

The No Action Alternative eliminates the potential adverse effects of expanding the use of herbicides. The No Action Alternative could, however, result in a higher level of repeated disturbance associated with an as-needed vegetation management approach that has not achieved the goal of long-term changes in actual vegetative cover.

The Proposed Action would facilitate long-term changes to habitats with the ultimate potential benefit of reduced interference with habitats along Western ROWs. Altering the plant composition of habitats may adversely affect local special-status species; however, the long-term goal of potentially reducing human disturbance in the ROW, coupled with implementation of the rigorous SOPs and PCMs proposed in this document, could constitute a net benefit to special-status species when compared to the No Action Alternative. The Proposed Action provides more rigorous protection measures than were pre-

viously established for this project. Therefore, special-status wildlife would be more likely to be adversely affected by the No Action Alternative than by the Proposed Action.

3.6 Fishes

This section presents a description of fish species within the project area and an assessment of the potential impacts to fishes that could occur from implementation of the Proposed Action and No Action Alternative. Within this section, general fishes refer to all fish species that are not protected by federal regulations. Section 3.7 presents information and analysis regarding special-status fishes.

In order to gather information on the effects of the Proposed Action to general fishes, Western conducted an extensive survey of the entire project area, which included habitat mapping and a wildlife inventory, as described in section 1.4. Additionally, data were gathered through literature review and previous visits to the project area. The following section describes the environmental baseline conditions throughout the project area, including identification of general fish species known to occur.

3.6.1 Affected Environment

The affected environment is divided into three sections or regions: Valley, Redding/Trinity, and Round Mountain/Modoc. As with wildlife species, some fish species are likely to occur only in one of these regions while others could occur in two or three. Because the communication facilities are dispersed throughout the project area, the description of their affected environment is encompassed in the following sections.

3.6.1.1 Valley

A variety of general fishes occupy the various rivers, streams, creeks, ponds, and lakes of the Central Valley. Species include Sacramento pikeminnow (*Ptychocheilus grandis*), a native and common pikeminnow found in free-flowing streams; California roach (*Lavinia symmetricus*), a native and locally common minnow, although certain subspecies of California roach are imperiled in the state; speckled dace (*Rhinichthys osculus*), an uncommon native fish found in small fast-moving streams; and riffle sculpin (*Cottus gulosus*), a common, native, bottom-dwelling fish largely confined to cold, permanent, fast-water streams that are usually characterized as trout streams.

Many of the common fishes of central California are introduced. Some of them include the threadfin shad (*Dorosoma petenense*), an introduced and abundant schooling fish that provides food for resident fisheries; common carp (*Cyprinus carpio*), an introduced and abundant fish found in lakes, reservoirs, and creeks, that often negatively affects native fish in wetland habitats; bluegill (*Lepomis macrochirus*); green sunfish (*Lepomis cyanellus*); and largemouth and smallmouth bass (*Micropterus* sp.).

3.6.1.2 Redding/Trinity

Native and nonnative fishes that occur in the Redding/Trinity area include rainbow trout (*Oncorhynchus mykiss*), a common and widespread trout, and other salmonids; spotted bass (*Micropterus punctulatus*), not native to California but transplanted here in 1933 (Moyle 1976); black crappie (*Pomoxis nigromaculatus*); Sacramento pikeminnow (*Ptychocheilus grandis*), one of the largest freshwater minnows native to California; white cat-

fish (*Ictalurus catus*), a nonnative catfish that occupies nearly every major California drainage; and white sturgeon (*Acipenser transmontanus*), native to a number of major rivers throughout California.

3.6.1.3 Round Mountain/Modoc

Native and nonnative fishes that might be found in the Round Mountain/Modoc Plateau region include channel catfish (*Ictalurus punctatus*), a nonnative fish found in nearly every drainage system in the state; tui chub (*Siphateles thalasinus*), native to several parts of California, although certain subspecies are imperiled; Sacramento sucker (*Catostomus occidentalis*), widely distributed in the Sacramento–San Joaquin system, including the Pit River area; speckled dace (*Rhinichthys osculus*), native and found throughout California except for most coastal streams; and Pit sculpin (*Cottus pitensis*), native and common throughout the Pit River system, from the tributaries of Goose Lake down to the Sacramento River.

3.6.2 Significance Criteria and Approach to Impact Assessment

3.6.2.1 Approach to Impact Assessment

Fishes have evolved to thrive in a variety of aquatic habitats and conditions that range from small creeks to large lakes, cold water to warm, slow and muddy to fast and clean, deep to shallow, fresh to saline to alkaline, interior to coastal, and heavily shaded to wide open. They are, however, highly sensitive to changes to the environmental conditions to which they are adapted. Impacts have been assessed according to the significance criteria presented in the following section. SOPs (including measures for water resources) and PCMs pertinent to fish species have been developed to ensure that existing conditions are not substantially altered by the Proposed Action, thereby reducing potential impacts to less than significant levels.

3.6.2.2 Significance Criteria

Impacts to fishes would occur when habitats or individuals are disturbed or lost as a result of the Proposed Action. The significance of the impact depends in part on the sensitivity of the population. A significant impact on fishes would result if any of the following were to occur from the Proposed Action:

- Loss of individuals of a population of aquatic species that would result in the species being listed or proposed for listing as threatened or endangered;
- Violation of any statutes and regulations pertaining to fishes;
- Water withdrawal in excess of state-permitted levels;
- Water intake resulting in additional impingement/entrainment impacts on fish that would adversely affect the stability of fish populations;
- Substantial interference with the movement of any native fish species for more than two reproductive seasons; or
- Range reduction for any native fish species.

3.6.3 Environmental Consequences from the Proposed Action

According to Moyle et al. (1995), 66 of 116 fish taxa (57 percent) native to California are found only in California; they are endemic to local regions. Potential adverse effects to fishes are closely related to water quality and may result from a change in existing environmental conditions. Specifically, turbidity, sedimentation, loss of large organic debris, loss of shading (and associated temperature increases), and exposure to hazardous substances adversely affect fish. Vegetation removal within or near waterways could cause loss of tree shading and some erosion, regardless of the method used. Erosion could originate from access roads not maintained to specifications, and could also be caused by road maintenance activities. Erosion could increase turbidity and sedimentation and affect availability of oxygen, which may reduce fish feeding success or interfere with breeding and/or spawning habitats. In severe cases, sedimentation could keep fish eggs from hatching or fill in or reduce the deeper pools preferred by some fish. If large trees are removed within riparian zones, stream shading would be lost, as would a source of large woody debris that could later fall into streams and provide shelter for some fishes or fish stages.

Shading or lack of shading at ROW crossings tends to have little effect on stream temperatures (Peterson 1993). In the study area, between 100 and 250 feet of any stream would typically be affected. Loss of shading would become important only if it were to occur where other activities are also causing losses in riparian shading at a watershed level. Unless a portion of a ROW were to parallel a creek or river for some distance, the length of ROW where maintenance activities could affect the water body is a small fraction of the water body length.

To minimize impacts, SOPs have been developed for this project (see Table 2-1). Additionally, PCMs have been developed for special-status fish and wildlife (Table 2-3) and aquatic resources (Table 2-4). SOPs and PCMs would be implemented, as appropriate, and would be included, along with environmental laws and regulations and applicable agency requirements, in an annual training program for Western O&M personnel. Section 2.2.4 describes coordination with regulatory and land-management agencies, which would ensure that specific actions have the lowest potential for adverse effect. Section 2.2.2.1, Vegetation Maintenance, describes the measures that would be taken to minimize adverse effects associated with herbicide use.

These considerations, especially when taken in light of the existing degraded or modified habitat conditions within the project area, are expected to reduce all potential impacts to less than significant levels.

3.6.3.1 Category A – Inspection and Minor Maintenance Activities

Category A activities could result in short-term noise and minor disturbance impacts but would not be likely to significantly adversely affect general fish resources. Implementation of SOPs and PCMs (Tables 2-1 through 2-4) would minimize potential adverse effects to general fish resources.

3.6.3.2 Category B – Routine Maintenance Activities

Category B activities have greater potential to adversely impact fish because they may be conducted in areas where ambient conditions do not include regular human disturbance, because they potentially disturb more ground, or because they potentially require more time to complete than Category A activities. Implementation of SOPs and PCMs (Tables 2-1 through 2-4) developed for special-status species would minimize potential adverse effects to general fish resources.

3.6.3.3 Category C – New Infrastructure

For Category C activities, PCMs have been developed for water resources and special-status fishes that, coupled with SOPs, would minimize potential adverse effects to general fish resources.

3.6.4 Environmental Consequences from the No Action Alternative

The No Action Alternative eliminates the potential adverse effects of expanding the use of herbicides; however, the No Action Alternative could result in a higher level of repeated disturbance associated with an as-needed vegetation management approach.

The Proposed Action would facilitate long-term changes to habitats with the ultimate potential benefit of reduced interference with habitats along Western ROWs. Altering the plant composition of streamside habitats may adversely affect local fishes on a short-term basis through changes in water quality, and may create long-term adverse changes in vegetative cover along the banks of rivers, creeks, and lakes in short sections. However, the long-term goal of potentially reducing human disturbance in the ROW, coupled with implementation of the rigorous SOPs and PCMs proposed in this document, could neutralize potential adverse effects. From this standpoint, the net effect is neither materially beneficial nor materially adverse between the two alternatives.

3.7 Special-status Fishes

This section presents a description of special-status fishes that could occur within the project area and an assessment of the potential impacts to fishes that could occur from implementation of the Proposed Action and No Action Alternative. Information in this section is based on a field survey of the entire project area, which included an assessment of habitat potential for special-status species and identification of special-status species occurrences using a GPS unit with sub-meter accuracy, as described in section 1.4.1. Additionally, data were gathered through literature review, consultation with local species experts, and coordination with USFWS, NMFS, CDFG, BLM, USFS, and NPS.

For purposes of this document, special-status fishes are defined as those fish species whose geographic range and native habitats overlap with the project area and that are:

- federally or state-listed, proposed for listing, or candidates for listing as threatened or endangered;
- CDFG species of special concern;
- listed as sensitive by the USFS for national forests affected by the project; and/or
- listed as sensitive by BLM.

Table 3.7-1 lists the special-status fishes considered in this document. This list was compiled with the assistance of and/or has been reviewed by USFWS, NMFS, CDFG, NPS, USFS, and BLM. For definitions of the habitat types provided in Table 3.7-1, refer to section 8 for terms and acronyms, and section 3.2 for additional descriptions of habitat codes. Fish PCMs are presented in Table 2-3 and aquatic habitat PCMs, which would also protect fish, are presented in Table 2-4.

Table 3.7-1 Special-status Fishes

Species Name	Status	Habitat Type	Potential Area of Occurrence ¹	PCM-ID
Central Valley fall/late fall-run chinook salmon <i>Oncorhynchus tshawytscha</i>	SSC/FSS	Waci, Wacp, Warv, Walk (including bay estuary habitats)	Valley Redding/Trinity Round Mountain/Modoc	PCM-B048 PCM-W002
Central Valley spring-run chinook salmon <i>Oncorhynchus tshawytscha</i>	FT/ST/FSS	Waci, Wacp, Warv, Walk (including bay estuary habitats); Sacramento River and its tributaries	Valley Redding/Trinity Round Mountain/Modoc	PCM-B049 PCM-W002
			<u>Critical Habitat:</u> Valley Redding/Trinity Round Mountain/Modoc	PCM-B049a PCM-W002
Central Valley steelhead <i>Oncorhynchus mykiss</i>	FT	Waci, Wacp, Warv, Walk; Sacramento and San Joaquin rivers and their tributaries	Valley Redding/Trinity Round Mountain/Modoc	PCM-B050 PCM-W002
			<u>Critical Habitat:</u> Valley Redding/Trinity Round Mountain/Modoc	PCM-B050a PCM-W002

Species Name	Status	Habitat Type	Potential Area of Occurrence ¹	PCM-ID
Delta smelt <i>Hypomesus transpacificus</i>	FT/ST	Wacp, Warv (including bay estuary habitats); Endemic to Sacramento-San Joaquin estuary	Valley	PCM-B051 PCM-W002
			<u>Critical Habitat</u> : Valley	PCM-B051a PCM-W002
Green sturgeon <i>Acipenser medirostris</i>	FT/SSC	Wacp, Warv (including bay estuary habitats)	Valley	PCM-B052
Hardhead <i>Mylopharodon conocephalus</i>	FSS	Wacp, Warv, Walk	Valley Redding/Trinity Round Mountain/Modoc	PCM-B053 PCM-W002
Longfin smelt <i>Spirinchus thaleichthys</i>	ST	Wacp, Warv, Walk (including bay estuary habitats)	Valley (low potential for range overlap with project area)	N/A
Lost River sucker <i>Deltistes luxatus</i>	FE/SE-FP	Waci, Wacp, Warv, Walk	Round Mountain/Modoc	PCM-B054 PCM-W002
River lamprey <i>Lampetra ayresii</i>	SSC	Wacp, Warv, Walk (including bay estuary habitats)	Valley	N/A
Rough sculpin <i>Cottus asperimus</i>	ST-FP	Waci, Wacp, Warv	Round Mountain/Modoc	PCM-B055 PCM-W002
Sacramento River winter-run chinook salmon <i>Oncorhynchus tshawytscha</i>	FE/SE	Waci, Wacp, Warv, Walk (including bay estuary habitats)	Valley Redding/Trinity Round Mountain/Modoc	PCM-B056 PCM-W002
			<u>Critical Habitat</u> : Valley Redding/Trinity Round Mountain/Modoc	PCM-B056a PCM-W002
Sacramento splittail <i>Pogonichthys macrolepidotus</i>	SSC	Wacp, Warv, Walk (including bay estuary habitats)	Valley	N/A
Shortnose sucker <i>Chasmistes brevirostris</i>	FE/SE-FP	Waci, Wacp, Warv, Walk	Round Mountain/Modoc	PCM-B057 PCM-W002

¹ Potential Area of Occurrence reflects two factors: 1) the natural geographic range of a species and 2) the presence of suitable habitat within the project area. A species may occur in a particular region, but that region will not be listed for the species if the project ROW does not cross suitable habitat.

Status codes: BLMS= BLM sensitive, FD = Federally delisted, FE = Federally endangered, FP = fully protected, FSS= Forest Service sensitive, FC = Federal candidate, FT = Federally threatened, SSC = state species of special concern, SE = state endangered, ST = state threatened

3.7.1 Affected Environment

Certain special-status fishes are local in occurrence. Others, such as the hardhead, are more widely distributed in northern California, and still others, such as the longfin smelt, may be more widely distributed in general but not in the project area. Some special-status fishes may be found only in a small portion of the project area while others may occur throughout the project area.

Table 3.7-1 identifies the project region (Valley, Redding/Trinity, Round Mountain/Modoc) in which a given species has the potential to occur. These are project regions and are not intended to correspond with any particular geographic or physiographic region. Because

the communication facilities are dispersed throughout the project area, the description of their affected environment is encompassed in the following sections.

3.7.1.1 Valley

Many of the special-status fishes that could occur in the Valley region are the anadromous salmonids (salmon and steelhead). Anadromous fishes are born in freshwater, mature at sea, and return to their natal streams to spawn. Each species has one or more “run,” which is the time of year that the fish normally migrates upstream from the ocean to spawn in fresh water. There are a number of special-status salmon that are all of the same species but of different runs. For example, the winter-run chinook and the spring-run chinook are the same species, but they run at different times. The individuals of a particular species that all run at the same time in the same geographic area are referred to as an “evolutionarily significant unit” or ESU. An ESU is equivalent to a “distinct population segment,” which is the language used in the federal Endangered Species Act. Under the federal Endangered Species Act, distinct population segments can be formally listed as threatened or endangered even if the species as a whole is not, and even if a different ESU or distinct population segment is not.

The special-status fishes of the Valley region include the Central Valley fall/late fall-run chinook salmon, the Central Valley spring-run chinook salmon, the Central Valley steelhead (the anadromous form of the rainbow trout), and the Sacramento River winter-run chinook salmon. These species all spawn in the Sacramento River and its tributaries, portions of which are within the Valley region of the project area. Other Valley special-status fishes are more closely tied to San Francisco Bay and the Sacramento–San Joaquin Delta, including delta smelt, green sturgeon, river lamprey, longfin smelt, and Sacramento splittail.

Delta smelt are found mostly in Suisun Bay and the Sacramento–San Joaquin Delta, but they spawn in fresh water as far north as Sacramento in the Sacramento River, the Mokelumne River system, the Cache Slough region, the Delta, and the Montezuma Slough. Likewise, longfin smelt are found mostly in the Bay and Delta and spawn in fresh water in the lower Sacramento River.

Green sturgeon have been reported as far north as Red Bluff in the Sacramento River. In recent years, spawning has been confirmed only in Sacramento, Klamath, and Trinity Rivers; however, they are considered present only in the Valley region of the project area. The Klamath River is outside the project area and, because of dams on the Trinity River, green sturgeon are not expected to occur in the Redding/Trinity project region.

River lamprey occur mostly as widely scattered populations recorded only from the lower Sacramento and San Joaquin Rivers. Sacramento splittail were historically found as far north as Redding but are now confined largely to the Delta and other parts of the Sacramento–San Joaquin Delta.

The Valley region contains critical habitat, a formal designation applied to a specific stream or river under the federal Endangered Species Act, for Central Valley spring-run chinook, Central Valley steelhead, delta smelt, and Sacramento River winter-run

chinook. Areas where critical habitat overlaps with the project area for these three species are shown in Figures 3.7-1 through 3.7-3. The definition and purpose of critical habitat are discussed in more detail in section 3.7.2.3.

3.7.1.2 Redding/Trinity

The special-status fishes that could occur in the Redding/Trinity region include the Central Valley fall/late fall-run chinook, Central Valley spring-run chinook, Central Valley steelhead, Sacramento River winter-run chinook, and hardhead.

The salmonids are described in the Valley subsection above. The hardhead is widely distributed in low to mid elevation streams in the main Sacramento–San Joaquin drainage, extending north into the Pit River drainage.

Federally listed fishes that have designated critical habitat in the Redding/Trinity region include Central Valley spring-run chinook, Central Valley steelhead, and Sacramento River winter-run chinook. Areas where critical habitat overlaps with the project area for these three species are shown in Figures 3.7-1 and 3.7-3.

3.7.1.3 Round Mountain/Modoc

The special-status fishes that could occur in the Round Mountain/Modoc region include the Central Valley fall/late fall-run chinook, Central Valley spring-run chinook, Central Valley steelhead, hardhead, Lost River sucker, rough sculpin, Sacramento River winter-run chinook, and shortnose sucker.

The salmonids and hardhead are described in the preceding subsections. The rough sculpin occurs only in the Burney area of Shasta County, in the Pit River, Hat Creek, and Fall River tributaries, in the upper reaches of Lake Britton near Hat Creek, and in Crystal Lake.

The present distribution of the Lost River sucker within the project area includes Clear Lake Reservoir and its tributaries, Tule Lake, and the Lost River up to Anderson-Rose Dam. The range of the shortnose sucker is similar to that of the Lost River sucker except the shortnose sucker is more widely distributed in the Lost River system. It is also found in Clear Lake and its tributaries in Modoc County.

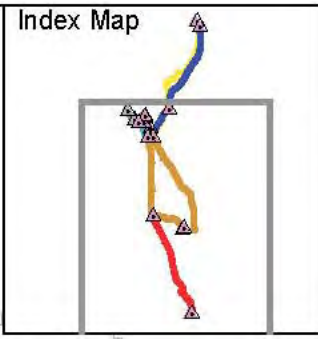
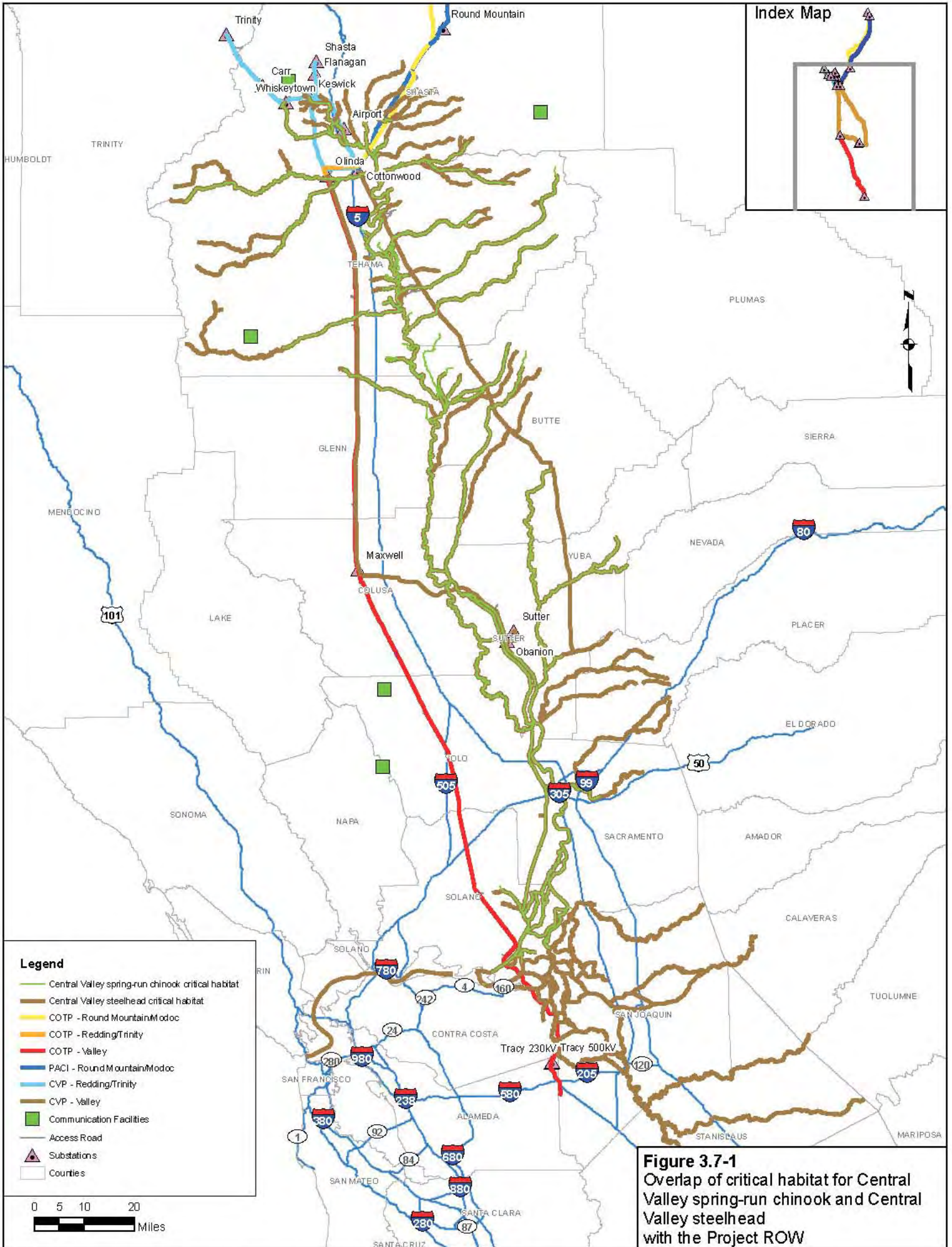
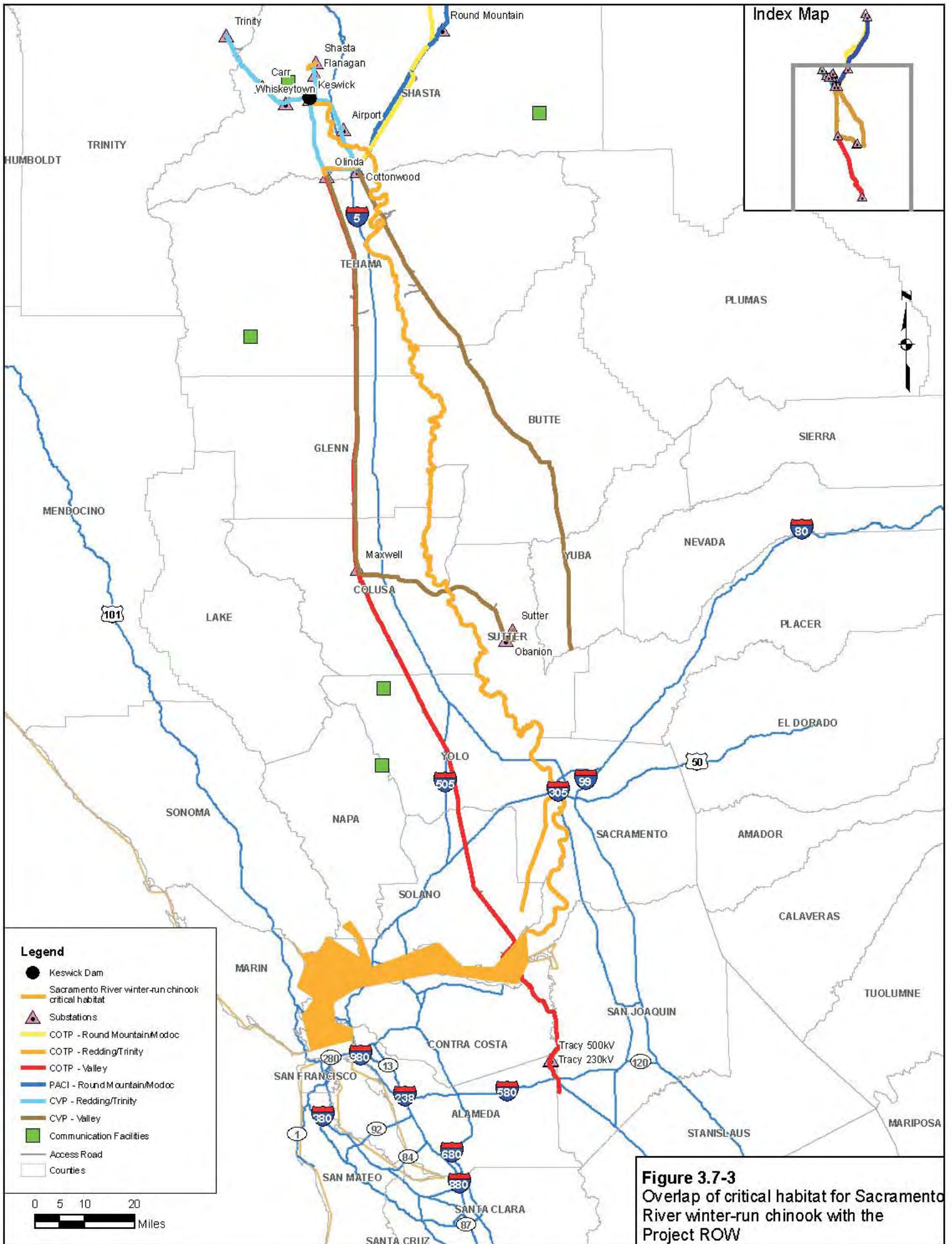


Figure 3.7-1
 Overlap of critical habitat for Central Valley spring-run chinook and Central Valley steelhead with the Project ROW

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3.7.2 Significance Criteria and Approach to Impact Assessment

3.7.2.1 Approach to Impact Assessment

Potential adverse impacts to special-status fishes have been considered within the context of the federal Endangered Species Act (16 USC 1531 et seq.). In addition, there has been a review of the California Endangered Species Act (Fish and Game Code 2050 et seq.).

Adverse impacts may be direct or indirect, temporary or permanent. These are defined as follows:

Direct: Alteration, disturbance, or removal of biological resources that would result directly from project-related activities on the landscape is considered a direct impact. Examples of direct impacts include the removal of habitat for a new bridge or culvert, loss of shading along a river through removal of riparian vegetation, and degraded water quality from erosion into a river.

Indirect: Unintentional consequences of project-related activities are called indirect effects. Indirect effects are the result of a project but generally occur later in time. Examples of indirect effects include river bank erosion resulting from a poorly constructed culvert and increased water temperatures through removal of bank vegetation.

Permanent: Impacts that result in the irreversible removal or change in biological resources are considered permanent. Examples include the loss of streamside vegetation to a permanent structure or construction of a bridge.

Temporary: Impacts considered having reversible effects on biological resources can be viewed as temporary. A temporary impact would be water-quality degradation from erosion that ends when the project is complete.

Additionally, direct effects may be permanent (loss of habitat) or temporary (construction-related erosion), and indirect effects may be permanent (erosion downstream of a poorly constructed culvert) or temporary (higher temperatures associated with vegetation removed that would grow back).

For the purposes of this EA, Western affords protection to state- and federally listed species throughout the project area. In addition, species with agency-specific status (e.g., USFS sensitive) are afforded protection on agency-specific lands. Special-status species outside of these parameters (e.g., state species of special concern) are discussed in the EA and listed in Table 3.7-1; however, PCMs were not designated for these species.

3.7.2.2 Significance Criteria

The Proposed Action would result in significant biological impacts if project-related actions directly or indirectly resulted in the following:

- The take of species (the term 'take,' as defined in the federal Endangered Species Act, means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct);

- The temporary or permanent loss of substantial habitat for species that are listed, proposed for listing, or candidates for listing under the state or federal Endangered Species Acts;
- The permanent or temporary loss of critical habitat identified by the USFWS for species listed under the FESA;
- The loss of, or change in, substantial areas of natural vegetation or wildlife habitats such that the maintenance populations of fish species in the project area would be threatened; or
- The reduction or change in natural vegetation communities or wildlife habitat such that populations of state and locally recognized sensitive species would be reduced to such an extent that they would become listed or candidates for listing under the state or federal Endangered Species Act.

3.7.2.3 Critical Habitat

One of the ultimate purposes of the FESA is to provide a means whereby species and their ecosystems may be conserved. One of those actions is to designate critical habitat.

Critical habitat is a formal term under the FESA. When a species is listed as threatened or endangered, the USFWS must, in most cases, officially designate specific areas for habitat protection. Critical habitat is defined as specific areas that are essential to the conservation of a federally listed species, and that may require special management considerations or protection. Critical habitat is determined using the best available scientific information about the physical and biological needs of the species. These needs, or “primary constituent elements,” include: space for individual and population growth and for normal behavior; food, water, light, air, minerals, or other nutritional or physiological needs; cover or shelter; sites for breeding, reproduction, and rearing of offspring; and habitat that is protected from disturbance or is representative of the historical geographic and ecological distribution of a species.

Designated critical habitat areas have all the essential elements required for survival of listed species. As such, if project-related actions take place within critical habitats that adversely affect primary constituent elements for listed species, compensation or mitigation may be required at a higher level than would be required in areas outside of critical habitat. Specific requirements are defined in the formal (Section 7) consultation process with USFWS.

As described in section 3.7.1, the project area traverses critical habitat for three federally listed salmonids (Figures 3.7-1 and 3.7-3) and delta smelt (Figure 3.7-2). There is critical habitat along most of the Sacramento River and many of its tributaries for three ESUs of two different salmonids: Central Valley spring-run chinook ESU, Sacramento River winter-run chinook ESU, and Central Valley steelhead ESU.

For all activity categories proposed within special-status fish habitat, including critical habitat, the work window (the period in which project activities may take place) for listed salmonids depends on the geographic subarea and is intended to avoid work during the

period when adult salmonids are migrating upstream to spawn. NMFS identified the subareas and their respective allowable work windows in its letter regarding the North Area ROW Maintenance Project (refer also to Appendix B):

- The Delta: Any of the waterways in the action area that are south and west of the City of Sacramento. In-water or near shore work within the Delta should be performed between June 1 and October 15 of any given year.
- The Mainstem Sacramento River - South: The waters of the Sacramento River from the City of Sacramento north to Hamilton City. In-water or near shore work on the mainstem Sacramento River in this region should be performed between June 1 and October 15 of any given year.
- The Mainstem Sacramento River - North: The waters of the Sacramento River from Hamilton City north to Keswick Dam. In-water or near shore work on the mainstem Sacramento River in this region should be performed between December 1 and April 1 of any given year.
- Butte, Mill, Deer, and Battle Creeks: Any of the waters that comprise the forks or mainstems of these four named creeks. In-water or near shore work that occurs on Butte, Mill, Deer, or Battle Creek should be performed between December 1 and April 1 of any given year.
- The North State Tributary Area: Any of the waterways in the action area that are north of the City of Sacramento and flow into the mainstem Sacramento River, excluding Butte, Mill, Deer, and Battle Creeks, as described above. In-water or near shore work that occurs in the North State Tributary Area should be performed between June 1 and October 15 of any given year.

3.7.3 Environmental Consequences from the Proposed Action

The Proposed Action may potentially impact fishes due to changes in water quality or substantial alteration of existing conditions. Specifically, fish may be adversely affected by unnaturally low or high levels of turbidity and sedimentation, loss of large organic debris, loss of shading and associated temperature increases, and exposure to hazardous substances. Wetland and aquatic habitats are susceptible to erosion and compaction from heavy machinery. Removal of vegetation in uplands, poor access road maintenance, and access road maintenance can increase surface run-off, causing turbidity and sedimentation into wetlands and waterways. All of these potential effects exacerbate the threats already facing the state's native fishes.

To minimize impacts, SOPs have been developed for this project (see Table 2-1). Additionally, PCMs have been developed for special-status fish and wildlife (Table 2-3) and aquatic resources (Table 2-4). SOPs and PCMs would be implemented as appropriate and would be included, along with environmental laws and regulations and applicable agency requirements, in an annual training program for Western O&M personnel. Section 2.2.4 describes coordination with regulatory and land management agencies, which would ensure that specific actions have the lowest potential for adverse effect. Section

2.2.2.1, Vegetation Maintenance, describes the measures that would be taken to minimize adverse effects associated with herbicide use.

These measures, especially when considered in light of the existing degraded or modified conditions along the ROWs, would reduce all potential impacts to less-than-significant levels.

3.7.3.1 Category A – Inspection and Minor Maintenance Activities

Category A activities could result in short-term noise and minor disturbance impacts but would not be likely to adversely affect special-status fishes. Implementation of SOPs and PCMs (Tables 2-1 through 2-4) would minimize potential adverse effects to special-status fishes.

3.7.3.2 Category B – Routine Maintenance Activities

Category B activities have greater potential to adversely affect special-status fishes because they may occur in areas where ambient conditions do not include regular human disturbance, because they potentially disturb more ground or may take place in or near aquatic habitats, or because they potentially require more time to complete than Category A activities. Implementation of SOPs and PCMs (Tables 2-1 through 2-4), especially those designed to protect aquatic habitats, would minimize potential adverse effects to special-status fishes.

3.7.3.3 Category C – New Infrastructure

Category C activities may cause adverse effects to sensitive resources if PCMs are not implemented. Category C activities would disturb large areas and/or would rely on the use of heavy equipment. Implementation of SOPs and PCMs (Tables 2-1 through 2-4), especially those designed to protect aquatic habitats, would minimize potential adverse effects to special-status fishes.

3.7.4 Environmental Consequences from the No Action Alternative

The No Action Alternative eliminates the potential adverse effects of expanding the use of herbicides. The No Action Alternative could, however, result in a higher level of repeated disturbance associated with an as-needed vegetation management approach that has not achieved the goal of long-term changes in actual vegetative cover.

The Proposed Action would facilitate long-term changes to habitats with the ultimate potential benefit of reduced interference with habitats along Western ROWs. Altering the plant composition of habitats may adversely affect local special-status fishes on a short-term basis through changes in water quality, and may create long-term adverse changes in vegetative cover along the banks of rivers, creeks, and lakes. However, the long-term goal of potentially reducing human disturbance in the ROW, coupled with implementation of the rigorous SOPs and PCMs proposed in this document, would neutralize potential adverse effects. From this standpoint, the net effect is neither materially beneficial nor materially adverse between the two alternatives.

3.8 Cultural Resources

Cultural resources include features of the physical environment that relate to human culture and society and cultural institutions that hold communities together and link them to their surroundings. Additionally, cultural resources include expressions of human culture and history in the physical environment (such as prehistoric and historic sites, buildings, structures, objects, districts, and other places, including natural features) considered important to a culture, subculture, or community. Cultural resources also include traditional lifeways and practices, community values, and institutions.

Cultural resources have an important role in connecting contemporary societies to their heritage and traditions, providing structure and perspective for contemporary life. Once damaged or destroyed, these resources are essentially nonrenewable, though the tangible evidence of the past sometimes may be restored or reconstructed to some degree. The following sections describe cultural resources within the project area and analyze the potential effects of the Proposed Action and No Action Alternative.

3.8.1 Affected Environment

The study area for assessing impacts on cultural resources is considered the area of potential effects (APE). The APE is defined as “the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties” (36 CFR Part 800.16[d]). Direct effects could result from any ground-altering activities or vehicle traffic. Indirect effects could include visual and noise intrusions that would diminish the historic or aesthetic values of certain cultural resources. The area that could be indirectly impacted is larger than the one that could be directly impacted. The area of potential indirect effects extends up to 0.25 miles from any project component.

The following laws, regulations, and executive orders (EOs) mandate specific cultural resources requirements or restraints that could be applicable to the alternatives analyzed in the EA.

- National Historic Preservation Act (NHPA) of 1966, as amended (16 United States Code [U.S.C.] § 470) and implementing regulations (36 CFR part 800);
- Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 (25 U.S.C. § 3001 et seq.) and implementing regulations (43 CFR part 10);
- American Indian Religious Freedom Act (AIRFA) of 1978 (43 U.S.C. § 1996);
- Archaeological Resources Protection Act (ARPA) of 1979 (16 U.S.C. § 470 aa-mm as amended, and implementing regulations at 43 CFR part 7); and
- EO 13007, Indian Sacred Sites, May 24, 1996 (61 FR 26771-2).

These laws, ordinances, and regulations deal with impacts to cultural resources. In nearly every case, cultural resources must meet some set of criteria for significance before agencies will direct efforts to preserve the values that these resources represent.

Under the NHPA and the regulations at 36 CFR part 800, a lead federal agency for a federal undertaking must consider the effect of that undertaking on significant cultural resources (historic properties). Under these laws and regulations, the significance of any cultural resource is evaluated by using the criteria for eligibility for nomination to the National Register of Historic Places, as defined in 36 CFR 60.4. The National Register of Historic Places regulations state:

The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings(s), structures, and objects of state and local importance that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and

- (a) that are associated with events that have made a significant contribution to the broad patterns of our history; or
- (b) that are associated with the lives of persons significant in our past; or
- (c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- (d) that have yielded, or may be likely to yield, information important to history or prehistory.

If resources are determined to be eligible for listing in the NRHP, and the state historic preservation officer (SHPO) concurs with the agency's determination, these resources are then considered significant, and the agency must avoid or lessen the impacts to them by the proposed action. Indian tribes, state and local agencies, the public, and the Advisory Council on Historic Preservation are given opportunities to influence how those resources are treated. Sites within California that are eligible for the NRHP are also eligible for the California Register of Historical Resources. Project-related impacts to an eligible cultural resource site that would adversely affect the values of the resource that make it eligible for listing in the NRHP would be considered significant.

Methods used to identify the presence of cultural resources and to determine the eligibility of resources for listing in the NHRP vary between those in the direct and indirect APE. Archival research of previous written records helps identify historic resources or possible traditional cultural properties (TCPs), which are properties of special cultural or religious significance to a particular cultural group. This is the primary method used for determining what resources are in the indirect APE. Pedestrian surveys are used to locate prehistoric and historic resources. Excavations or in-depth architectural recordings are required to evaluate if a property in the direct APE is eligible for listing in the NRHP. Native American tribes or other cultural groups are consulted to identify TCPs, traditional use areas, and religious sources within the project area. Consultation sometimes includes meetings with traditional religious practitioners, interviews with knowledgeable individuals, and site visits to particular areas of concern.

In 1995, Western prepared a programmatic agreement (PA) for compliance with Section 106 of the NHPA. The PA describes procedures to identify cultural resources within the area of potential effects. All identified cultural resources would be evaluated and treated in consultation with the parties participating in the PA.

Consultations with interested Native American tribes or other culture groups are required to identify TCPs and religious resources. Consultation sometimes includes meetings with traditional religious practitioners, interviews with knowledgeable individuals, and site visits to particular areas of concern. For this project, consultations relevant to TCP identification are described in section 3.8.1.2.

3.8.1.1 Prehistoric, Historic, and Ethnographic Background

The North Area facilities traverse several physiographic provinces and major ecological zones. The terrain and natural environment have played an important role in shaping the human use of the environment and have influenced historical trends and events. The natural setting of the project and the prehistoric, historic, and ethnographic background are important in understanding the context of cultural resources that Western manages in the North Area ROW. Appendix J provides additional details on cultural resources in the North Area.

3.8.1.2 Native American Consultation

Twenty-three tribal groups, both federally and non-federally recognized, were identified as having a potential ancestral interest in the project area. Western sent consultation letters to all 23 tribal groups and each representative of the tribes to inform them of the North Area ROW Maintenance EA and to ask their assistance in identifying sacred lands or traditional cultural properties (TCPs) that may be affected by O&M activities (refer to Appendix L for records of correspondence and the distribution list). All tribal groups were invited to an informational meeting in Redding on February 2, 2005. Two tribes attended: the Pit River Tribe of California and the Mechoopda Indian Tribe of Chico Rancheria. The Pit River Tribe requested to have tribal monitors present during cultural resource surveys in their ancestral territory. To facilitate this, Western and the Pit River Tribe developed and signed a Memorandum of Understanding. Western conducted fieldwork with several different bands of the Pit River Tribe (i.e., Atwamsini, Ilmawi, Achumawi, and Madesi), to identify TCPs in the project's area of potential effect. No TCPs were identified by the tribal monitors within the project area.

On June 28, 2006, Western held a Tribal Workshop in Redding to provide further information to the Tribal groups, inform them of the progress of the surveys, and solicit their specific comments and concerns. No tribal groups attended the workshop. Western has been contacted by several more tribes requesting information regarding the North Area EA and Western's O&M program. No concerns have been raised.

3.8.1.3 Literature Review and Field Survey

A cultural resources literature search and pedestrian field inventory was conducted for the entire North Area APE, except for a small number of inaccessible areas and areas

for which intensive surveys had recently been completed. The goals of the surveys were to 1) compile as complete as possible a list of cultural resources sites within the APE having the potential for NRHP listing, 2) obtain global positioning system (GPS) boundary data for all of the sites in the APE for use in a geographical information system (GIS), and 3) collect information about each of the cultural resources sites in the APE to assist in the evaluation of their significance and resource management.

The cultural resources identification program began with a literature search at the California Historical Resources Information System (CHRIS) and Oregon State Historic Preservation Office (for the PACI line between the California-Oregon border and Malin Substation). The project area is located within the territories of two of the CHRIS information centers. For most of the facilities (Modoc, Shasta, Tehama, Siskiyou, Butte, Trinity, Glenn, Yuba, and Sutter Counties), reports and site records are held at the CHRIS Northeast Information Center at California State University, Chico. For the portion of the project corridors and the communication tower sites located in Colusa, Yolo, Solano, Contra Costa, and Alameda Counties, the records are held at the CHRIS Northwest Information Center, located at Sonoma State University, Rohnert Park.

As part of the record search, record of sites located within one mile of the transmission line were photocopied, and inventory boundaries adjacent to or crossing the ROW were hand-drawn on a clean set of USGS topographic maps. All archaeological sites located within 200 meters of the ROW or Western legal access roads were also drawn on the maps at the information center. Also obtained was a list of sites evaluated or otherwise assigned a NRHP status (eligible for listing, ineligible for listing, may become eligible, eligibility cannot be determined, not evaluated, etc.).

The literature search was followed by a pedestrian cultural resources inventory of as much of the CVP, PACI, and COTP ROWs and access roads as was feasible in areas that had not had previous intensive coverage. The field inventory was conducted by teams of trained and experienced archaeological technicians meeting the qualifications criteria from the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation, Professional Qualifications Standards (48 CFR 44716). Before beginning the archaeological survey, the survey team obtained GIS mapping coverages that included high-accuracy locations for all of Western's transmission line rights-of-way, transmission tower locations, substation locations, and access and maintenance road locations. Western also provided high-resolution aerial photographic coverage of the entire transmission right-of-way, covering approximately one-half mile on either side of the centerline of a given transmission line or access road.

The field teams conducted an intensive pedestrian survey, using systematic transects no wider than 20 meters apart within the rights-of-way and access roads to inventory cultural resources including historic archaeological sites, prehistoric sites, historic buildings and structures, and other cultural properties. The survey team used shovels and other implements to remove vegetation and duff in areas of poor ground visibility. Possible indicators of the presence of an archaeological site include stone tools and lithic debitage; house pit depressions, foundations, or other structural features; and anthropogenic midden soils. Areas that could not be surveyed because of dense vegetation (chap-

arral) or steep terrain were marked on the aerial photographs and were recorded digitally in the GIS system.

If a previously recorded or new cultural resources site was located, the field crew recorded the site boundary using a GPS device and entered information about the site in accordance with a GPS data dictionary that was prepared specifically for the project. For sites having prehistoric components, this information included quantities of lithics (<10, 10 to 100, >100), and presence or absence of other cultural constituents commonly found in prehistoric sites (midden, heat-affected rock, stone tools, groundstone). For sites having historic components, this information included quantities of artifacts, types of refuse (metal, ceramic, glass), and presence of features of various types (ditch, structure, structure pad, road, railroad). For both types, the GPS recorded the site condition (good, fair, poor) and a general comment. The GPS automatically recorded the date of inventory. Digital photographs were also taken for each site recorded.

3.8.1.4 Inventory Results

The field surveys covered 464 miles of transmission right-of-way for CVP and PACI lines, and 350 miles of transmission right-of-way for the COTP lines, for a total of 814 miles of transmission right-of-way. The field surveys also covered a total of 265 miles of Western legal access roads that serve these lines. The survey covered seven communication tower sites and 38 miles of access roads associated with these sites.

The surveys resulted in re-recording of 168 previously recorded sites and discovery of 150 new sites, for a total of 318 sites. There are 16 sites that have been determined eligible for National Register nomination and 17 sites that have been determined ineligible. Two sites have been nominated but not listed.¹ These National Register determinations were conducted on other prior projects and were determined in consultation with the SHPO.

There are 72 sites in the Valley region (including communication tower sites in the adjacent Coast Ranges), 65 in the Redding/Trinity region, and 181 in the Round Mountain/Modoc region. Table 3.8-1 shows the distribution, by site type, of the 180 prehistoric and 117 historic-era sites, and 21 sites having both a prehistoric and a historic component by site type. Many of the latter are prehistoric sites that also contain small, historic-era refuse dumps.

Table 3.8-1 Archaeological Site Types, North Area ROW and Access Road Surveys

Site Type	Number	Comment
Prehistoric era single-component:		
Small prehistoric (<10 surface artifacts)	36	Small, sparse, lithic scatters or sites not relocated
Medium prehistoric (>10 and <100 artifacts)	101	6 with midden, 3 with house pit depression

¹ A few very large linear infrastructure properties that are in operation and maintained by other entities, and so would not be the operations and maintenance responsibility or concern of Western, were not included in the list. Examples of such large linear sites include the Delta-Mendota Canal, various active railroad segments, and roads and highways that the transmission system crosses.

Site Type	Number	Comment
Large prehistoric (>100 surface artifacts)	39	Most of these are on the Modoc Plateau
Bedrock mortar site	3	Milling stations with no lithics
Rock alignment	1	Hunting blind
Subtotal	180	
Prehistoric and historic era components:		
Prehistoric and refuse	9	1 with bedrock mortars
Prehistoric and structure	2	None
Prehistoric and agricultural	4	Sheep camps, irrigation complex, farmstead
Prehistoric, agricultural, and mining	1	None
Prehistoric and mining	5	2 with bedrock mortars, 1 large prehistoric
Subtotal	21	
Historic era single-component:		
Mining-related	37	Includes tailings, adits, prospects
Rock wall	19	Agricultural walls in Butte and Sutter Counties
Refuse deposit	18	Without associated features
Railroad	9	Abandoned logging railroads, 1 siding
Foundations	9	Houses, barns, some with refuse deposits
Bridge	7	6 abandoned, 1 standing
Ditch	6	2 with refuse deposits
Wagon road ruts	3	Humboldt wagon road, Applegate Trail segments
Building	6	Farmsteads, houses, cattle chute
Well	1	1 with refuse deposit
Municipal landfill	1	Former Chico municipal landfill
House site	1	Site of former house
Subtotal	117	
Grand Total	318	

3.8.1.4.1 VALLEY

The Valley region is highly variable in its sensitivity for cultural resources and the CVP and COTP ROWs cross several of these zones. Generally speaking, the Sacramento Valley has high prehistoric archaeological site densities along the Sacramento River natural levee and riparian vegetation corridor, at its eastern margins near the Sierra Nevada foothills, and at its western margins at the base of the Coast Ranges. The CVP runs along the lower alluvial outwash plains of the Sierra Nevada foothills in a zone of relatively high sensitivity. This area also contains a number of sites belonging to the historic era, such as agricultural rock walls. The lines running south from Olinda also cross this foothill outwash plain zone at the northern end. Farther south, however, the project ROWs are located along Central Valley plains between the river corridor and Coast Ranges. Two of the communication tower sites surveyed are located in the Coast Ranges west of the Valley proper. The Valley areas are heavily agricultural and have a very low density of prehistoric or historic archaeological sites. Farther south, the prehis-

toric site density increases somewhat where Coast Range drainages cross the Valley. Site density becomes very high again in some locations adjacent to the Sacramento–San Joaquin Delta north of the Tracy Substation. Table 3.8-2 classifies the Valley sites by type.

Table 3.8-2 Archaeological Site Types in the Valley

Site type	Number	Comment
Prehistoric era single-component:		
Bedrock milling site	5	1 large
Small prehistoric (<10 surface artifacts)	2	2 bedrock mortar
Medium prehistoric (>10 and <100 artifacts)	9	2 previous data recovery excavations
Large prehistoric (>100 surface artifacts)	11	2 midden mounds
Subtotal	27	
Prehistoric and historic era components:		
Prehistoric plus refuse	1	None
Prehistoric plus mining	1	Irrigation ditch on prehistoric site
Subtotal	2	
Historic era single-component:		
Rock wall	18	East Valley margins and Sutter Buttes
Foundation	6	1 barn, 3 with refuse
Building	4	Standing structures, cattle chute
Mining-related	3	1 with adit, 1 with prospect pits
Refuse scatter	3	1 with ditch
Bridge	3	Ruined bridges, 1 with refuse
Ditch	2	Mining ditches
Well	1	1 with refuse and dam
Municipal landfill, closed	1	Municipal landfill for Chico
Wagon road ruts	1	Old Humboldt Road
Railroad grade	1	Abandoned, no track
Subtotal	43	
Grand Total – Valley	72	

3.8.1.4.2 REDDING/TRINITY

The Redding/Trinity region includes dissected outwash fans from the Coast Ranges and southern Cascades, and also includes areas of very rugged and mountainous terrain in the Trinity Mountains. The outwash fans and areas near the Sacramento River have a high density of prehistoric and historic archaeological sites. Sites associated with historic mining activities are particularly common in this region, in both the alluvial outwash plains east of the Coast Ranges and in the canyons and open valleys in the Trinity Mountains. Prehistoric sites are most common in the low foothills near the Sacramento River and its major tributaries. Table 3.8-3 classifies the sites by type.

Table 3.8-3 Archaeological Site Types in Redding/Trinity

Site type	Number	Comment
Prehistoric era single-component:		
Small prehistoric (<10 surface artifacts)	3	None
Medium prehistoric (10 to 100 artifacts)	9	None
Large prehistoric (>100 surface artifacts)	0	None
Subtotal	12	
Prehistoric and historic era component:		
Prehistoric and mining	2	None
Prehistoric and refuse	1	Bedrock mortar
Prehistoric and agricultural	1	Camden House
Subtotal	4	
Historic era single-component:		
Mining-related	30	3 adits, 2 pits, 1 ditch
Refuse dump	9	1 large, 6 small- to medium-sized
Foundation	2	1 with refuse
Ditch	4	Mining ditches
Standing structure	1	Residence
Railroad	1	None
House site	1	Domestic tree is remains of residence
Bridge	1	Bridge site
Subtotal	49	
Grand Total – Redding/Trinity	65	

3.8.1.4.3 ROUND MOUNTAIN/MODOC

The Round Mountain/Modoc region includes the foothills of the southern Cascade Mountains, the Cascade Range itself, and the Modoc Plateau volcanic plain. Prehistoric sites are relatively common in the Cascade foothills and rare in the mountainous areas. The density of archaeological sites in portions of the Modoc Plateau is extremely high, partly because of proximity to a major source of obsidian tool-making material. Historic sites relating to logging are relatively common in the Cascade Mountains. Table 3.8-4 classifies the sites by type.

Table 3.8-4 Archaeological Site Types in Round Mountain/Modoc

Site type	Number	Comment
Prehistoric era single-component:		
Rock alignment	1	Possible hunting blind
Small prehistoric (<10 surface artifacts)	31	None
Medium prehistoric (10 to 100 artifacts)	83	Mostly on Modoc Plateau
Large prehistoric (>100 surface artifacts)	26	More numerous on Modoc Plateau
Subtotal	141	
Prehistoric and historic era components:		
Prehistoric and refuse	7	None
Prehistoric and structure	2	None
Prehistoric and agricultural	3	Sheep camps with prehistoric component
Prehistoric, agricultural, and mining	1	None
Prehistoric and mining	2	None
Subtotal	15	
Historic era single-component:		
Logging railroad grade, abandoned	7	2 with refuse
Refuse dump	6	None
Mining-related	4	1 with refuse
Bridge	3	2 ruins, 1 standing
Wagon trail	2	Applegate Trail, 2 segments
Structures	1	1 collapsed
Rock wall or alignment	1	1 wall
Foundation	1	With refuse
Subtotal	25	
Grand Total – Round Mountain/Modoc	181	

3.8.2 Significance Criteria and Approach to Impact Assessment

A significant impact on cultural resources would result if any of the following were to occur from project activities:

- Damage to or loss of a site of archaeological, tribal, or historical value that is listed, or eligible for listing, on the NRHP;
- Loss or degradation of a traditional cultural property or sacred site, or if the property or site is made inaccessible for future use;
- Disturbance to any human remains, including those interred outside of formal cemeteries.

3.8.3 Environmental Consequences from the Proposed Action

The project may have the potential to adversely affect significant prehistoric and historic archaeological properties and historic buildings and structures located within the APE. No traditional cultural properties have been identified within the APE. A significant adverse impact would be one that could adversely affect the qualities of a property that rendered it eligible for listing in the National Register. Only a small number of the cultural resources sites identified in the North Area APE have been formally evaluated for National Register eligibility, in most cases in conjunction with the construction of a natural gas pipeline project. Western has begun a phased program of National Register evaluation for the cultural resources sites under its management. Western has initiated consultation with the SHPO to determine which sites can be clearly documented as not eligible for National Register listing on a categorical basis (for example, mine tailing sites without associated artifact deposits or other features), which would require minimal subsurface testing to determine the presence or absence of a subsurface component (small and sparse lithic scatters), and which would require more extensive subsurface testing to determine their depth, contents, and research potential (for example, pre-historic sites with midden or extensive artifact deposits). Until this program is implemented, Western would avoid impacts to all known sites that have not previously been determined ineligible for National Register listing and would implement specific SOPs and PCMs to protect resources.

By implementing the PCMs, Western would ensure that impacts to significant cultural resources sites are avoided to the greatest extent possible. The cultural resources inventory that Western has conducted of previously uninventoried areas, and the high-accuracy recording of cultural resources site boundaries and their entry into the GIS would help to ensure that the PCMs can be implemented effectively. Although it is possible that undiscovered sites remain in the APE (for example, in areas of dense vegetation), implementing the PCMs would also help to ensure that impacts to such sites are avoided or minimized, for example, by instructing vegetation clearance crews in the identification of archaeological and historic sites and the monitoring of vegetation clearing in archaeologically sensitive zones. SOPs and PCMs applicable to cultural resources are listed in Tables 2-1 and 2-5.

3.8.3.1 Category A – Inspection and Minor Maintenance Activities

Operations and maintenance activities designated as Category A would have very low potential to cause adverse impacts to cultural resources. Most of these activities do not involve the kind of ground disturbance that could impact archaeological sites or historic buildings and structures. Routine ground patrols would use existing access roads, for example. Although some access roads cross known archaeological sites in some places, routine patrols would not involve increased impacts to these sites because the patrols would be restricted to the existing roadways using rubber-tired vehicles. Similarly, although some towers are located within archaeological site boundaries, the cultural resource PCMs would prevent work on existing towers for maintenance and replacement of hardware from causing significant impacts to archaeological sites. These measures call for avoidance of sites by vehicles and education of maintenance personnel regarding the protection of cultural resources, among other things.

3.8.3.2 Category B – Routine Maintenance Activities

Operations and maintenance activities designated as Category B would have the potential, through excavation, to cause minimal ground disturbance and would, therefore, also have the potential to cause adverse impacts to cultural resources such as archaeological sites if conservation measures were not in place. For example, use of backhoes and front-end loaders for excavation and road grading could damage archaeological deposits. These impacts would be prevented by avoidance of significant archaeological sites in accordance with the proposed PCMs and by implementation of the PCMs designed for areas for which protocol surveys have not been possible due to terrain or vegetation.

3.8.3.3 Category C – New Infrastructure

Operations and maintenance activities designated as Category C would have the potential, through excavation, to cause ground disturbance through the use of heavy equipment such as bulldozers, graders, backhoes, front end loaders, and other specialized equipment and would, therefore, also have the potential to cause adverse impacts to cultural resources such as archaeological sites, if conservation measures were not in place. For example, use of backhoes and front-end loaders for excavation and road grading could damage archaeological deposits. These impacts would be prevented, however, by avoidance of significant archaeological sites, in accordance with the PCMs and by implementation of the PCMs designed for areas for which protocol surveys have not been possible due to terrain or vegetation.

3.8.4 Environmental Consequences from the No Action Alternative

Potential effects on cultural resources under the No Action Alternative would not differ significantly from those that would occur under the Proposed Action. The literature search and pedestrian surveys conducted for the project and the implementation of a GIS-based cultural resources management system have made it easier for Western to accurately determine which operations and maintenance activities have the potential to affect known cultural resources and to plan and implement the avoidance of adverse effects. This system would be in place whether the Proposed Action or No Action Alternative is chosen. Western currently plays an active role in managing cultural resources within its ROW and access road areas and in avoiding or mitigating impacts to them during operations and maintenance activities.

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3.9 Land Use

Land use refers to the use of land for various activities, including commercial, industrial, recreational, agricultural, and residential. Local land use policies and development regulations control the type of land use and the intensity of development or activities permitted. Changes in land-use patterns that result from development can affect the character of an area and result in physical impacts to the environment.

This section discusses, in general terms, the existing land uses throughout the extent of Western's transmission lines, and applicable land-use plans and policies intended to regulate land use in the area. This section also addresses the types of land use impacts that could occur under the Proposed Action and No Action Alternative.

3.9.1 Affected Environment

Table 3.9-1 describes general categories of land uses that are traversed by the project area and provides examples of specific land uses within each category.

Table 3.9-1 Land Use Classifications

Classification or Land Use Type	Examples of Land Uses
Agricultural	Citrus and subtropical crops; deciduous fruit and nut orchards; farmsteads, feed lots, dairies, and poultry farms; field crops; grain and hay crops; idle land; pasture; rice fields; truck, nursery, and berry crops; vineyards
Industrial	Manufacturing, assembling, and general processing; extractive industries; storage and distribution; saw mills; oil refineries; paper mills; meat packing plants; steel and aluminum mills; sewage treatment plants; waste accumulation sites; wind farms
Native Vegetation	Native vegetation, riparian vegetation, water surface, barren, and wasteland
Residential	Single-family residences, multi-family residences, trailer court
Urban	Commercial, landscaped, vacant

The project area traverses more than 1,000 miles of land between central and northern California. Much of this land is rural agricultural or open space, but the project area also passes through seven urban areas, including the cities of Bethel Island, Chico, Cottonwood, Oroville, Red Bluff, Redding, and Rio Vista. Overall, North Area transmission line ROWs traverse 46 miles (588 acres) of BLM lands, 18 miles (144 acres) of NPS lands in the Whiskeytown National Recreation Area (NRA), and 103 miles (2,289 acres) of USFS lands. Table 3.9-2 presents jurisdictions traversed by Western's transmission lines, as well as the types of land use in each jurisdictional category.

The communication facilities and associated access roads are within USFS and BLM lands, as well as the counties of Shasta, Lassen, Tehama, and Yolo. Types of land uses within the communication facilities and access roads include agricultural and native vegetation. These jurisdictions and land-use types are only within specific portions of certain communication facilities and access roads and are not present at every facility.

Table 3.9-2 Land Use Type by Portion of the Study Area

Valley			
Federal	County	City	
U.S. Bureau of Land Management	Alameda County Colusa County Glenn County San Joaquin County Solano County Tehama County Yuba County	Butte County Contra Costa County Sacramento County Shasta County Sutter County Yolo County	City of Bethel Island City of Chico City of Oroville City of Red Bluff City of Rio Vista
Land Use Types	Percent of Land Area	Acreage of Land Area	
Agricultural	39.4%	2,662	
Industrial	0.6%	42	
Open Space (native vegetation)	58.5%	3,947	
Residential	0.8%	51	
Urban	0.7%	46	
Total	—	6,749	
Redding/Trinity			
Federal	County	City	
U.S. Bureau of Land Management U.S. Forest Service National Park Service	Shasta County Trinity County	City of Cottonwood City of Redding	
Land Use Types	Percent of Land Area	Acreage of Land Area	
Agricultural	3.4%	81	
Industrial	1.6%	39	
Open Space (native vegetation)	87.3%	2,084	
Residential	6.4%	153	
Urban	1.3%	31	
Total	—	2,388	
Round Mountain/Modoc			
Federal	County	City	
U.S. Bureau of Land Management U.S. Forest Service	Modoc County Shasta County Siskiyou County	City of Cottonwood	
Land Use Types	Percent of Land Area	Acreage of Land Area	
Agricultural	2.5%	160	
Open Space (native vegetation)	97.3%	6,182	
Residential	0.1%	4	
Urban	0.1%	4	
Total	—	6,350	

3.9.1.1 Existing Land Use

VALLEY

The predominant land use traversed by the project area in the Valley is open space (native vegetation), with interspersed agricultural areas, including large areas of deciduous fruit and nut orchards, field crops, grain and hay crops, pasture land, and rice fields. Industrial, urban, and residential areas are also present, although in much smaller proportion. Within the Valley region, industrial, urban, and residential land uses are concentrated around the cities of Bethel Island and Rio Vista in Alameda and Contra Costa Counties at the southern end of the project area. Industrial, urban, and residential land uses near the North Area ROWs are located around the cities of Oroville and Chico in Butte County, the City of Red Bluff in Tehama County, and the City of Cottonwood in Shasta County. North Area ROWs traverse approximately 10 miles and approximately 65 acres of BLM lands in the Valley portion of the project area.

REDDING/TRINITY

The project area in the Redding/Trinity region traverses substantially less agricultural land than in the Valley. Similar to the Valley, the predominant land use in the Redding/Trinity region is open space (native vegetation). The project area within this region also traverses the cities of Cottonwood and Redding in Shasta County. Agricultural uses in the Redding/Trinity region consist primarily of pasture land, but also include some deciduous fruit and nut orchards, citrus and subtropical fruit crops, field crops, and hay and grain crops. North Area ROWs pass through BLM lands in Shasta and Trinity Counties and through the Shasta-Trinity National Forest and Whiskeytown-Shasta-Trinity NRA.

ROUND MOUNTAIN/MODOC

The project area in the Round Mountain/Modoc region cross more open space (native vegetation) areas than the Valley and Redding/Trinity regions combined. Agricultural uses, such as pasture land, grain and hay crops, nursery and berry crops, and citrus and subtropical crops, comprise the second largest area traversed by the project area within the Round Mountain/Modoc region. The ROWs only cross a few acres of urban and residential uses. North Area lines traverse BLM land in Shasta and Modoc Counties as well as the Modoc and Shasta-Trinity National Forests.

3.9.1.2 Applicable Plans and Policies

Because the project area traverses such a large area, this EA does not attempt to identify every land-use plan and policy that is potentially impacted. Specific locations of activities conducted under the Proposed Action have not yet been identified, so the applicability of plans and policies cannot be precisely determined. Moreover, applicable land-use plans and policies along the ROWs and access roads could be revised during the course of activities.

FEDERAL

As described above, the North Area transmission lines would traverse BLM, NPS, and USFS lands. Consequently, activities in these areas would be subject to the plans and policies of these federal agencies. A variety of BLM resource management plans would apply to lands traversed by the North Area transmission lines in the Valley, Redding/Trinity, and Round Mountain/Modoc regions. In the Redding/Trinity region, North Area transmission lines traversing the NPS Whiskeytown National Recreation Area may require a special-use permit and would be subject to the 1999 Whiskeytown Unit General Management Plan. In the Round Mountain/Modoc region, North Area transmission lines would be subject to the 1991 Modoc National Forest Land and Resource Management Plan and the 1995 Shasta-Trinity National Forest Land and Resource Management Plan. As these various plans are revised or amended, Western will work with the land managers to follow any updated provisions.

LOCAL

The project area crosses approximately 23 local agency jurisdictions, presented in Table 3.9-2. While Western would attempt to follow these plans and policies to the greatest extent feasible, no local discretionary permits (e.g., conditional use permits) or local plan consistency evaluation are required because Western has preemptive jurisdiction for the operation and maintenance of its transmission facilities.

3.9.2 Significance Criteria and Approach to Impact Assessment

3.9.2.1 Approach to Impact Assessment

Maintenance activities conducted under the Proposed Action can be considered incompatible with existing land uses if they create noise, visual impacts, or other environmental impacts that disturb or preclude existing land uses, conflict with existing utility ROWs, conflict with a special-use area, or result in a substantial loss of farmland. Applicable federal and local land-use plans are intended to, among other things, prevent such incompatibilities. This section evaluates the consistency of the Proposed Action with applicable land-use plans and considers the impact that maintenance activities may have on existing and proposed land uses.

3.9.2.2 Significance Criteria

A significant impact on land use and agricultural practices would result if any of the following were to occur:

- Conflict with applicable land-use plans, policies, goals, or regulations;
- Conflict with existing utility ROWs;
- Conflict with state or federally established, designated or reasonably foreseeable planned special-use areas (e.g., recreation, wildlife management areas, game management areas, waterfowl production areas, scientific and natural areas, wilderness areas, etc.);

- Nuisance impacts attributable to incompatible land uses;
- Substantial loss of prime or unique farmlands.

3.9.3 Environmental Consequences from the Proposed Action

This impact analysis discusses the adverse effects of implementing the Proposed Action, and identifies SOPs to avoid significant adverse effects. The analysis also discusses the general types of site-specific impacts that could occur, and identifies SOPs that can be used to reduce or avoid these impacts.

3.9.3.1 Category A – Inspection and Minor Maintenance Activities

Category A activities would be consistent with the applicable land-use plans and ordinances of the jurisdictions listed in Table 3.9-2. Western has coordinated with the BLM, NPS, and USFS for past maintenance activities and, in response, has prepared the SOPs associated with this document to ensure the consistency of the Proposed Action with these plans and policies. Additionally, as described in section 2.2.4, Western would continue to coordinate with resource agencies and land managers on specific maintenance activities, particularly regarding which PCMs would be applicable to each activity. With the implementation of the SOPs described in section 2.2.4.3, Category A activities would not conflict with any established, designated, or planned special-use areas.

No new facilities would be constructed that would have the potential to be incompatible with existing land uses. Activities would be temporary in nature and would be of a short duration. None of the activities associated with Category A would result in substantial nuisance impacts attributable to incompatible land uses. Implementation of LU-SOP-2 would reduce any nuisance impacts associated with maintenance activities that might arise.

Category A activities could potentially disrupt agricultural uses for a short duration, but because no new structures or facilities would be constructed, impacts would be temporary. No conversion of farmland (including prime or unique farmland) to non-agricultural use is anticipated as a result of Category A activities. Implementation of LU-SOP-1 through LU-SOP-3 would reduce any impacts to agricultural lands.

Category A activities would not conflict with any below- or above-ground existing utility ROWs.

3.9.3.2 Category B – Routine Maintenance Activities

Due to the limited nature of the maintenance activities under Category B, activities would largely be consistent with the applicable land-use plans and ordinances of the jurisdictions listed in Table 3.9-2. Where activities would conflict with land use plans and ordinances, Western has developed SOPs in coordination with the BLM, NPS, and USFS to ensure consistency of the Proposed Action with these plans and policies. With the implementation of the SOPs described in section 2.2.4.3 and the implementation of PCMs as needed, Category B activities would not conflict with any established, designated or planned special-use areas.

Certain activities associated with Category B, such as the maintenance of underground utilities, have the potential to conflict with co-located utilities. Western follows Section 1, Chapter 3.1, "Protection of Underground Infrastructure," Article 2 of California Government Code 4216-4216.9. Western contacts a regional notification center at least two days prior to excavation. This activity would result in an Underground Service Alert notifying the utilities that have buried lines within 1,000 feet of the maintenance activities. Representatives of the utilities are required to mark the specific location of their facilities within the work area prior to the start of project activities in the area. This activity would result in all underground electric, gas, cable, or telecommunications lines within the vicinity of the Proposed Action being marked. The activities associated with following California Government Code 4216-4216.9 would reduce the potential impact related to co-location or utility conflicts. Notification of nearby landowners under LU-SOP-2 would also reduce the adverse effects of any utility conflicts.

Category B activities could include the regrading of roads; this modification would not alter the use of affected areas. Although Category B activities could include the permanent modification of certain existing land uses, none of the activities associated with Category B would result in nuisance impacts attributable to incompatible land uses in a substantial manner. Implementation of LU-SOP-2 would reduce nuisance impacts associated with maintenance activities.

Category B activities could potentially disrupt agricultural uses for a short duration, but any permanent modifications would be made to existing facilities or infrastructure and would not result in the conversion of farmland (including prime and unique farmland). Impacts to farmland would be temporary and farmland would be allowed to return to its original use following completion of the activity. Implementation of LU-SOP-1 through LU-SOP-3 would reduce any impacts to agricultural lands.

3.9.3.3 Category C – New Infrastructure

Category C activities could include the alteration of existing infrastructure but would not change the use of this infrastructure and so would not be inconsistent with the applicable land-use plans and ordinances of the jurisdictions listed in Table 3.9-2. The PCMs and SOPs for both land use and other issue areas have been coordinated with the BLM, NPS, and USFS in response to past maintenance activities and have been designed to ensure consistency of the Proposed Action's activities with these plans and policies. Additionally, as described in section 2.2.4, Western would continue to coordinate with resource agencies and land managers on specific maintenance activities, particularly regarding which PCMs would be applicable to the activities. Consequently, Category C activities would be consistent with applicable plans and policies. With the implementation of the SOPs listed in Table 2-1, Category C activities would not conflict with any established, designated or planned special-use areas.

As described above for Category B, the responsibilities of California utility operators working in the vicinity of utilities are detailed in Section 1, Chapter 3.1, "Protection of Underground Infrastructure," Article 2 of California Government Code 4216-4216.9. The activities associated with following California Government Code 4216-4216.9 would result in all underground utilities within the vicinity of the Category C activities being marked as

to their exact location. All aboveground utilities would be visible and coordination between Western and other utility providers would occur to avoid utility disruptions during maintenance activities. Following the above codes and notification of nearby landowners under LU-SOP-2 would reduce the impacts of any utility conflicts.

Permanent modifications made to existing facilities under Category C would include upgrading access roads, installing culverts, and clearing of vegetation. While these modifications would be more extensive than the modifications made as a part of Category B, these activities would not change any existing land uses and would not include the construction of any new facilities or structures. It is unlikely that any of the Category C activities would have the potential to be substantially incompatible with existing land uses. Implementation of LU-SOP-1 would reduce nuisance impacts associated with maintenance activities.

Similar to Category B activities, those in Category C could potentially disrupt agricultural uses, but any permanent modifications would be made to existing facilities or infrastructure and would not result in the conversion of any farmland (including prime and unique farmland). Any impacts to farmland would be temporary and farmland would be allowed to return to its original use following completion of the activity. Implementation of LU-SOP-3 would serve to reduce any adverse effects to agricultural lands associated with Category C activities.

3.9.4 Environmental Consequences from the No Action Alternative

Under the No Action Alternative, Western would continue to conduct routine maintenance activities along the North Area ROWs, requiring negotiations documented in a categorical exclusion for each particular maintenance task. Consequently, the impacts would be largely similar to the impacts described above to land uses adjacent to the Proposed Action in the jurisdictions listed in Table 3.9-2.

Installation of fiber-optic cable, installation of cellular equipment onto existing infrastructure, and tower relocation/realignment would not be conducted under the No Action Alternative. Consequently, any land-use-related impacts associated with these activities would be eliminated.

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3.10 Recreation

This section of the EA examines the potential adverse effects to recreational resources associated with the Proposed Action and the No Action Alternative. It discusses in general terms the existing recreation areas traversed by Western's transmission lines, communication facilities, and access roads.

3.10.1 Affected Environment

While some local and regional recreation areas may be traversed by Western's transmission lines and access roads, the largest recreation areas crossed by these ROWs include BLM, NPS, and USFS lands. These lands include trails, national forests, and NRAs. Table 3.10-1 presents the miles and acreage of BLM, NPS, and USFS lands traversed by the North Area transmission lines.

Table 3.10-1 Recreational Land Crossed By Project Area

Land Manager	Miles Traversed by ROWs	Acres Crossed by ROWs
Bureau of Land Management	46	588
National Park Service	18	144
U.S. Forest Service	103	2289

Some communication facilities and portions of the associated access roads are within BLM, NPS, and USFS land.

3.10.1.1 Valley

There are local and regional recreation areas associated with the cities of Bethel Island and Rio Vista in Solano and Contra Costa Counties at the southern end of the project area. There are also local recreation areas associated with the cities of Oroville and Chico in Butte County, the City of Red Bluff in Tehama County, and the City of Cottonwood in Shasta County within the project area. The project area also traverses BLM lands in Tehama County.

3.10.1.2 Redding/Trinity

There are local and regional recreation areas associated with the cities of Cottonwood and Redding in Shasta County. The project area passes through BLM lands in Shasta and Trinity Counties and through the Shasta-Trinity National Forest and Whiskeytown-Shasta-Trinity NRA.

The Whiskeytown unit of the NRA is managed by the NPS, whereas the Shasta and Trinity units of the NRA are managed by the USFS. The Trinity unit is further divided into four subunits: Lewiston Lake, Trinity Dam, Stuart Fork, and North Lake areas. The Shasta unit includes four arms: Sacramento, McCloud, Squaw, and Pit. These areas provide outdoor recreation activities such as camping, fishing, swimming, paddling, boating, backpacking, horseback riding, mountain biking, and hunting (USFS 2007).

The Whiskeytown NRA is an all-season park with year-round recreation. Winter storms leave snow at higher elevations, but there are opportunities for horseback riding, hiking, and mountain biking at the lower elevations. Opportunities for wildflower viewing and birding are available in the spring. During summer months, sailing, water skiing, scuba diving, swimming, hiking, and fishing are among the recreational activities (NPS 2007).

3.10.1.3 Round Mountain/Modoc

The project area does not pass through any local or regional recreation areas in the Round Mountain/Modoc region; however, it traverses BLM land in Shasta and Modoc Counties as well as the Modoc and Shasta-Trinity National Forests.

3.10.2 Significance Criteria and Approach to Impact Assessment

3.10.2.1 Approach to Impact Assessment

Maintenance activities conducted under the Proposed Action can be considered to affect recreation resources if they create noise, visual impacts, or other environmental impacts that conflict with recreational uses or deteriorate or create a new need for recreation facilities. This section considers the adverse effects of the Proposed Action may have on existing recreation facilities.

3.10.2.2 Significance Criteria

Adverse effects on recreation would result if any of the following were to occur from the Proposed Action:

- Increased demand for recreation activities;
- Conflicts with established recreational areas;
- Substantial loss of recreational uses.

3.10.3 Environmental Consequences from the Proposed Action

3.10.3.1 Category A – Inspection and Minor Maintenance Activities

Category A activities would not result in any substantial increase in the number of people using recreation areas along the ROWs that would cause a need for new recreation areas. Any work done in established recreation areas would be temporary in nature and any disruption of recreational activities, such as restricting access to trails or other facilities, would occur for only a short period. Additionally, Western has coordinated with the BLM, NPS, and USFS for past maintenance activities and, in response, has prepared SOPs to ensure that the Proposed Action would be consistent with the plans and policies of recreation areas within these jurisdictions. In places like the Whiskeytown NRA or the Modoc and Shasta-Trinity National Forests, REC-SOP-1, along with SOPs for aesthetics, air quality, noise, and public health, would ensure that conflicts with established recreational areas would be minimized (see Table 2-1). Additionally, implementation of REC-SOP-1 would require that Western inform the public of any trails blocked by equipment or for safety purposes, and direct trail users to alternate trails or facilities.

3.10.3.2 Category B – Routine Maintenance Activities

Category B activities would not substantially increase the total number of people using recreation areas along the ROWs. While the maintenance activities associated with Category B could result in permanent changes to existing infrastructure, the work done in established recreation areas such as trails or other facilities would occur for only a short period. These disruptions could be a nuisance and could degrade the experience of recreation facility users. REC-SOP-1, along with SOPs for aesthetics, air quality, noise, and public health, would ensure that conflicts with established recreational areas (e.g., Whiskeytown NRA) would be minimized.

3.10.3.3 Category C – New Infrastructure

Category C activities would not substantially increase the total number of people using recreation areas along the ROWs. The maintenance activities associated with Category C would not result in permanent changes in existing recreational areas.

Category C activities would not substantially alter the existing infrastructure along the North Area ROW. Implementation of the aesthetics SOPs would also ensure that Category C maintenance activities would preserve the natural surrounding and natural landscape.

The maintenance activities would disrupt recreational activities for short periods. These disruptions may degrade the experience of recreation facility users. REC-SOP-1, along with SOPs for aesthetics, air quality, noise, and public health, would ensure that conflicts with established recreational areas (e.g., Whiskeytown NRA) would be minimized.

3.10.4 Environmental Consequences from the No Action Alternative

Under the No Action Alternative, the Proposed Action would not be implemented as described in section 2. In the absence of the Proposed Action, Western would continue to conduct routine maintenance activities along the North Area ROWs, requiring negotiations documented in a categorical exclusion for each particular maintenance task. Consequently, the impacts would be largely similar to the impacts described above to recreation resulting from the Proposed Action.

Installation of fiber-optic cable and cell towers and tower relocation/realignment would not be conducted under the No Action Alternative. Consequently, any recreation-related impacts associated with these activities would also be eliminated.

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3.11 Aesthetics

Visual quality is a term that expresses the degree of harmony, contrast, and variety within a landscape. Landscapes of high visual quality may contain distinctive landforms, vegetation patterns, and/or water forms. Visual sensitivity is a term that expresses the concern by viewers toward changes to visual quality. Visual sensitivity is generally higher in natural or unmodified landscapes.

This section identifies and describes visual resources, including visual quality and sensitivity, which could be affected by the Proposed Action. The purpose of this analysis is to identify potential obstructions to or modifications of present views in the landscape. The visual resources study area consists of viewsheds where project activities would be seen from sensitive viewing locations such as travel routes, residences, and recreation areas.

3.11.1 *Affected Environment*

The following sections describe the affected environment with regard to aesthetics for each of the three regions identified in Figure 1-1 and described in section 1.3. Because the communication facilities are dispersed throughout the project area, the description of their affected environment is encompassed in the following sections.

3.11.1.1 *Valley*

Several North Area transmission lines are located in the Central Valley of California. This area is bordered on the west by the Coast Ranges and their foothills, with a central alluvial plain drained by the Sacramento, Feather, Yuba, Bear, and San Joaquin rivers. On the east, the area is bordered by the Cascade and Sierra Nevada ranges and their foothills. This portion of the Central Valley contains five basins, the American, Colusa, Sacramento, Sutter, and San Joaquin. These basins are primarily flat agricultural land of average visual quality. One distinctive landform is the Sutter Buttes, which are the remnants of a dormant volcano. Existing transmission lines cross many portions of the project area, resulting in moderate visual quality.

The eastern portion of the project area within the Valley traverses agricultural landscapes modified by rural residential uses. The western portion of the project area runs adjacent to South Butte, the highest peak within the Sutter Buttes, an area of high visual quality. However, the overall visual quality for both transmission lines is moderate due to flat landscapes, common vegetation patterns, landscape modifications, and numerous transmission lines.

The southern portion of the project area traverses agricultural landscapes modified by rural residences between the Olinda and Maxwell substations. From Maxwell to the Sacramento River, the COTP transmission line traverses the intensively farmed Sacramento Valley and the grass-covered lower foothills of the Inner Coast Range. Scenic quality is related to the agrarian landscape and panoramic views to foothills and distant mountain ranges. From the Sacramento River to Tracy, the area is located entirely within the Sacramento–San Joaquin Delta. The Delta landscape comprises intensively cultivated

crop and orchard land. The visual features of this low-lying area include fresh-water and brackish-water marshes, diked agricultural islands, and waterways fringed with riparian vegetation. The extensive river and slough system is used for recreation. As the transmission line approaches Tracy, the residential and industrial development increases. Due to rapidly increasing agricultural, rural, and urban development, and transmission lines along the landscape, the visual quality is moderate.

3.11.1.2 Redding/Trinity

The Trinity Substation is within 1 mile of the Trinity Dam located on Clair Engle Lake. The North Area transmission line traverses the Trinity National Forest, approximately 4 miles from Lewiston Lake. The transmission line continues east over the Trinity Mountains, crosses various BLM parcels, and is located within 3 miles of Crystal Creek Falls, located within the Whiskeytown-Shasta-Trinity NRA. See Figure 1-1 for the location of the transmission lines.

North Area transmission lines traverse the Whiskeytown-Shasta-Trinity NRA, about one mile south of Whiskeytown Lake, within 4 miles of Brandy Creek Falls, and 2 miles of the Shasta State Historical Park. The Keswick Substation is within 1 mile of Keswick Dam, located at the Keswick Reservoir.

The Whiskeytown-Shasta-Trinity NRA provides recreation activities such as hiking, camping, wildlife viewing, fishing, and boating. The NRA, Shasta State Historical Park, mountainous areas, and water features are of a high visual quality. However, rural developments and transmission lines along the landscape attract viewer attention and decrease the value to a moderate visual quality.

Several North Area transmission lines are located approximately 2 miles east of the Keswick Reservoir and are in close proximity to Redding. The transmission lines extend from low-lying areas, through BLM parcels, and terminate at the Shasta Substation, located in the foothills within 1 mile of Shasta Dam. North Area transmission lines are also located within 1 mile of Fawks Lake, 2 miles of Reese Reservoir, and about 10 miles of the Bald Hills in close proximity to the cities of Redding and Anderson.

The foothill landscape has been modified primarily by rural residential uses and agricultural uses, with urban development in the northern section. The Sacramento River and other water features provide the chief recreational activities, including fishing and boating. Due to increasing rural and urban development, and the transmission lines along the landscape, the visual quality is moderate.

3.11.1.3 Round Mountain/Modoc

The northern portion of the project area is within the Klamath and Modoc National Forests and near the Lava Beds National Monument. The Klamath and Modoc National Forests comprise sub-alpine fir and mixed conifer stands. The Lava Beds National Monument is mixed with a variety of volcanic features including cinder buttes, spatter cones, chimneys, craters, and lava tube caves within a region of wooded hills and grassy prairie. The project area is located approximately 5 miles east of Tule Lake Sump and Tule

Lake National Wildlife Refuge (NWR), and approximately 5 miles west of Clear Lake NWR, which encompasses Clear Lake. The Tule Lake NWR encompasses 39,116 acres of mostly open water and croplands. The Clear Lake NWR consists of about 20,000 acres of open water surrounded by upland habitats of bunchgrass, low sagebrush, and juniper. In addition, the transmission line is within 2 miles of Timber Mountain, Saddle Blanket Flat, Coyote Butte, Horse Mountain, and Dry Lake.

Continuing south, the transmission lines run adjacent to Indian Spring Mountain on the tip of the White Horse Mountain Range and through the Modoc and Shasta National Forests. The transmission line runs about 3 miles west of Barnum Flat Reservoir, 4 miles west of White Horse Flat Reservoir and Mosquito Lake, and 6 miles west of Egg Lake. While the landscape is generally flat in this northern section of the transmission line, the aesthetic features described above are of high visual quality and provide recreation activities such as hiking, camping, wildlife viewing, and geologic exploration. However, due to transmission lines attracting viewer attention, the resulting visual quality is moderate.

The transmission lines run south through a mountainous portion of the Shasta National Forest, cross the Pit River, and run within 3 miles of Chalk Mountain. The visual quality of this section is high due to panoramic views of foothills, mountain ranges, and water features. In addition, this area provides recreation activities such as hiking, camping, wildlife viewing, fishing, and boating. However, transmission lines along the landscape horizon and over the Pit River attract viewer attention and result in moderate visual quality.

South of Round Mountain, the project area is located through Millville Plains and crosses several creeks and the Sacramento River. The transmission line runs approximately 5 to 7 miles east of Stillwater Plains and the Redding Municipal Airport and close to the cities of Redding, Enterprise, and Anderson.

The scenic views are composed of foothills and low-lying plains with some farm communities. Fishing and boating are the primary recreational activities provided by the Sacramento River. However, due to the residential and industrial development in the southern section and transmission lines along the landscape, the visual quality is moderate.

3.11.2 Significance Criteria and Approach to Impact Assessment

3.11.2.1 Approach to Impact Assessment

Maintenance activities conducted under the Proposed Action can cause impacts to visual resources if there is visual interruption that would dominate a rare, unique, scenic, or sensitive viewshed or if there is conflict with or violation of a formal visual resources plan or policy, applicable to the study area and approved or adopted by the federal, state, or local agency having jurisdiction. This section evaluates the potential impacts to visual resources resulting from the Proposed Action.

3.11.2.2 Significance Criteria

A significant impact on visual resources would result if any of the following were to occur as a result of the Proposed Action:

- Substantial degradation of the foreground character or scenic quality of a visually important landscape;
- Substantial dominant visual changes in the landscape that are seen by highly sensitive viewer locations such as community enhancement areas (community gateways, roadside parks, viewpoints, and historic markers) or locations with special scenic, historic, recreational, cultural, archaeological, and/or natural qualities that have been recognized as such through legislation or some other official declaration;
- Predicted air pollutant emissions causing a change in visibility that would exceed Class I standards;
- Conflict with visual standards identified by a federal land management agency (e.g., BLM, USFS and NPS);
- Visual interruption that would dominate a unique viewshed or scenic view.

3.11.3 Environmental Consequences from the Proposed Action

The transmission lines have been in place for many years and are an existing component of the viewshed. Project activities could potentially affect scenic quality resulting from the visual intrusion of construction vehicles, equipment, small airplanes or helicopters, storage materials, workers, vegetation clearing by mastication, and prescribed burns.

Vantage points are available within one-half mile of the transmission lines along most of the project area; these points afford viewing opportunities from the foreground and middle ground. The middle ground is defined as that portion of the landscape from one-half mile to four miles away from the viewer. Some project features would be visible in the background (4 miles to horizon), but all background landscapes would also be seen in greater detail from closer distances and from other vantage points. Therefore, the study area of this visual analysis is limited to foreground and middle ground viewing distances from travel routes and use areas named above.

3.11.3.1 Category A – Inspection and Minor Maintenance Activities

Category A activities would have little to no effect on existing vegetation and landscape, and would result in no substantial degradation of scenic quality. There would be no substantial dominant visual change seen by sensitive viewer locations, no substantial change in visibility caused by predicted air pollutant emissions, no conflict with visual standards identified by a federal land-management agency, and no long-term dominant visual interruption of unique viewsheds. In addition, implementation of AES-SOP-1 through AES-SOP-4 would reduce any damage to the visual landscape that might conflict with any special-use areas. Therefore, significant impacts to aesthetics would not occur.

3.11.3.2 Category B – Routine Maintenance Activities

Western's transmission lines have been in place for many years and are a part of the viewshed. Unless Western substantially modifies the height or location of a transmission line, no significant long-term impacts would occur to visual resources from implementation of Category B activities. Tree clearing could occur in localized areas but would not significantly alter the visual quality. Due to the relatively small impacted area of the landscape and the limited visual accessibility, the impact to visual quality would be low. In addition, these same impacts in urban areas would minimally impact the visual quality. Implementation of AES-SOP-1 through AES-SOP-4 would reduce any damage to the visual landscape that might conflict with special use areas.

Category B activities would not substantially degrade the scenic quality of a visually important landscape or cause substantial dominant visual changes in the landscape seen by highly sensitive viewer locations or cause a visual interruption that would dominate a unique viewshed or scenic view. Western has worked proactively with the BLM, NPS, and USFS to develop SOPs that would not conflict with the agencies' visual standards. Significant impacts to aesthetics would not occur.

3.11.3.3 Category C – New Infrastructure

Category C activities could degrade the scenic quality of a visually important landscape such as the Whiskeytown-Shasta-Trinity NRA. Western would consult with NPS and the appropriate land agency to minimize impacts. The clearing of vegetation and establishment of low-growing plants may highlight the transmission lines within the viewshed. However, this area would be relatively small, and would not cause substantial dominant visual changes in the landscape seen by highly sensitive viewer locations or cause a visual interruption that would dominate a unique viewshed or scenic view. Western has worked proactively with the BLM, NPS, and USFS to develop SOPs that would not conflict with the agency's visual standards. Therefore, significant impacts to aesthetics would not occur.

3.11.4 Environmental Consequences from the No Action Alternative

Under the No Action Alternative, the Proposed Action would not be implemented as described in section 2. In the absence of the Proposed Action, Western would continue to complete routine vegetation maintenance using mechanical and manual methods. Herbicides would be used on a limited basis and low-growing native plants would not be established within ROWs. Viewsheds would remain the same, with maintenance activities primarily occurring near densely populated areas.

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3.12 Water Resources

This section of the EA examines the potential adverse effects to water resources associated with the Proposed Action and the No Action Alternative. It discusses in general terms the existing water resources in the vicinity of Western's transmission lines, communication facilities, and access roads.

3.12.1 Affected Environment

The following sections describe the affected environment with regard to water resources for each of the three regions identified in Figure 1-1 and described in section 1.3. Because the communication facilities are dispersed throughout the project area, the description of their affected environment is encompassed in the following sections.

3.12.1.1 Climate

The project includes transmission ROWs, communication facilities, and access roads throughout central and northern California. The climate in the northern, high desert plateau area of the region is characterized by cold snowy winters with only moderate precipitation, and hot dry summers. This area depends on adequate snow pack to provide run-off for summer supply. Annual precipitation ranges from 10 to 20 inches. Sacramento Valley is at a much lower elevation than the rest of the region, and has mild winters with moderate precipitation. Annual precipitation varies from about 35 inches in Redding to about 18 inches in Sacramento. Summers in the Sacramento Valley are hot and dry (DWR 2003).

3.12.1.2 Groundwater

VALLEY

The Valley portion of the project area lies mainly within the Sacramento River hydrologic region (HR). A small portion of the project extends south into the San Joaquin River HR, within Contra Costa, San Joaquin, and Alameda Counties. Both of these hydrologic regions are contained within Region 5 jurisdiction of the Regional Water Quality Control Board (RWQCB). In addition, the Valley portion of the project is within three groundwater basins: the Sacramento Basin, San Joaquin Valley Basin, and the Redding Area Basin.

Within the Sacramento River HR, groundwater supplies 31 percent of the water supply for urban and agricultural uses. The Sacramento Valley Basin is seen as one of the premier groundwater basins in the state, and wells that have been developed in the sediments of the valley provide a clean and reliable supply for irrigation, as well as municipal and domestic uses. Groundwater provides all or a portion of the municipal water supplies in many towns and cities throughout the Valley (DWR 2003).

REDDING/TRINITY

The Redding/Trinity portion of the project area lies almost entirely within the Sacramento River HR, with a very small portion of the project (including the Trinity Substation) extending into the North Coast HR in Trinity County. The Sacramento River HR is part of RWQCB Region 5, and the North Coast HR is part of RWQCB Region 1.

The portion of the project area that extends into the North Coast HR does not overlie any significant groundwater basins. Groundwater development in the inland coastal valleys north of the divide between the Russian and Eel rivers is generally limited. Many of the groundwater wells rely on hydrologic connection to the rivers and streams of the valleys, as there is a lack of alluvial aquifer storage capacity (DWR 2003).

The southern portion of the Redding/Trinity area is within the Redding Area Basin, within the Sacramento River HR. The populations of both Redding and Anderson rely partially on groundwater from this basin. The Redding Area Basin is not geographically distinct from the Sacramento River Basin, and shares similar water quality and reliability characteristics.

ROUND MOUNTAIN/MODOC

The Round Mountain/Modoc portion of the project area lies mainly within the Sacramento River HR, and briefly enters the North Coast HR near the Oregon border. The southern portion of the Round Mountain/Modoc project area lies above the Redding Area Basin in the Sacramento River Valley. The remainder of the Round Mountain/Modoc project area is not within any significant groundwater basin until it nears the Oregon border, where it is located above the Klamath River Valley Basin. Groundwater development in the area has increased dramatically in the last decade because of drought conditions, among other reasons.

3.12.1.3 Surface Water

Nearly all of the project area falls within the Sacramento River HR, which is located in the northern portion of RWQCB Region 5. The Sacramento River Basin covers 27,210 square miles and includes the entire area drained by the Sacramento River. The principal streams are the Sacramento River and its larger tributaries: the Pit, Feather, Yuba, Bear, and American rivers to the east; and Cottonwood, Stony, Cache, and Putah Creeks to the west. Major reservoirs and lakes include Shasta, Oroville, Folsom, Clear Lake, and Lake Berryessa (CVRWQCB 2007). The Sacramento River HR is the main water supply for much of California's urban and agricultural areas. Annual run-off in the HR averages about 22.4 million acre-feet, which is nearly one-third of the state's total natural run-off (DWR 2003).

VALLEY

The Valley portion of the project area crosses numerous water courses, including 129 intermittent creeks, 48 perennial creeks, 88 agricultural drainage ditches, 163 irrigation canals, 33 impoundments (man-made ponds), 1 lake, 23 small ponds, and 29 rivers crossings (both intermittent and perennial). Major rivers crossed by the Valley portion of the project include the Feather, Old, Sacramento, San Joaquin, Snake, and Yuba.

REDDING/TRINITY

The Redding/Trinity portion of the project crosses 8 intermittent creeks, 10 perennial creeks, 4 irrigation canals, 11 impoundments, 3 lakes, 10 ponds, 3 rivers, and 7 seeps or springs. Major rivers crossed by the Redding/Trinity portion of the project include the Sacramento and Trinity Rivers.

ROUND MOUNTAIN/MODOC

The Round Mountain/Modoc portion of the project crosses 24 intermittent creeks, 21 perennial creeks, 3 irrigation canals, 4 impoundments, 25 ponds, 11 rivers, and 29 seeps or springs. The Round Mountain/Modoc portion of the project crosses the Sacramento River.

COMMUNICATION FACILITIES

The access roads servicing the communication facilities cross or are adjacent to 6 intermittent creeks and 1 impoundment. The communication facilities themselves are not adjacent to and do not traverse any water features. There are no major rivers in the vicinity of the communication facilities.

3.12.2 Significance Criteria and Approach to Impact Assessment

3.12.2.1 Approach to Impact Assessment

Potential adverse effects were evaluated by considering the Proposed Action and the resultant likelihood of effects to water resources.

3.12.2.2 Significance Criteria

A significant effect to water resources would occur under the following conditions:

- Contamination of surface water from erosion or storm-water run-off that would result in a violation of federal, state, and/or local water quality standards or permits;
- Contamination of groundwater resources due to leaching or subsurface migration;
- Depletion of groundwater resources or interference with groundwater recharge;
- Increased, long-term susceptibility to onsite or offsite flooding, erosion, or siltation due to altered surface hydrology.

3.12.3 Environmental Consequences from the Proposed Action

3.12.3.1 Category A – Inspection and Minor Maintenance Activities

Category A activities are minor and of short duration, and would be primarily confined to existing fenced facilities without water resources, and would not require any ground disturbance. Western would use the O&M GIS database to determine locations of water resources and avoid these resources accordingly. Potential indirect effects to water resources would be avoided through implementation of SOPs (Table 2-1) and PCMs W001 and W002 (Table 2-4).

3.12.3.2 Category B – Routine Maintenance Activities

Removal of vegetation within 100 feet of any perennial water resource is limited to hand removal, per PCM-W001. Imprudent removal of riparian vegetation could reduce shading of a water body and could lead to increased stream-bank erosion. Also, the removed

plant debris could enter the water body if improperly handled. With implementation of the SOPs and PCMs, these nominal adverse effects would be avoided. Water PCMs W001 and W002 require that all maintenance activities be conducted to minimize disturbance to vegetation and drainage channels, maintaining the natural flow of the drainage. Additionally, PCMs require that trees providing shade to water bodies be trimmed only to the extent necessary and not be removed unless they present a specific safety concern. Trees that must be removed would be felled to avoid damaging riparian habitat. Also, tree removal that could cause stream-bank erosion or result in increased water temperatures would not be conducted in and around streams.

The Category B activity that is most likely to produce an adverse effect on hydrology and water quality is the application of herbicides along the transmission line ROWs. Western uses less than 0.13 gallons per acre of herbicide for stump treatment. If this activity is conducted in an improper manner, herbicides could enter either the groundwater or surface water and cause adverse effects; however, the herbicides would be chosen for their lack of persistence in water and their low potential for migration through soil. With implementation of the SOPs and PCMs (especially PCM-W001 and PCM-W002), adverse impacts would be avoided. For further information on the selection and application requirements for herbicide use, see Appendix G.

Additional Category B activities that may produce minimal adverse effects include the addition of fill material to eroded portions of access roads. Although the purpose of this activity would be to reduce the potential for run-off and erosion, implementation of these measures would carry the potential to increase turbidity and/or sedimentation in water bodies within the project area. Access road decommissioning may have similar temporary effects on water quality. Also, these activities would have the potential to disturb riparian habitat and fauna. These potential adverse impacts would be avoided through implementation of SOPs and PCMs, especially PCM-W001 and PCM-W002.

Improper culvert maintenance could adversely impact hydrology in the project area, increasing the potential for flooding and overland flow. This potential adverse impact would be avoided through implementation of water PCM-W002, which requires that if culverts need to be modified or installed, all maintenance and operation activities would be conducted in a manner to avoid impacts to water flow.

Western would obtain any applicable permits required for Category B activities, including 404/401 permits as described in WR-SOP-8. Section 5.3 summarizes the typical permits that may be required.

3.12.3.3 Category C – New Infrastructure

All Category C activities have the potential to cause adverse effects. The use of heavy equipment, such as bulldozers, and the disturbance of large areas, such as the installation of a new access road (or decommissioning of access roads), have the potential to adversely affect both the hydrology and water quality within the project area, increasing turbidity and/or sedimentation in waters within the project area, increasing overland flow and/or flooding, or contaminating water bodies through accidental spills and/or leaks of fuel

or oil. These potentially adverse impacts would be minimized through implementation of the SOPs and PCMs, especially PCM-W001 and PCM-W002.

Western will obtain any applicable permits required for Category C activities, including 404/401 permits as described in WR-SOP-8. Section 5.3 summarizes the typical permits that may be required.

3.12.4 Environmental Consequences of the No Action Alternative

Under the No Action Alternative, Western would continue to conduct routine maintenance activities along the North Area ROWs, requiring negotiations documented in a categorical exclusion for each particular maintenance task. The activities conducted under the No Action Alternative would likely be similar to those conducted under the Proposed Action; however, these actions would be undertaken as necessary to address problems encountered within the ROW. Due to the lack of a comprehensive maintenance plan, PCMs would need to be developed and implemented action by action. It is likely that adverse impacts to hydrology and water quality under the No Action Alternative would be similar to impacts under the Proposed Action. In the long run, impacts from the No Action Alternative could be greater; not having a comprehensive vegetation management program would require more frequent periodic disturbances. Under the Proposed Action, once the vegetation type has been converted within the ROW, the frequency of maintenance activities would likely be reduced.

Under the No Action Alternative, herbicides would be used for vegetative control on a spot application basis. The Proposed Action would broaden the use of herbicides throughout the ROW. It is possible that the impacts from herbicide use under the No Action Alternative would be less than the impacts from the broader use of herbicides under the Proposed Action; however, with the implementation of SOPs and PCMs associated with the Proposed Action, adverse effects connected with herbicide use would be minimized. The likelihood of accidental herbicide pollution of water bodies is equal under the No Action Alternative and the Proposed Action.

Installation of fiber-optic cable, installation of cellular of equipment onto existing infrastructure, and tower relocation/realignment would not be conducted under the No Action Alternative. Consequently, any hydrology and water quality-related impacts would also be eliminated.

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3.13 Geology and Soils

This section analyzes the affected environment and potential adverse effects of the Proposed Action and No Action Alternative in terms of geologic and seismic conditions and general soil types.

3.13.1 Affected Environment

California is divided into eleven distinct geomorphic provinces. These provinces are defined by natural topographic, geologic, and climatic features. The California Department of Conservation provides information on each of these provinces in its California Geological Survey. In addition to providing information on the relevant geomorphic provinces, this section examines the general soil types found within the project area. Because the communication facilities are dispersed throughout the project area, the description of their affected environment is encompassed in the following sections.

3.13.1.1 Valley

GEOLOGY

The Valley portion of the project area lies within the Great Valley Geomorphic Province. This province is an alluvial plain approximately 50 miles wide and 400 miles long that runs north to south within the central portion of California, starting near Redding and ending north of Los Angeles. Its northern part is the Sacramento Valley, which is drained by the Sacramento River. Its southern part is the San Joaquin Valley, which is drained by the San Joaquin River. The project area overlaps the San Joaquin Valley only slightly, and is contained almost entirely by the Sacramento Valley. The Great Valley is a trough in which sediments have been deposited almost continuously since the Jurassic period (about 206 to 144 million years ago) (CDC 2003).

SEISMICITY

The Valley portion of the project area does not contain significant large, active faults. In general, the Valley portion of the project area would not be significantly affected by ground shaking. The section of the study area that is located nearest to the San Francisco Bay area would be impacted by a large earthquake along any of the several active faults, including the San Andreas, Hayward, and Calaveras fault lines.

SOILS

The soils in the Valley area are primarily Cenozoic (mostly Quaternary) non-marine (continental) sedimentary deposits and alluvial. These deposits can include gravel, sand, silt, and clay, though clay and clay loams are the dominant type. The deposits were transported over time from the Klamath, Cascade, and Sierra Nevada Mountains (CDC 2003).

3.13.1.2 Redding/Trinity

GEOLOGY

The Redding/Trinity portion of the project area lies mainly in the northernmost part of the Great Valley Geomorphic Province, which is described above in the Valley subsection. The northwestern section of the Redding/Trinity area extends into the Klamath Mountains Geomorphic Province. The Klamath Mountains are characterized by rugged topography with major peaks and ridges rising 6,000 to 8,000 feet above sea level. In the western portion of the Klamath Mountains Geomorphic Province, an irregular drainage is incised into an uplifted plateau called the Klamath peneplain. The uplift has left successive benches with gold-bearing gravels on the sides of the canyons. The Klamath River follows a circuitous course from the Cascade Range through the Klamath Mountains (CDC 2003).

SEISMICITY

The Redding/Trinity portion of the project area lies above and near several thrust faults in the Klamath Mountains. Although the area is traversed by several fault lines, the project area lies outside of the zone that has experienced damage from historic earthquakes. This portion of the project area could experience ground shaking from a large earthquake along one of the major coastal faults, such as the San Andreas, but the severity of that shaking would likely be minor.

SOILS

The soils within the Redding/Trinity portion of the project area exhibit a variety of origins compared to those of the Great Valley. The majority of the soils originate from Paleozoic sedimentary and volcanic rocks, which, in places, are strongly metamorphosed. These include some rocks of the Triassic age found in the Klamath Mountains. Some late Precambrian sedimentary rocks are found in the Great Basin. The study area also contains large patches of granitic rock, primarily of Mesozoic age. Pre-Cenozoic metamorphic rocks of unknown age are found along the central section of the Klamath Mountains Geomorphic Province. Ultramafic rocks primarily of Mesozoic age are found to the east and north of the province. Finally, small areas of Cenozoic non-marine sedimentary rocks and alluvial deposits are found to the east and south. In general, soils that underlie the Redding/Trinity area are stable and are not subject to great movement due to seismic activity (CDC 2003). Soils in this area are highly to extremely erosive.

3.13.1.3 Round Mountain/Modoc

GEOLOGY

The Round Mountain/Modoc portion of the project area traverses both the Cascade Range Geomorphic Province and the Modoc Plateau Geomorphic Province. The Cascade Range is a chain of volcanic cones that extends through Washington and Oregon into California. Its tallest peak is Mt. Shasta, at 14,162 feet above sea level. The southern terminus of the range is Lassen Peak, which last erupted in the early 1900s. The Cascade Range is crossed by deep canyons of the Pit River, a tributary of the Sacramento River

that flows through the range between Shasta and Lassen after meandering across the Modoc Plateau. The Modoc Plateau is a volcanic table consisting of a thick accumulation of lava flows and tuff beds along with many volcanic cones. Occasional lakes, marshes, and slow-flowing streams are found throughout the plateau. The Modoc Plateau is bordered on the west by the Cascade Range and on the east and south by the Basin and Range Geomorphic Province (CDC 2003).

SEISMICITY

The Modoc Plateau contains numerous fault lines running north to south. Some of these fault lines run beneath the ROW. Despite the proliferation of fault lines on the plateau, the area has not experienced damage from historic earthquakes. Significant fault lines in the area include the Surprise Valley Fault, which lies to the east of the project area, and the Foothill Fault, which lies to the south and west.

SOILS

The majority of the soils in the Round Mountain/Modoc portion of the project area are derived from Cenozoic volcanic rocks. Small portions of the project area are underlain by soils derived from late Mesozoic shelf and slope sedimentary rocks, as well as Mesozoic sedimentary and volcanic rocks older than the Nevadan orogeny, which are in places strongly metamorphosed (CDC 2003).

3.13.2 Significance Criteria and Approach to Impact Assessment

3.13.2.1 Approach to Impact Assessment

Existing conditions, potential geologic hazards, and potential mineral resources were evaluated from review of available published literature such as geologic reports and geologic maps, soil survey data and maps, and review of seismic hazard maps that include the project area.

3.13.2.2 Significance Criteria

A significant impact on geology and mineral resources would result if any of the following were to occur:

- Increases in the probability or magnitude of mass geological movement (e.g., slope failures, slumps, and rockfalls);
- Adverse effects to state-identified rock outcroppings of significance;
- Soil loss or accelerated erosion due to disturbance that result in the formation of rills and/or gullies, or that result in sediment deposition in downgradient lands or water bodies to the extent that existing uses cannot be maintained;
- Structure failure or creation of hazards to adjacent property due to slope instability, effects of earthquake, or adverse soil conditions (such as compressible, expansive, or corrosive soils).

3.13.3 Environmental Consequences from the Proposed Action

The potential for increased erosion is one of the main concerns of the BLM, USFS, and NPS. To address these concerns, Western would implement the appropriate geology and soils SOPs (see Table 2-1) and the appropriate water resources SOPs and PCMs (see Tables 2-2 through 2-5).

Erosion is a natural ongoing process; however, erosion rates can increase when vegetation is cleared, regardless of the clearing method used. Erosion generally involves the removal of earth materials from one area followed by deposition of those materials in another area, and is a normal and inevitable geologic process. Erosion can be concentrated, such as when land surfaces are gullied and stream banks are undercut, or it can be widespread, such as erosion by sheetwash and slope denudation. Excessive erosion will cause sedimentation and can damage or destroy waterways and riparian habitat, and clog drainage structures, lakes, and reservoirs. Human activities, such as grading or excavation, frequently accelerate erosion and sedimentation.

Increased probability of erosion exists whenever development activities are proposed in soils containing parent materials of decomposed granite. Once disturbed, decomposed granite soils are difficult to re-stabilize and offer poor nutritional support for reestablishment of vegetative cover. Special development and erosion-control practices are needed whenever soil-disturbing activities are proposed in these areas.

Erosion potential is generally more severe on steep, sparsely vegetated slopes, fine sandy or silty soils, and in loose sandy soils where strong winds occur. Erosion potential is also elevated in recently burned areas if they remain largely unvegetated, especially in areas with previously existing high erosion potential. Implementation of geology and soils SOPs and the appropriate water PCMs would ensure that soil erosion impacts would be minimal.

Some soils have the potential to swell when they absorb water and shrink when they dry. These expansive soils generally contain clays that expand when moisture is absorbed into the crystal structure. This adverse effect is identifiable through standard soil tests. Its impact on structures can be avoided through proper engineering design and standard corrective measures.

In general, overhead transmission lines can accommodate strong ground shaking. Design requirements for wind loading on overhead lines generally exceed those developed to address strong seismic ground shaking. It is anticipated that the original design considerations for wind effects will also address the potential impacts of strong ground shaking. Additionally, most of the project area lies outside of the area that has experienced damage from historic earthquakes.

3.13.3.1 Category A – Inspection and Minor Maintenance Activities

Category A activities would not likely have an impact on geology or soils. These activities generally include inspection-type activities, such as routine patrols in rubber-tired vehicles. Examples of other activities within this category include the installation of new footings

within an existing substation, emergency placement of rocks at the base of poles or structures to stabilize small eroded areas, and the remediation of very small spills of oil and hazardous materials. Although these activities could cause limited soil compaction, they do not occur often enough to cause long-term effects. The implementation of the appropriate geology and soils SOPs and the appropriate hydrology and water PCMs would ensure that soil and geologic issues would be avoided or, at worst, nominal.

3.13.3.2 Category B – Routine Maintenance Activities

Category B activities could cause minimal adverse impacts to soil and geology. Generally, these activities are typical repair tasks that occur along Western's ROW. They may require heavier equipment (i.e., bobcats and backhoes) than the typical Category A activity. Some examples of Category B activities include removing soil deposition from around tower legs, filling in eroded spots on access roads, grading and outsloping existing access roads, and placing fill or rocks around existing culverts or around existing towers or structures. Category B activities could also include installation of underground and overhead power, communication, or ground electrical line (less than 100 feet). Adverse effects related to these activities would either be avoided or kept to a minimal level of soil and geologic disturbance with the implementation of applicable SOPs. Under these procedures, grading would be minimized to the extent possible. When required, grading would be conducted away from watercourses/washes to reduce the potential for material to enter the watercourse. All construction must be in conformance with Western's IVM Program (Western 2007). Western would reseed or plant seedlings on slopes with erosion problems and/or take other erosion-control measures as necessary. Significant impacts would not be likely.

3.13.3.3 Category C – New Infrastructure

Category C activities could cause adverse effects to soil and geology if SOPs are not followed. These activities generally would disturb relatively large areas and would utilize heavy equipment. Some examples of Category C activities include adding new or removing existing access roads, installing new large culverts, installing new foundations for large storage buildings at existing facilities, and the relocation and/or realignment of towers and poles. Although these activities have the potential to cause adverse effects on geology and soils, these effects can be avoided or minimized with implementation of SOPs and PCMs. These procedures require that all soil excavated for structure foundations would be backfilled and tamped around the foundations, and used to provide positive drainage around the structure foundations. Should Western need to modify or relocate a structure, Western would have a California-registered professional geotechnical engineer evaluate the potential for geotechnical hazards and unstable slopes on slopes with over 15 percent grade. Additionally, all other appropriate SOPs would be implemented so that effects to geology and soils would be avoided or minimized.

3.13.4 Environmental Consequences from the No Action Alternative

Under the No Action Alternative, the Proposed Action would not be implemented as described in section 2. In the absence of the Proposed Action, Western would continue

to conduct routine maintenance activities along the North Area ROWs, requiring negotiations documented in a categorical exclusion for each particular maintenance task. Consequently, the impacts to geology and soil resources resulting from the No Action Alternative would be largely similar to the impacts resulting from the Proposed Action described above.

Installation of fiber-optic cable, installation of cellular equipment onto existing infrastructure, and tower relocation/realignment would not be conducted under the No Action Alternative. Consequently, any geology- and soil-related impacts associated with these activities would be avoided.

3.14 Public Health and Safety

This section examines potential impacts to public health and safety that could be associated with the Proposed Action and the No Action Alternative.

3.14.1 Affected Environment

The general baseline conditions for assessing potential impacts to public health and safety are related to hazardous materials, physical hazards, fire hazards, and electric and magnetic fields (EMF). These are discussed below.

3.14.1.1 Hazardous Materials

Hazardous substances are defined by federal and state regulations to protect public health and the environment. Hazardous materials have certain chemical, physical, or infectious properties that cause them to be considered hazardous. Hazardous substances are defined in Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 101(14), and also in the California Code of Regulations (CCR), Title 22, Chapter 11, Article 2, Section 66261, which provides the following definition:

A hazardous material is a substance or combination of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed.

For this analysis, soil that is excavated from a site containing hazardous materials would be considered to be a hazardous waste if it exceeded specific CCR Title 22 criteria, or, on federal lands, if it exceeded criteria defined in CERCLA or other relevant federal regulations. Remediation (cleanup and safe removal/disposal) of hazardous wastes found at a site is required if excavation of these materials is performed; it may also be required if certain other activities are proposed. Even if soils or groundwater at a contaminated site do not have the characteristics required to be defined as hazardous wastes, remediation of the site may be required by regulatory agencies subject to jurisdictional authority. Cleanup requirements are determined on a case-by-case basis by the agency taking lead jurisdiction. Refer to section 5 for further details on hazardous materials requirements.

The California Occupational Safety and Health Administration (Cal/OSHA) is the primary state agency responsible for worker safety in the handling and use of chemicals in the workplace. Cal/OSHA standards are generally more stringent than federal regulations. The employer is required to monitor worker exposure to listed hazardous substances and notify workers of exposure (8 CCR Sections 337-340). The regulations specify requirements for employee training, availability of safety equipment, accident-prevention programs, and hazardous substance exposure warnings.

Herbicides used within the North Area Project could become hazardous wastes if they were improperly treated, stored, or disposed. An accidental spill of the herbicide could

be considered a hazardous waste spill. Specific and detailed information on the risk of herbicide exposure can be found on the EPA's Integrated Risk Information System (IRIS) website. The use of herbicides near water bodies is regulated under both the Clean Water Act and the Safe Drinking Water Act.

Under current practices in the Project area, herbicides are used in limited quantities to spot-treat vegetation that threatens to disrupt the transmission lines (refer to Appendix G for Western's herbicide application procedures). The risk of exposure under current conditions is present but minimal. The most likely pathway of exposure under current conditions is improper preparation or handling of the herbicides.

In addition to herbicides, both maintenance workers and the general public could be exposed to other hazardous materials such as engine oil, gasoline, brake and transmission fluid, and chain lubricant. The risk to public health from either routine or accidental exposure to these types of materials is minimal. Standard safety measures would likely eliminate the risk of exposure to these materials for the general public.

3.14.1.2 Physical Hazards

Project activities may present a physical hazard to maintenance workers and, to a lesser degree, the general public. Physical hazards resulting include injury from falling trees, injury from improper use of vegetation clearing tools, construction site dangers, and electrocution. Unplanned or planned tree falls could injure maintenance workers or the general public through blunt force trauma or flying debris. Tree-falls on steep slopes could cause a person to lose footing and fall. Improper use of tools, such as machetes or chainsaws, could result in physical injury ranging from minor lacerations to loss of limbs and death. Potential for physical injury would be low if standard safety measures are followed.

3.14.1.3 Fire Hazards

Both maintenance workers and the general public could be exposed to risk from fire hazards. A fire could originate from either routine maintenance or the lack of adequate ROW maintenance. Routine maintenance could start a fire by igniting nearby fuel sources, such as dry underbrush. This could be caused by sparks from a maintenance vehicle or tool, or a discarded burning cigarette. The lack of adequate maintenance could lead to a fire if a tree is too close to a transmission line, which causes an arc. A fire could start away from the ROW for various reasons and later move into the ROW, endangering maintenance workers.

3.14.1.4 Electric and Magnetic Fields

There is a great deal of public interest and concern regarding the potential health effects from exposure to electric and magnetic fields (EMF) from power lines. While there is considerable uncertainty about the health effects of EMF, the balance of scientific evidence to date indicates that these fields do not cause disease. The following findings have been established from the available information and have been used to establish Western's existing policies associated with its existing transmission infrastructure:

- Any exposure-related health risk to the exposed individual would likely be small;
- The most biologically significant types of risks from exposures have not been established;
- Most health concerns are related to the magnetic field;
- The measures employed to reduce EMF from transmission lines (e.g., alternative design and siting approaches) can affect line safety, reliability, efficiency, and maintainability, depending on the type and extent of such measures.

No federal regulations have established environmental limits on the strengths of fields from power lines; however, the federal government continues to conduct and encourage research on the EMF issue.

3.14.2 Significance Criteria and Approach to Impact Assessment

3.14.2.1 Approach to Impact Assessment

Impacts to public health and safety were evaluated based on a review of existing regulations, safety standards, Western's SOPs, and available literature. Industry practices are required to be protective of worker and public safety and health. Impacts associated with maintenance activities were assessed by comparing the Proposed Action with base-line conditions and existing safety standards and regulations.

3.14.2.2 Significance Criteria

A significant impact on public health would result if any of the following were to occur:

- Interference with emergency response capabilities or resources;
- Creation of worker health hazards beyond limits set by health and safety regulatory agencies or that endanger human life and/or property;
- Serious injuries to workers, visitors to the area, or area land users;
- Changes in traffic patterns that result in hazardous situations for motorists or pedestrians;
- Spills or releases of hazardous materials, hazardous substances, or oil at or above reportable quantities within the project area that would pose a threat to public health and the environment in the project vicinity;
- Impaired implementation of or physical interference with an adopted emergency hazardous materials spill response plan or emergency evacuation plan;
- Creation of electric and magnetic fields near an existing or proposed sensitive land use, such as schools or hospitals, which would pose a plausible risk to human health.

3.14.3 Environmental Consequences from the Proposed Action

3.14.3.1 Category A – Inspection and Minor Maintenance Activities

Category A activities are primarily inspection-type actions, as well as some minor repair activities. These activities would have no or nominal adverse effects on public health. Some examples of Category A activities related to public health risk include cleaning or replacement of capacitor banks, remediation of small spills of oil and hazardous materials (less than 1 gallon), application of herbicides within the property boundary of fenced substations, climbing inspection and tightening hardware on wood and steel transmission line structures, insulators and cross arms maintenance, and emergency manual removal and/or pruning of danger trees or vegetation. These activities have the potential to expose maintenance workers to the baseline hazards and risks described in section 3.14.1. None of these activities would increase the health risk to either maintenance workers or the general public over baseline conditions. Any possible adverse effects would be avoided through the implementation of the public health SOPs.

With compliance with Department of Energy's policies and Western's Orders, Manual, and Guidance, it is anticipated that there would be no impacts to worker safety under the proposed O&M program. See section 5 for details for further information on these safety manuals.

3.14.3.2 Category B – Routine Maintenance Activities

The Proposed Action would involve the wider application of herbicides over the current baseline conditions. It is possible that both ROW maintenance workers and the general public could become exposed to herbicides, either during their normal use or during an accidental spill. There are several direct and indirect exposure pathways by which exposure could occur. Humans could come in contact with the herbicide through either touching or consuming plants (such as berries) that had been treated with the herbicide. Animals could consume herbicide-treated plants and those animals could later be consumed by humans. Drinking water (either surface water or ground water) could become contaminated either through misuse or accidental spill of an herbicide. Humans could come in contact with the herbicide through airborne exposure caused by drift. Proposed public health SOPs and hydrology and water SOPs and PCMs will minimize or eliminate potential adverse exposure impacts. Appendix G summarizes the risks associated with each herbicide.

Many of the public health SOPs directly address the use of herbicides. Some examples include the requirement to use only herbicides that are safe for animals in heavy public-use areas; the requirement to ensure that all herbicide applicators have received training and are licensed in appropriate application categories; compliance with herbicide-free buffer zones; and the requirement to clean up or remediate any release, threat of release, or discharge of hazardous materials that occurs within the Project area in connection with Project activities, whether or not those activities are authorized. For further information on herbicide selection and application procedures, see Appendix G.

With compliance with Department of Energy's policies and Western's Orders, Manual and Guidance, it is anticipated that there would be no impacts to worker safety under the proposed O&M Program. See section 5 for details for further information on these safety manuals.

3.14.3.3 Category C – New Infrastructure

Category C activities could produce the physical hazards typically encountered at a construction site, as described above in the baseline conditions. Additionally, more involved maintenance activities throughout the ROW could increase the risk of fire, as described above. Finally, the clean up of a hazardous waste spill of more than 10 gallons could expose maintenance workers to hazardous materials if they do not implement the appropriate SOPs and PCMs.

Implementation of public health SOPs and PCMs will address the risk of Category C activities such that the risk to public health is either minimized or avoided. Relevant SOPs include: 1) the requirement to equip all construction vehicles operating along the ROW with spark arresters as required; 2) the requirement to equip all construction vehicles working along the ROW with appropriate fire-fighting equipment — equipment to be used will be determined through coordination with USFS, California Department of Forestry, and local fire district requirements, where appropriate; 3) the requirement for posting of signs and/or flags in areas of public access to indicate maintenance activities are taking place; and 4) the requirement that maintenance workers wear orange vests and hard-hats so that they are conspicuous.

With compliance with Department of Energy's policies and Western's Orders, Manual, and Guidance, it is anticipated that there would be no impacts to worker safety under the proposed O&M Program. See section 5 for details for further information on these safety manuals.

3.14.4 Environmental Consequences of the No Action Alternative

Under the No Action Alternative, the Proposed Action would not be implemented as described in section 2. In the absence of the Proposed Action, Western would continue to conduct routine maintenance activities along the Project area as needed, requiring negotiations documented in a categorical exclusion for each particular maintenance task. These maintenance activities cause risks to public health, which are described as the baseline conditions above. The more sparse use of herbicides under the No Action Alternative could cause less risk of exposure to hazardous materials than the expanded use of herbicides under the Proposed Action; however, implementation of appropriate SOPs and PCMs for the Proposed Action will either eliminate or minimize any exposure to hazardous materials. Further, the No Action Alternative would result in greater long-term risk to public health because it would require ongoing maintenance activities into the foreseeable future, whereas the Proposed Action would result in a change of vegetation type and would eventually lead to a reduced frequency of maintenance.

Installation of fiber-optic cable, installation of cellular equipment onto existing infrastructure, and tower relocation/realignment would not be conducted under the No

Action Alternative. Consequently, any public health and safety-related impacts associated with these activities would also be eliminated.

3.15 Air Quality

This section addresses the Proposed Action and No Action Alternative as they would affect air quality conditions throughout the project area.

3.15.1 Affected Environment

The following sections describe the affected environment with regard to air quality for each of the three regions identified in Figure 1-1 and described in section 1.3. Because the communication facilities are dispersed throughout the project area, the description of their affected environment is encompassed in the following sections.

3.15.1.1 Climate and Meteorology

In general, the project area is dominated by the strength and position of the semi-permanent Pacific High over the eastern Pacific Ocean. In summer, when the high-pressure cell is strongest and farthest north, temperatures are high and humidity is low, although the incursion of the sea breeze into the Central Valley helps moderate the summer heat. In winter, when the high-pressure cell is weakest and farthest south, conditions are characterized by occasional rainstorms.

VALLEY

The Valley experiences hot summers, mild winters, infrequent rainfall, moderate breezes, and low humidity. Rainfall, which occurs almost exclusively from late October to early May, averages 17.2 inches per year, but varies significantly from year to year.

Prevailing wind patterns control the rate of dispersion of local pollutant emissions. During summer, prevailing winds are from the south, primarily because of the north-south orientation of the valley. During winter, atmospheric conditions cause north winds to become more frequent, but winds from the south still predominate. In summer, sinking air forms an inversion, or "lid," over the region. These subsidence inversions contribute to summer photochemical smog problems by confining pollution to a shallow layer near the ground.

REDDING/TRINITY

The climate in the Redding/Trinity region is generally characterized by warm, dry summers and cold, moderately wet winters. Within the Redding/Trinity region, there are large variations of rainfall and temperatures. However, most of the precipitation occurs during the winter as snow with occasional warm rains. The precipitation during the summer is usually limited to occasional scattered thunderstorms.

Localized winds dominate the Redding/Trinity area. Prevailing winds in the summer are north to northwesterly and are frequently strong, whereas winter winds form off the South Pacific, causing storms with winds that come increasingly from southerly quadrants. Temperature inversions in this area are common.

ROUND MOUNTAIN/MODOC

Most of the precipitation in the Round Mountain/Modoc region occurs as winter storms. In winter, the Modoc Plateau experiences strong winds and unstable air masses, providing for good dispersion conditions. Spring conditions result in a decline of precipitation and are rarely warm and dry, due to unstable conditions that result in rain and snow. During summer, stable air conditions prevail throughout the region. Dry, warm conditions are characteristic of the summer months, although thunderstorms are not uncommon. The transitional period between the summer and winter/spring is generally characterized by cool, clear days and very low evening temperatures, which drop below freezing.

In general, the prevailing wind directions are southerly and northerly with southerly winds dominating during the daytime and northerly winds dominating during the evening.

3.15.1.2 Air Quality Conditions

The quality of surface air (air quality) is evaluated by measuring ambient concentrations of pollutants that are known to have deleterious effects on public health. The degree of air quality degradation is then compared to ambient air quality standards (AAQS), such as the California and National Ambient Air Quality Standards (CAAQS and NAAQS).

Criteria air pollutants refer to a group of pollutants for which regulatory agencies have adopted ambient air quality standards and region-wide pollution reduction plans. Criteria air pollutants include ozone, carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), particulate matter (PM), and lead. Toxic air contaminants (TACs) refer to a category of air pollutants that pose a present or potential hazard to human health, but that tend to have more localized impacts than criteria air pollutants. Reactive and volatile organic compounds and gasses (ROG) and nitrogen oxides (NO_x) are also regulated as criteria pollutants because they are precursors to ozone formation. Certain ROGs may also qualify as TACs. Two subsets of particulate matter are: inhalable particulate matter less than ten microns in diameter (PM₁₀) and fine particulate matter less than 2.5 microns in diameter (PM_{2.5}). The degree of air-quality degradation is then compared to AAQS, such as the CAAQS and NAAQS.

The project area traverses five air basins throughout central and northern California. All three project regions (Valley, Redding/Trinity, and Round Mountain/Modoc) partially overlap the Sacramento Valley Air Basin. Table 3.15-1 shows the location of each air basin in relation to the underlying counties.

Table 3.15-1 Air Basin and Counties Crossed by the North Area Project

Air Basins	Counties
North Coast	Trinity
Northeast Plateau	Modoc, Siskiyou
Sacramento Valley	Butte, Colusa, Glenn, Sacramento, Shasta, Solano, Sutter, Tehama, Yolo, Yuba
San Francisco Bay Area	Alameda, Contra Costa, Solano
San Joaquin Valley	San Joaquin

Following is a brief examination of the attainment status of each region. Attainment is reported here in terms of the relevant affected air basins. It should be noted that non-attainment days do not add across regions.

VALLEY

The Valley region includes the Sacramento Valley, San Francisco Bay Area, and San Joaquin Valley air basins. Within the Valley region, there are several counties that have historically been in violation of federal and state ambient air quality standards for ozone and particulate matter. Since the early 1970s, substantial progress has been made toward controlling these pollutants. Although some air quality improvements have occurred, violations of ambient air quality standards for ozone and particulate matter are persistent. Table 3.15-2 provides information on days above air quality standards for the Valley region.

Table 3.15-2 Number of Days Above Air Quality Standards: Valley (2004)

Pollutant Standards	Sacramento Valley	San Joaquin Valley	San Francisco Bay
State 1-hr Ozone	29	106	7
National 1-Hour Ozone	1	9	0
National 8-Hour Ozone	20	109	0
State 24-Hour PM10	195	197	36
National 24-Hour PM10	6	3	0
State 8-Hour CO	0	0	0
National 8-Hour CO	0	0	0

REDDING/TRINITY

The Redding/Trinity region includes the North Coast Air Basin and the Sacramento Valley Air Basin. This area does not meet the state standards for PM₁₀; however, it is in attainment for ozone, and the Redding/Trinity area is unclassified for PM_{2.5}. Table 3.15-3 provides information on days above air quality standards for the Redding/Trinity region.

Table 3.15-3 Number of Days Above Air Quality Standards: Redding/Trinity (2004)

Pollutant Standard	Sacramento Valley	North Coast
State 1-hr Ozone	29	0
National 1-Hour Ozone	1	0
National 8-Hour Ozone	20	0
State 24-Hour PM10	195	6
National 24-Hour PM10	6	0
State 8-Hour CO	0	0
National 8-Hour CO	0	0

ROUND MOUNTAIN/MODOC

The Round Mountain/Modoc region includes the Northeast Plateau Air Basin and the Sacramento Valley Air Basin. Table 3.15-4 provides information on days above air quality standards for the Round Mountain/Modoc region.

**Table 3.15-4 Number of Days Above Air Quality Standards:
Round Mountain/Modoc (2004)**

Pollutant Standard	Sacramento Valley	Northeast Plateau
State 1-hr Ozone	29	0
National 1-Hour Ozone	1	0
National 8-Hour Ozone	20	0
State 24-Hour PM10	195	0
National 24-Hour PM10	6	0
State 8-Hour CO	0	0
National 8-Hour CO	0	0

3.15.2 Significance Criteria and Approach to Impact Assessment**3.15.2.1 Approach to Impact Assessment**

This analysis examines the project area and its associated air quality basins and determines the baseline conditions for attainment of air quality standards and for current levels of emissions. The No Action Alternative is used to establish the baseline activities (and their associated air quality impacts) from which the Proposed Action would deviate. Air quality impacts from the Proposed Action are then analyzed and compared to baseline conditions.

3.15.2.2 Significance Criteria

A significant impact on air quality would result if any of the following were to occur:

- Predicted concentrations of criteria air pollutants exceed state and/or federal ambient air quality standards;
- Predicted concentrations exceed the maximum allowable Prevention of Significant Deterioration increments for PM₁₀, NO₂, or SO₂;
- Project emissions result in a declaration of nonattainment in a specific area for one or more criteria pollutants, or cumulatively contribute to a net increase in any criteria pollution that would result in nonattainment of the area;
- Project emissions result in a significant increase (as defined in 40 CFR 51.165) of any criteria pollutant for which the project region is in nonattainment under an applicable local, state, or federal ambient air quality standard;

- Predicted air pollutant emissions result in a change in visibility that would exceed Class I standards;
- Project emissions exceed Class I or Class II increment values established by the Prevention of Signification Deterioration regulations;
- Air emissions cause sensitive receptors to be exposed to pollution concentrations that exceed state and federal standards;
- Predicted emissions conflict with or obstruct implementation of an applicable air quality plan (general conformity);
- Predicted mercury emissions result in a violation of the Clean Air Mercury Rule;
- Air contaminants exceed the level of significant cancer risk, if any;
- Cumulative air quality effects lead to violation of air quality standards, even if the individual effect of the project/activity is relatively minor compared with other sources;
- Predicted ambient air concentrations create damage to the existing crops or vegetation;
- Predicted deposition of sulfates and nitrates exceeds depositional guidelines established by the National Park Service in areas deemed sensitive to acidification.

3.15.3 Environmental Consequences from the Proposed Action

Under the Proposed Action, Western would employ vegetation-management practices that would promote low-growing plant communities within the ROW. In general, air quality impacts from this action would be minimal. Project activities would be temporary, intermittent, of short duration, and widely dispersed along a narrow, long strip of land. The Proposed Action would not involve the installation of any significant stationary source of air pollution. Any air quality impacts that would be caused by the mobile sources of emissions used to conduct project activities would be minimal and local, and would not cause basin-wide changes to air quality.

Assembly Bill 32 (AB32) requires that California's greenhouse gas (GHG) emissions be reduced to 1990 levels by 2020. GHG are defined as any gas that absorbs infrared radiation in the atmosphere. GHGs include water vapor, carbon dioxide, methane, and nitrous oxide. GHG emissions from the project would be very minor during operations, consisting of exhaust from vehicles carrying service technicians around the corridor, operation of maintenance equipment, and commuting of employees. The emissions would be mainly from equipment used for maintenance, as well as workers' vehicles and trucks transporting equipment, parts, and materials. Implementation of SOPs would minimize the minor GHG emissions from the aforementioned sources. The project would not generate quantities of GHG to cause a substantial impact related to global climate change or disrupt CARB's progress on achieving the goals of the California Global Warming Solutions Act of 2006 (AB 32). Further, the Proposed Action is consistent with the CARB Climate Change Scoping Plan (2008), which is based on continuing the reliable delivery of electricity to customers in California.

3.15.3.1 Category A – Inspection and Minor Maintenance Activities

Some examples of Category A activities that could affect air quality include ground and aerial patrols; emergency manual removal and/or pruning of danger trees or vegetation; and maintenance and inspection of towers, conductors, and insulators. The primary cause of air quality impacts associated with these activities is the exhaust from vehicles. The emergency manual removal of vegetation could also lead to the emission of fugitive dust particles through the exposure of bare ground. These potential impacts would be avoided or minimized through implementation of the appropriate air quality SOPs (see Table 2-1).

SOP recommended measures include: 1) the requirement that all equipment be kept in good operating condition to reduce exhaust emissions for all machinery and vehicles (such as chainsaws, trucks, and graders); 2) the prohibition against idling equipment that is not in active use; and 3) the requirement that vehicles and equipment maintain appropriate emissions-control equipment and be appropriately permitted.

3.15.3.2 Category B – Routine Maintenance Activities

The Category B activity that would be most likely to cause effects, if minimal, to air quality is the grading of existing access roads, which, without the implementation of the appropriate SOPs, could lead to fugitive dust emissions. Similarly, repairing eroded portions of access roads, removal of soil deposition around tower legs, and mechanical vegetation management by means of bulldozers, masticators, or other equipment could also cause fugitive dust.

The potential dust-particle emissions by the above activities would be avoided or minimized through implementation of the following SOPs: 1) the requirement for road construction to include dust-control measures such as water or chemical suppressants; 2) the re-seeding of ground surfaces that have been significantly disturbed to prevent wind dispersion of soil; 3) the regular watering of exposed soils and unpaved access roads during maintenance activities; and 4) the requirement that grading activities cease during periods of high wind.

3.15.3.3 Category C – New Infrastructure

The Category C activity that would have the largest potential to cause adverse effects to air quality is the addition of new access roads. Similar to grading an existing access road, new road construction could cause fugitive dust emissions (possibly of an even greater magnitude than simple grading) if proper SOPs are not implemented. In addition, the installation of a new access road would require the use of heavy machinery. This machinery would produce tailpipe emissions that could adversely affect air quality. The relocation/realignment of towers or poles under Category C could also produce similar air quality impacts, both through fugitive dust emissions and tailpipe emissions.

To avoid or minimize the potential adverse effects of the activities under Category C, all applicable air quality SOPs would be implemented. Western would use reasonably practicable methods and devices to control, prevent, and otherwise minimize atmospheric emissions or discharges of air contaminants. To further reduce local impacts of project

activities, Western would avoid major operations on days when the local air pollution index is expected to exceed 150.

3.15.4 Environmental Consequences from No Action Alternative

Under the No Action Alternative, Western would continue to conduct routine maintenance activities along the North Area ROWs, requiring negotiations documented in a categorical exclusion for each particular maintenance task. The activities conducted under the No Action Alternative would likely be similar to those conducted under the Proposed Action; however, these actions would be undertaken as necessary to address problems encountered within the ROW. It is likely that adverse impacts to air quality under the No Action Alternative would be similar to impacts under the Proposed Action. In the long run, impacts from the No Action Alternative could be greater; not having a comprehensive vegetation management program would require more frequent periodic disturbances. Under the Proposed Action, once the vegetation type had been converted within the ROW, the frequency of maintenance activities would likely be reduced.

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3.16 Noise

This section addresses the proposed operation and maintenance activities as they would affect the community noise environment. Section 3.16.1 provides a description of the environmental setting, and the applicable noise ordinances and limitations. An analysis of the noise effects associated with operation and maintenance activities in each region is provided thereafter.

To describe environmental noise and to assess project impacts on areas that are sensitive to community noise, a measurement scale that simulates human perception is customarily used. The A-weighted scale of frequency sensitivity accounts for the sensitivity of the human ear, which is less sensitive to low frequencies, and correlates well with human perceptions of the annoying aspects of noise. The A-weighted decibel scale (dBA) is cited in most noise criteria. Noise is measured in decibels, which are logarithmic units that conveniently compare wide ranges of sound intensities. Table 3.16-1 illustrates typical ranges of noise levels generated by construction equipment.

**Table 3.16-1
Noise Emission Characteristics
of Construction Equipment**

Type of Equipment	Typical Noise Level, dBA at 50 feet
Backhoe	80
Compactor	82
Crane, Mobile	83
Excavator/Shovel	82
Loader	85
Paver	89
Truck	88

Source: FTA, 1995.

Community noise levels are usually closely related to the intensity of nearby human activity. Noise levels are generally considered low when ambient levels are below 45 dBA, moderate in the 45 to 60 dBA range, and high above 60 dBA. In wilderness areas, the L_{dn} noise levels (an average level occurring over a 24-hour day/night period) can be below 35 dBA. In small towns or wooded and lightly used residential areas, the L_{dn} is more likely to be around the 50 or 60 dBA. Levels around 75 dBA are more common in busy urban areas (e.g., areas located near downtown Sacramento), and levels up to 85 dBA occur near major freeways and airports. Although people often accept the higher levels associated with very noisy urban residential and residential-commercial zones, high noise levels are nevertheless considered to be adverse to public health.

Surrounding land uses dictate what noise levels would be considered acceptable or unacceptable. Lower levels are expected in rural or suburban areas than would be expected for commercial or industrial zones. Nighttime ambient levels in urban environments are about seven decibels lower than corresponding daytime levels. In rural areas away from roads and other human activity, the day-to-night difference can be considerably less. Areas with full-time human occupation and residency are often considered incompatible with substantial nighttime noise because of the likelihood of disrupting sleep. Noise levels above 45 dBA at night can result in the onset of sleep interference. At 70 dBA, sleep interference effects become considerable (U.S. EPA 1974).

3.16.1 Affected Environment

Noise levels in the project area are highest near major transportation facilities, especially highway and freeway crossings, and near other localized noise sources such as airports and industrial operations.

Another noise source along existing ROWs is audible powerline noise generated from corona discharge, which is usually experienced as a random crackling or hissing sound. Corona noise is primarily audible during wet weather such as fog and rain. The corona noise for a 500-kV transmission line generally ranges from 34 to 46 dBA (BPA 2006). Corona noise for transmission lines less than 230 kV is not substantially audible.

Noise-sensitive receptors and noise-sensitive areas are distributed throughout the project area. Ecological conservation areas, colleges, public schools, rest homes, wildlife management areas, recreational areas, and hospitals are among the most common sensitive receptors along the ROWs.

The following sections describe the affected environment with regard to noise for each of the three regions identified in Figure 1-1 and described in section 1.3. Because the communication facilities are dispersed throughout the project area, the description of their affected environment is encompassed in the following sections.

3.16.1.1 Valley

The major noise sources in the Valley region are transportation facilities, commercial mining operations, airports and airfields, and industrial manufacturing operations. The major highways along this segment of the project area are Interstates 5, 80, 205, 505, and 580, as well as state highways and county roads. In addition, Union Pacific Railroad has several ROWs that run parallel to or cross the North Area ROWs. Railroad ROWs produce intermittent high noise from trains and warning whistles.

As described in section 3.9, this segment of the study area has a range of land uses, ranging from open space and agricultural to industrial uses.

The major sensitive noise receptors within this region are populations in such cities as Red Bluff, Chico, Vacaville, and Tracy. Although there are sensitive wildlife habitats within the Valley region, the major sensitive noise receptors are generally hospitals, retirement homes, and residential communities.

3.16.1.2 Redding/Trinity

The primary noise sources in the Redding/Trinity region are major highways. As described in section 3.17, the major highways that cross the Redding/Trinity include Interstate 5, and State Highways 299, 273, and 44.

Other noise sources include the Union Pacific Railroad north/south mainline track, which runs generally parallel to Highway 273. This track is also used by Amtrak for its Coast Starlight train runs. Noise levels from Union Pacific Railroad operations range between

65 and 75 L_{dn} at 100 feet from the railroad track centerline as a train is passing (City of Redding 2000).

There are two airports within 5 miles of the project area. The Redding Municipal Airport is a commercial service primary airport. There are approximately 115,000 annual aircraft operations at Redding Municipal Airport. Benton Airpark is a basic utility airport used primarily by single-engine and small twin-engine airplanes. There are approximately 35,000 annual aircraft operations out of this airfield (City of Redding 2000).

The Redding/Trinity region is distinguished by the City of Redding, Whiskeytown-Shasta-Trinity NRA, and Shasta Lake. The major sensitive noise receptors in this region are wildlife habitats, national parks and forests, and residential communities. The Redding/Trinity region is the most diverse region in the project area with regard to noise sources and sensitive noise receptors.

3.16.1.3 Round Mountain/Modoc

The Round Mountain/Modoc area includes portions of Modoc, Siskiyou, and Shasta Counties. The major highways are State Route 97, State Route 299, Interstate 5, and State Route 44.

The Round Mountain/Modoc area comprises highly rural and quiet open space located primarily in Trinity, Shasta and Modoc National Forests. Within this region, the North Area transmission lines also pass close to Tule Lake and Clear Lake areas, Lava Beds National Monument, and local rivers and lakes.

Modoc and Siskiyou County General Plans specify that an area is considered noise impacted when noise reaches above 60 dB, and the Shasta County General Plan states that 55 dB is the maximum allowed noise level without mitigation measures. These general plans, however, allow for a range of construction noise greater than the maximum allowable levels. The sensitive noise receptor that is of concern in the Round Mountain/Modoc region is wildlife in natural habitats.

3.16.2 Significance Criteria and Approach to Impact Analysis

3.16.2.1 Approach to Impact Assessment

There are two basic considerations for evaluating noise impacts from the Proposed Action. First, noise levels projected for the proposed operation and maintenance activities must comply with the applicable federal, state, or local standards or regulations. Noise impacts on the surrounding community are enforced through local ordinance, supported by nuisance complaints and subsequent investigation.

The second measure of impact is the increase in noise levels above the existing ambient level as a result of the introduction of a new source of noise. A change in noise level due to a new noise source can create an impact on people.

3.16.2.2 Significance Criteria

A significant noise impact would result if any of the following were to occur:

- Exceedance of applicable local, state or federal noise regulations or guidelines at sensitive receptors such as residences, hospitals, or schools;
- Permanent increase of at least 10 decibels in ambient noise levels at the nearest sensitive receptors within the project vicinity;
- Exposure of persons to, or generation of, excessive groundborne vibration or groundborne noise levels where people live, work, or recreate.

3.16.3 Environmental Consequences from the Proposed Action

3.16.3.1 Category A – Inspection and Minor Maintenance Activities

There are many recreation areas and sensitive habitats within the project area that may be disturbed during an aerial inspection by a helicopter. This is especially the case for Whiskeytown National Recreational Area. However, aerial inspections occur a minimum of two times a year and would disturb an area along the ROW for less than one minute. As Category A activities would not increase the number or frequency of aerial inspections, these project activities would not change noise levels from existing conditions. As a result, there are no noise impacts associated with routine inspection activities.

3.16.3.2 Category B – Routine Maintenance Activity

Construction noise resulting from these activities, typically ranging from 70 to 85 dBA at a distance of 50 feet, would be temporary and short-term, although due to the nature of Category B activities, they would generally be of a longer duration than activities described for Category A. Sensitive noise receptors such as residences, hospitals, and wildlife habitat could potentially be impacted by the noise generated from these activities. Implementation of NOISE-SOP-1, combined with the short duration of Category B activities, would ensure that any noise or vibration generated by maintenance would not substantially affect sensitive receptors or conflict with noise guidelines.

3.16.3.3 Category C – New Infrastructure

Noise impacts associated with Category C would also be similar to those described for Category B, but of a longer duration. Construction noise would range from 70 to 85 dBA at a distance of 50 feet, but would occur for longer durations. Sensitive noise receptors would be potentially affected for longer periods, but the implementation of NOISE-SOP-1 would reduce the noise generated by construction equipment and would ensure compliance with noise guidelines.

3.16.4 Environmental Consequences from No Action Alternative

Under the No Action Alternative, the Proposed Action would not be implemented as described in section 2. In the absence of the Proposed Action, Western would continue to conduct routine maintenance activities along the North Area ROWs, requiring negotiations documented in a categorical exclusion for each particular maintenance task. Consequently, the noise issues resulting from the No Action Alternative would be largely similar to the issues resulting from the Proposed Action described above.

Installation of fiber-optic cable, installation of cellular equipment on existing infrastructure, and tower relocation/realignment would not be conducted under the No Action Alternative. Consequently, any noise issues associated with these activities would be avoided.

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3.17 Transportation

This section addresses the potential adverse effects to transportation resources associated with the proposed operation and maintenance activities identified for the North Area ROW Maintenance Project.

3.17.1 Affected Environment

The roadway network that could potentially be affected by project activities includes the streets and highways that would be crossed by or that run parallel to transmission ROWs, communication facilities, and access roads.

The following sections describe the affected environment with regard to transportation for each of the three regions identified in Figure 1-1 and described in section 1.3. Because the communication facilities are dispersed throughout the project area, the description of their affected environment is encompassed in the following sections.

3.17.1.1 Valley

The existing North Area transmission lines are located along the eastern and western portions of the Sacramento Valley. In general, the CVP line parallels State Highway 99 to the east between Sacramento and Red Bluff. The CVP and COTP lines parallel Interstate 5 to the west between the Yolo/Colusa county line to the City of Redding. South of the Yolo/Colusa county line, the COTP heads south-southwest toward the City of Tracy. Table 3.17-1 provides a list of major highways within 500 feet of the project area.

Table 3.17-1 Major Roadways in the Study Area – Valley

County Roadways	State Highway	Interstate Highway
County Road 14	State Highway 4	Interstate 5
County Road 19	State Highway 12	Interstate 80
County Road 24	State Highway 16	Interstate 205
County Road 27	State Highway 20	Interstate 505
County Road 29a	State Highway 32	Interstate 580
County Road 85	State Highway 36	
	State Highway 65	
	State Highway 70	
	State Highway 113	
	State Highway 160	
	State Highway 162	

Within the project area, no major airports or air fields intersect or overlap with the project. There are, however, nine air fields located within five miles of the project study area, including Byron, Chico Municipal, Colusa County, Oroville Municipal, Red Bluff Municipal, Rio Vista Municipal, Watts-Woodland, Willows-Glenn County, and Travis Air Force Base (AFB). With the exception of Travis AFB, most facilitate small, civilian, fixed-wing aircraft, and commercial and commuter aircraft. Travis AFB is the largest air mobility

organization in the Air Force, operating very large transport jets such as the C-5 and the C-17.

Within the Valley region, there are a number of crop-dusting companies that operate out of small airfields near ROWs. These companies usually use single-engine propeller aircraft that are highly maneuverable to spray pesticide on agricultural crops.

The project area also crosses numerous railroad ROWs that are all owned by Union Pacific Railroad.

3.17.1.2 Redding/Trinity

The Redding/Trinity portion of the project area crosses State Highways 44, 273, and 299; Interstate 5; and Union Pacific Railroad ROWs. The existing ROW is within five miles of the Redding Municipal Airport and Benton Airpark. Redding Municipal Airport provides commercial airline passenger service and features a variety of aviation-related businesses. Benton Airpark is a general-aviation facility with one fixed-base operator.

3.17.1.3 Round Mountain/Modoc

The Round Mountain/Modoc region crosses five state highways including 44, 89, 139, 299, and Old Alturas. Along the Round Mountain/Modoc segment, there are no airports located within 5 miles of the project area. The existing ROW crosses the McCloud River Railroad, Burlington Northern Railroad, and Union Pacific Railroad ROWs. The McCloud River Railroad caters to the tourism and recreation industry, whereas the other two are used for freight transport.

3.17.2 Significance Criteria and Approach to Impact Assessment

3.17.2.1 Approach to Impact Assessment

Potential project-related impacts could result from closure or traffic disruptions on major roadways, interstate highways, and railways. These types of impacts usually occur during construction of a transmission line, not during maintenance activities.

Aviation impacts could result from the minor improvements to transmission lines creating physical impediments to navigable airspace. Because this project includes only modifications to existing transmission lines with no major plans for changes in the location or height of the line, and no new construction of transmission lines, no project-related aviation impacts would be likely to occur.

3.17.2.2 Significance Criteria

A significant impact on transportation would result if any of the following were to occur:

- Increases in traffic that exceed a level of service established by the local or state transportation agency;

- Creation of road dust and/or severe road damage at levels that create hazardous situations for motorists and pedestrians;
- Major traffic delays for a substantial number of motorists;
- Major roadway closures to through-traffic with no suitable detour;
- Changes in air-traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.

3.17.3 Environmental Consequences from the Proposed Action

3.17.3.1 Category A – Inspection and Minor Maintenance Activities

Under Category A activities, Western would inspect transmission system facilities by helicopter, small plane, or pickup truck along the North Area ROWs. As described in section 2.2.5.1, maintenance under this category would require limited construction and repair equipment. Maintenance and repair sites would be accessed by rubber-tire vehicles. Because there would be no major construction activities that would affect roadway or railway traffic, there would be no transportation impacts associated with this category.

As the North Area transmission lines have already been identified in Federal Aviation Administration aeronautical charts and guidelines, and no substantial modifications to the height or location of the existing towers would occur, no impacts to general or commercial aviation should occur.

3.17.3.2 Category B – Routine Maintenance Activities

Category B activities could include installation of fiber-optic cable on existing transmission towers, replacement of culverts, cutting and dropping hazardous trees, and grading and out-sloping access roads. These maintenance activities may affect traffic flow on roadways that run perpendicular to the ROW, especially during installation of fiber-optic cables and replacement of existing culverts adjacent to local roadways. As described in TRANS-SOP-1, Western has committed to restrict lane closures on major roadways associated with construction activities to off-peak periods to mitigate traffic congestion and delays. This proactive transportation commitment would eliminate potential traffic-related effects associated with Category B activities.

No modifications to the height or location of the existing towers would occur, so no impacts to general or commercial aviation would be likely to occur.

3.17.3.3 Category C – New Infrastructure

Category C activities would be similar to the activities described for Category B; the only difference is the extent and duration of the disturbance activity. Category C activities could include re-conductoring, installation of new culverts in local roadways, upgrading and out-sloping access roads, and installation and repair of communication facilities and cellular equipment on existing infrastructure. Re-conductoring existing lines across or adjacent to major roadways may affect traffic flow. TRANS-SOP-1, which would require Western to

conduct necessary lane closures on major roadways to off-peak periods, would mitigate traffic congestion and delays.

As described for Categories A and B, no modifications to the height or location of existing towers would occur, so no impacts to general or commercial aviation would be likely to occur.

3.17.4 Environmental Consequences from No Action Alternative

Under the No Action Alternative, Western would continue to inspect and identify areas that need to be repaired or upgraded. These regular aerial and ground patrols would not cause any traffic-related impacts.

Under the No Action Alternative, Western would not be able to conduct several identified disturbance activities, such as installation of fiber-optic cable, relocation/realignment of existing towers, and installation of cellular equipment onto existing infrastructure. These activities would need to go through separate regulatory compliance processes for each identified task or project.

3.18 Intentional Destructive Acts

Intentional destructive acts may be directed at Western's transmission system and facilities within the North Area project area. Destroying a tower or equipment could disrupt the supply of electricity, in turn affecting utility customers and end users. Air quality could temporarily decrease if those customers have to rely on backup generators. However, vandalism and theft are more likely forms of destruction. Although potentially costly, they do not usually disrupt the provision of electricity or have significant environmental effects.

The incidence of an intentional destructive act is purely speculative, and could occur at any location along the 814-mile ROW or at communication facilities. If an act were to take place, however, it would likely not result in significant environmental impacts. Compared to the No Action Alternative, the Proposed Action would not make the ROW infrastructure any less secure, nor would it result in greater environmental impacts from possible intentional destructive acts.

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3.19 Summary of Environmental Consequences

The following sections summarize the potential project-related impacts associated with the three activity categories of the Proposed Action: Category A, Category B, and Category C.

There is overlap among issue areas. Potential water-quality degradation is discussed for habitats, wildlife, fishes, hydrology, and geology. The danger of improper or careless use of herbicides is discussed for habitats, hydrology, and public health. Potential erosion impacts are discussed in sections on habitats, wildlife, fishes, and geology/soils. The need to contain and remove trash on a daily basis is important for wildlife and aesthetics. The spread of noxious weeds has potential impacts for habitats, special-status plants, special-status wildlife, and land use. Changes in traffic patterns are discussed in both transportation and public health sections.

3.19.1 *Proposed Action*

Provided below are brief summaries of the types of activities that could be undertaken in each category, followed by brief bulleted entries on potential impacts. As each issue area has already been discussed at length, only a summary of the impacts is provided below. Implementation of SOPs and PCMs found in Tables 2-1 through 2-5 is expected to minimize adverse effects to sensitive resources.

3.19.1.1 *Category A – No or Nominal Adverse Effect*

The following adverse effects could result from Category A activities:

- Any level of disturbance to federally listed plants and wildlife from travel off of designated legal access roads;
- Introduction or spread of noxious weeds carried on vehicles into habitats;
- Disturbance to breeding wildlife through maintenance noise at existing facilities.

3.19.1.2 *Category B – Potential to Cause Minimal Associated Effects, and Category C – Potential for Adverse Effects*

Categories B and C are combined below. Potential adverse effects are the same for both. Only the degree or magnitude of impact differs between them. Category B activities have greater potential to adversely affect sensitive resources and receptors than Category A, because they may occur in areas where ambient conditions do not include regular human disturbance, because they potentially disturb more ground, or because they potentially require more time to complete. Category C activities may cause adverse effects to sensitive resources and receptors if PCMs are not implemented. Category C activities, which comprise the major maintenance activities, could disturb large areas and/or rely on the use of heavy equipment.

Without implementation of SOPs and PCMs, the Proposed Action may result in the adverse effects listed below. However, SOPs and resource-specific PCMs have been

incorporated into the Proposed Action to avoid and minimize any potentially resultant environmental effects.

- Increases in air pollution, dust/particulates, or other airborne contaminants exceeding state and/or federal standards that could affect either human health or nearby crops;
- Destruction of or damage to individuals or populations of special-status plants or sensitive or other habitats that support special-status plants or wildlife; reproductive failure, e.g., loss of breeding adults, nests/dens/burrows, eggs, or young of any species;
- Loss of general plant diversity at a local level; loss of habitat structure and diversity affecting fish and wildlife; introduction or spread of noxious weeds through various means;
- Degradation of water quality or loss of jurisdictional wetlands and waters, potentially affecting habitats, fishes, aquatic invertebrates, aquatic plants, and terrestrial wildlife that depend on aquatic features;
- Damage to or degradation of nontarget and/or special-status plants, sensitive habitats, or bodies of water through improper or careless use of herbicides or through accidental spills of herbicides or other toxic chemicals;
- Bird mortality at cell towers through collision, misorientation, or disorientation;
- Damage to or loss of archaeological deposits or artifacts, loss or degradation of a traditional cultural property or sacred site, or disturbance to human remains outside of cemeteries;
- Damage to fences or gates, damage to non-Western utilities through Western actions; impacts to special-use areas such as refuges; impacts to or conflicts with existing recreational areas or substantial loss of recreational uses;
- Degradation of views from sensitive viewer locations, increased air pollution, substantial changes to the scenic quality of an important landscape;
- Contamination of surface water through erosion or stormwater runoff, or ground water through leaching or subsurface migration of pollutants; depletion of groundwater resources or interference with groundwater recharge; or increased long-term susceptibility to onsite or offsite flooding, erosion, or siltation through altered surface hydrology;
- Increase in the probability or magnitude of mass geologic movements such as slope failures, slumps, or rockfalls; adverse effects to state-identified rock outcrops of significance; accelerated erosion causing rills and/or gullies; increased slope instability;

- Hazards to workers and neighbors from improper use of herbicides or spills of other toxic chemicals, falling trees, excavations, fires, and exposure to electric and magnetic fields;
- Noise levels that exceed applicable local, state, or federal regulations; noise levels that cause reproductive failure in wildlife; excessive ground-borne vibration;
- Major traffic delays, excessive road dust, road damage, road closures, or adverse effects to air traffic patterns.

3.19.2 No Action Alternative

Project-related impacts associated with the No Action Alternative would not change over existing conditions. These are the existing impacts of as-needed maintenance, repairs, and vegetation management. The Proposed Action may increase the potential for impacts in the short term, but to the extent that vegetation management and maintenance strategies described above reduce the need for long-term management, as is expected, the Proposed Action would be expected to have a net benefit compared to the No Action Alternative.

3.19.3 Conclusion

Western has proactively coordinated with NPS, BLM, USFS, NMFS and USFWS to identify the occurrence of or potential for sensitive resources within the project area. Additionally, Western has coordinated with these federal agencies to determine the most effective methods to reduce public and worker safety hazards and minimize potential impacts to the environment from the Proposed Action. As a result of this collaborative effort, PCMs and SOPs have been developed and incorporated into a state-of-the-art geographic information systems database that will allow Western and the cooperating federal agencies to efficiently manage operation and maintenance activities while minimizing the potential for environmental impacts.

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4.0 CUMULATIVE EFFECTS

This section presents the analysis of the potential cumulative effects of the Proposed Action. Cumulative effects are defined as the total impact on the environment that occurs when impacts of a particular action are combined with those of other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such other actions (40 CFR § 1508.7). Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time.

Because ROWs are linear in nature, relatively narrow, and spread out over a large geographical area, a ROW maintenance program would only be expected to contribute relatively minor impacts when considered together with other actions in a project area.

Table 4-1 includes past, future, and reasonably foreseeable actions that may take place in the project area outside of BLM, USFS, and NPS land.

Table 4-1 Proposed Projects Within or Near the North Area Project Area

Project Segment	County	Proposed Project	Miles from ROW
All	Several	PG&E has preliminary plans for a transmission project extending from British Columbia to Northern California. Plans include construction of new electric transmission line that parallels or connects with North Area infrastructure.	Variable
Valley	Alameda	Interstate 580 Eastbound Truck Climbing Lane Project. Proposed widening of I-580 in Alameda County. Under review.	2
	Alameda	Mountain House New Town Project. Ongoing construction and development associated with the Mountain House New Town General Plan. Approved.	2-3
	Butte	Mining operation at the intersection of Highways 149 & 70 in Wicks Corner. Approved.	1
	Butte	Diversified Wireless. Construction of a 130-ft lattice wireless tower communication facility. Under review.	3
	Glenn	Cal Olive at County Rd D and 35. Permitted and production has started.	1
	Glenn	Westeyn Dairy in Logandale at County Rd 65 & D – 5000 dairy cows. Permitted.	2
	Yolo	Esparto use permit for wireless facility on State Route 16 and Jensen Lane. Approved November 2006; construction complete.	4
	Yolo	Update of the 1996 Esparto General Plan and re-zoning. Approved in 2007.	4

Project Segment	County	Proposed Project	Miles from ROW
	Colusa	None identified.	
	Sutter	Specific Plan Update 129,000 acres residential, 36,000 acres industrial, and 1,000 acres public use. Pending.	N/A
	Sutter	South Butte 250-acre expansion of Moorehead Mine. Approved 4/07, duration of activity 60 years.	2
	Sutter	Sutter Point Project – 7500-acre project received approval in June 2009. Likely two years before ground breaking. Located south area of county: State Route 99, Riego Rd, Sankey Rd, Powerline Rd. Five residential/mixed-use development phases and five employment- center development phases. Is anticipated to occur over 30 years.	Variable
	Sutter	Caltrans and FHWA – realignment of east leg of O'Banion Rd to match the west-leg segment. Improve State Route 99 between the SR99/70 junction to Sacramento Ave and from Central Ave to O'Banion Rd. Approved.	5+
	Yuba	Woodbury Specific Plan. The project would include a range of housing types, employment centers, and recreation opportunities, and associated improvements such as roadways, sewer and water infrastructure, and other utilities. Approved.	3
	Yuba	East Linda Specific Plan. The project consists of installation of one outfall, removal of three culverts and fill of 0.37 acre of irrigation channel for construction of a residential subdivision. Under review.	3
	San Joaquin	Mountain House New Town Project. Ongoing construction and development associated with the Mountain House New Town General Plan. Approved.	3
	Solano	State Route 12 Operational Improvements Project. CalTrans is proposing a series of operational improvements at key intersections on State Route 12 from Potato Slough Bridge at the Tower Park Marina to Flag City at the intersection of Interstate 5 and State Route 12 in San Joaquin County. The proposed project also includes an intelligent transportation system. In progress.	Variable

Project Segment	County	Proposed Project	Miles from ROW
	Solano	Solano County I-80 pavement rehabilitation project. This project is to rehabilitate the roadway along State Route (SR) 12 in Solano County near Suisun City, from Walters Road to Currie Road on the outskirts of Rio Vista. The project will repair failed pavement, install retaining walls, and reinstall and extend ground-in rumble strips throughout the project's limits. The project will also add standard 8-foot shoulders to some segments and re-align as well as make vertical and horizontal profile corrections to the roadway. Approved. In progress.	Variable
	Contra Costa	Bethel Island Road Bridge Replacement – proposed construction 2009-2010. General location: Bethel Island Rd over Dutch Slough in Oakley area.	5
	Contra Costa	2009 Vasco Road Overlay along Vasco Rd from Alameda/Contra Costa County line to 3 miles north of county line and 700 ft north of Brushy Creek Bridge #1 to Frisk Creek Bridge in Brentwood area.	Variable
	Tehama	Natural gas well. County Rd 3, Tehama and Glenn county line. Well site is SW of Corning, north of Tehama and Glenn county line. Under review.	0-1
	Tehama	I-5 Red Bluff Rehabilitation Project. Project will construct long-life pavement and resurface bridge decks on I-5. Construction will begin July 2009 through summer 2010.	1
	Tehama	South Avenue Interchange Reconstruction. Reconstruct existing interchange and overcrossing structure at interchange of I-5 and South Ave. Approved.	2
Redding/Trinity	Shasta	Buckhorn Grade Improvement Project. Caltrans realigning and improving Highway 299 from Shasta/Trinity border to 7 mi east toward Yankee Gulch. Approved.	0-3
	Shasta	Dana to downtown. State Route 44 between downtown Redding and I-5: additional lanes added and the Sacramento River Bridge replaced with a wider bridge. Approved.	0-2
	Shasta	Central Redding Collector. Caltrans will widen I-5 north of Cypress Ave to Hilltop Dr overcrossing. Approved.	0-1

Project Segment	County	Proposed Project	Miles from ROW
	Shasta	Shasta median barrier. Installation of a cable barrier at two locations on I-5 between Redding and Anderson. Project includes earthwork, weed barrier, drainage, and installation. Approved.	1
	Shasta	South Redding Six-Lane. Project will add lanes on I-5 in both directions from Bonnyview Rd Interchange north to I-5/State Route 44 interchange. Approved.	0-2
	Shasta	26-acre land division. Project involves construction of roads from Deschutes Rd to project area. Under review.	2-3
	Shasta	Anderson-Cottonwood Irrigation District Main Canal Modernization Project, Crowley Gulch Siphon. Project to replace an existing water-conveyance structure with inverted canal under Crowley Gulch. Approved 8/09.	0-1
	Shasta	Benton Airpark Runway Safety Area Improvements Project. Project proposes to extend existing runway and create a stream detention basin to capture high water flows. Approved 7/09.	2
	Shasta	Highland Park Subdivision/Planned Development. Subdivide 95 acres to construct 206 standard single-family residential units, 48 single-family cluster units around common driveway courts, 110 town homes, and a 56-unit apartment complex. Also provide a 6-acre park, trails, and set-aside of open space totaling 33 acres. Approved 4/09.	1-2
	Shasta	Highland Park Subdivision/Planned Development. Install one 36-in. culvert and earthen dam and one 30-in. culvert, and foot path on two unnamed tributaries to Boulder Creek. Approved 7/09	1-2
	Shasta	Airport Road at Sacramento River Bridge. Construction of a new 6-span girder bridge over the Sacramento River. In construction phase until 2010.	0-1
	Shasta	Caltrans maintenance on 14 bridges in Shasta County on State Routes 44, 273, and 299. Includes removing damaged overlays, repairing unsound concrete, placing new polyester concrete overlays and/or methacrylate sealant, joint seals, and reconstructing approaches/MBGR. Approved.	Varying

Project Segment	County	Proposed Project	Miles from ROW
	Shasta	Use permit (D&M Partnership). Request for use permit for industrial park comprising four types of building layouts totaling 133,000 square ft. Under review.	2
	Shasta	Whitmore Rd and Basin Hollow Rd residential land division. Project site is a 145.37-acre parcel. Under review.	0-2
	Shasta	Sierra Pacific Industries Cogeneration Power Project. Construction and operation of cogeneration power plant at existing lumber-manufacturing facility. Includes construction of new fuel handling building, boiler building, turbine building, cooling tower, electrostatic precipitator, ash silo, and electric substation. Would burn biomass fuel. Riverside Ave and I-5. Under review.	0-1
	Shasta	Hatchet Ridge Wind Project. Project proposes to construct up to 68 three-bladed wind turbines along a 6.5-mile turbine string corridor on Hatchet Ridge. Permitted	7
	Shasta	Salt Creek Subdivision. Proposes development of 440 residential units with a mix of housing types on 100 acres north of State Route 299 and Eureka Way. Under review.	0-1
	Shasta	Texas Spring Rd and Taku Ln. Subdivision of a 37.7-acre parcel into 10 lots. Under review.	0-1
	Shasta	Texas Spring Rd and Montgomery Ranch Rd. Subdivision of 151.3 acres into three parcels of 3.6 acres, 4.8 acres, and 3.3 acres, with a 139.6-acre remaining parcel. Under Review.	1-2
	Shasta	Rancho Rd/Shasta View Dr. Construction of a 92,200-square-ft shopping center on 10 acres at northwest corner of Rancho Rd and Shasta View Dr. Would consist of a 60,000-square-ft grocery store and six retail pad buildings, two with drive-through service. Under review.	1-2
	Trinity	Trinity turnouts. Caltrans proposes paving numerous unpaved turnouts along State Route 299 in Trinity County. Approved.	4
	Trinity	Western Area Power Administration Trinity PUD Interconnection Project. Construction and operation of 16 miles of new transmission line, and associated facilities. Permitted.	0-2

Project Segment	County	Proposed Project	Miles from ROW
Round Mountain/Modoc Plateau	Klamath	None identified.	
	Lassen	None identified.	
	Modoc	PG&E Multiple Region Operation and Maintenance Habitat Conservation Plan EIS/EIR. Activities that may be covered include tasks associated with operation and maintenance, including minor new construction of PG&E's gas and electric transmission and distribution.	Variable
	Modoc	Newell Migrant Housing. Development of 35 new housing units at the Newell Farm Labor Camp. Existing 48 housing units demolished following the construction of the new units so camp may remain in operation during the construction. Under review.	3
	Siskiyou	Nestle Bottling Plant – 350,000-square-ft facility on outskirts of McCloud. Project has been scaled back, and undergoing additional environmental review that could take 3 years from 2008.	Variable
	Siskiyou	Caltrans operational improvement project at I-5, State Route 89, and I-5/South Mt. Shasta Blvd interchanges, south of the City of Mt. Shasta. Environmental studies have begun.	Variable

Note: Project list obtained May 2008; verified August 2009.

The following projects will be completed by NPS and USFS within the Project area. There were no projects identified by BLM.

National Park Service

- Construction of a six-mile trail; construction to begin summer 2008. This trail will begin at Sheep Camp in Shasta County.

U.S. Forest Service – Shasta-Trinity and Modoc National Forests

- Route designation: Over the next few years, the national forests in California will analyze and designate a system of routes and areas for motor-vehicle use;
- Mountain bicycle planning: sustainable mountain-biking recreation will be provided on the 18 national forests in California.
- Thinning: pre-commercial and commercial
- Fuels reduction: mechanical and prescribed fire
- Noxious/invasive weed treatments

- Vegetation management: plantations – mechanical release, hand release; wildlife habitat – typically mechanical
- Grazing
- Road maintenance

The following paragraphs provide a discussion of the cumulative effects that could potentially occur from the Proposed Action when considered with past, present, and reasonably foreseeable future actions. However, all ROW maintenance activities would take place within a narrow corridor spread over 16 counties. While activities at a single location could involve ground disturbance, noise, or alteration of vegetation or habitat, these activities would be localized and of short duration, with their environmental effects avoided and minimized through PCMs and SOPs, so that incremental effects of the proposed action would not be cumulatively considerable and impacts would be less than significant.

Habitats and Vegetation

The Proposed Action could modify existing native plant communities into low-growing plant communities. Potential cumulative effects on habitats and vegetation could include decreased plant diversity, colonization of noxious weeds in disturbed sites, increased fragmentation, an increase of trees prone to windfall along forest edges, and potential herbicide damage to non-targeted plants. The proposed changes to the maintenance of ROWs do not include construction of new ROWs; however, the use of herbicides along ROWs could increase the potential for cumulative impacts on habitat and vegetation loss. Operation and maintenance activities, including the use of herbicides, could have a cumulative effect on non-target species as well as wildlife habitats by indirectly displacing wildlife and reducing vegetation along ROWs. The noise, dust, human disturbance, and other related disturbances, in addition to construction-related disturbances of other projects in the project area, could add to the cumulative effects on habitats and vegetation. The implementation of Western's PCMs and SOPs would eliminate the proposed action's contribution to cumulatively considerable effects on habitats and vegetation.

Special-status Species

The Proposed Action could potentially have a significant impact on special-status species through vegetation removal, altered hydrology, erosion/sedimentation, and the use of herbicides. The potential cumulative effects of the Proposed Action could result in habitat loss to special-status species. Cumulative effects to special-status species could result from collectively significant actions taking place over a specific period of time. These actions could include construction of residential development, road construction, and ROW maintenance among other construction projects. Western would implement PCMs and SOPs to reduce adverse impacts to special-status species. Implementation of the PCMs and SOPs would eliminate the proposed action's contribution to cumulatively considerable effects on special-status species.

Wildlife

Potential cumulative effects on wildlife could include harassment and degraded or modified habitat, mostly in wooded areas where habitat could be fragmented and thermal cover lost. Cumulative effects on wildlife could occur when vegetation and other wildlife habitats are permanently and/or temporarily removed. The effects of the Proposed Action, along with other construction projects in the project area, could increase the displacement of wildlife due to habitat loss. Additional impacts could occur from disruption of breeding and consequent loss of eggs, young animals, fledglings, or breeding adults through noise or human disturbance, collision mortality on roads, increased predation and competition from species that prefer the edge habitat, or direct or indirect contact with herbicides and/or mechanical equipment. However, with Western's SOPs and PCMs, the contribution of Western's actions to cumulative effects is not considerable and impacts would be less-than-significant.

Fishes

Cumulative impacts to fishes could occur when habitats or individuals are disturbed or lost due to activities in the project area. Fish and other aquatic species could be affected through habitat degradation from decreased water quality (although usually less than 150 feet of any stream would typically be affected). Fish species are dependent on specific aquatic conditions, so any change in the existing environment could have adverse effects. A significant alteration to the existing environment could be caused by increased water temperature through loss of bank cover, increased sedimentation, loss of instream habitat structure, or degraded water quality by drift of herbicides, among other environmental changes. With Western's SOPs and PCMs, the contribution of Western's actions to cumulative effects to fishes is not considerable and impacts would be less-than-significant.

Cultural Resources

A cumulative impact on cultural resources could occur if the qualities of a property that rendered it eligible for listing in the National Register were altered or degraded, or if cultural and historic resources were damaged. Western has surveyed the entire project area and identified 318 cultural-resource sites. Of these, nine have been determined eligible for the National Register, while four have been determined ineligible. Although there are no traditional cultural properties identified within the project area, Western has begun a phased program of National Register evaluation for the cultural resource sites under its management. As such, Western has designed PCMs and SOPs for cultural resources and would avoid impacts to all known sites (or as-yet unknown sites) that have not been determined ineligible for National Register listing. Implementation of cultural resource PCMs and SOPs would eliminate the proposed action's contribution to cumulatively considerable effects on cultural resources.

Land Use

Cumulative effects on land uses could include the generation of noise, dust, and odors, and disruption of access to residential and/or commercial properties. Cumulative effects

on city, county, and state lands potentially could involve conflicts with land-use plans; however, the proposed ROW maintenance activities would not change land use along or adjacent to ROWs, so ROW maintenance would not conflict with these plans. There are a number of projects under various stages of review and construction throughout the project area that could increase cumulative effects to land uses. Western's implementation of SOPs and PCMs would eliminate the proposed action's contribution to cumulatively considerable effects on land use.

Recreation

Project activities could have cumulative effects if they affected recreation resources by creating noise, visual impacts, or other environmental impacts that conflicted with recreational uses or deteriorated recreational facilities. Recreationists could be temporarily disturbed and displaced, diminishing recreational experiences in the project area. With implementation of SOPs and PCMs, the contribution of Western's actions to cumulative effects to recreation is not considerable and impacts would be less-than-significant.

Aesthetics

Aesthetic impact includes visual interruption that would dominate a rare, unique, scenic, or sensitive viewshed and could arise from changes in visual contrasts and landscape appearances, most notably in wooded areas. Project activities could cause impacts to aesthetics in the project area; however, the ROW has been in place for many years and is an existing component of the viewshed. Cumulative aesthetic impacts could potentially affect scenic quality resulting from the visual intrusion of construction vehicles, equipment, small airplanes or helicopters, storage materials, workers, vegetation clearing by mastication, and prescribed burns if appropriate measures were not in place. Western would implement SOPs and PCMs, so that incremental effects of the proposed action on aesthetic resources would not be cumulatively considerable and impacts would be less than significant.

Water Resources

Disturbance of sediments that could potentially drift into water bodies within the project area could add to cumulative effects on water quality. The majority of the impacts would occur during surface-disturbing activities or drift of herbicide spray. Additionally, water quality could be affected cumulatively through increased surface-water run-off and increased water temperatures, reduced nutrients in water, and groundwater and surface-water contamination. The major river crossings that could be affected are the Sacramento River, San Joaquin River, Pit River, and Feather River, although there are numerous other water bodies that could be affected as well. With implementation of SOPs and PCMs, the contribution of Western's actions to cumulative effects to water quality is not considerable and impacts would be less-than-significant.

Geology and Soils

Cumulative effects on geology and soils that could impact the project area include the loss of unique geologic features, alteration of the topography, or acceleration of erosion

or slope failures. Maintenance activities could increase erosion and reduce soil productivity from compaction. However, these impacts would be temporary and less than cumulatively considerable with implementation of SOPs and PCMs.

Public Health

Potential effects on public health could result from hazardous materials, physical hazards, fire hazards, and electric and magnetic fields from the Proposed Action as well as other current or reasonably foreseeable future projects in the project area. It should be noted that EMF fields would remain the same under the Proposed Action. These potential impacts could potentially affect public health. With the exception of hazardous materials, however, these impacts could be increased without routine ROW maintenance.

Hazardous materials include herbicides, gasoline, engine oil, and brake and transmission fluid, among other toxic pollutants; however, most of these substances only become hazardous if spilled or not handled appropriately. Therefore, the potential for cumulative effects to public health would be minimal. With implementation of SOPs and PCMs, the contribution of Western's actions to cumulative effects to public health is not considerable and impacts would be less-than-significant.

Air Quality

Current and proposed construction projects in the project area could result in cumulative air-quality impacts. Within the project area, there are currently six counties that are in nonattainment for PM_{2.5}, 11 counties in nonattainment for ozone, and 12 counties in nonattainment for PM₁₀. There is a possibility that pollutants from maintenance activities could have an impact on ambient air quality that would overlap with other projects in the project area; however, project activities are not expected to have a cumulative impact on ambient air quality for reasons provided below.

The Proposed Action could result in short-term and localized dust and exhaust emissions and could temporarily increase particulate emissions, reducing air quality in nonattainment areas. However, the project alone would not result in any permanent impacts to air quality in the project area. There would be no substantial permanent sources of emissions from the Proposed Action; therefore, the Proposed Action would be consistent with the local air-quality rules and regulations of the 16 counties and five air basins. SOPs and PCMs would reduce emissions from maintenance activities. Incremental effects to air quality would not be cumulatively considerable.

Noise

Cumulative effects to noise could result from project activities. The surrounding land uses dictate what noise levels would be considered acceptable or unacceptable. Lower ambient noise levels are expected in rural or suburban areas such as the Round Mountain/Modoc region than would be expected for commercial or industrial zones in the Valley region. Temporary noise disturbance could occur in sensitive wildlife areas such as national parks and forests. Some residential communities could be impacted by short-term noise disturbances. The major cumulative noise impacts in the project area

are around highways, airports, and railroad ROWs in combination with construction work. Western would implement SOPs and PCMs to reduce noise in the project area, thereby eliminating the proposed action's contribution to cumulative noise effects.

Transportation

Cumulative transportation impacts could result from closure or disruption of railways, highways, roadways, and other routes of transportation crossed or paralleled by the ROW. Although there are airports within the project vicinity, the project area does not cross any airports and would not impact air facilities. Roadways, highways, railways, and other transportation routes could be temporarily impacted by closure during construction activities. Operation and maintenance would not be expected to have a cumulatively significant impact on transportation. With implementation of SOPs and PCMs, the contribution of Western's actions to cumulative effects to transportation is not considerable and impacts would be less-than-significant.

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5.0 COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS

This section presents the federal, state, and local laws, ordinances, and regulations applicable to the Proposed Action.

5.1 Federal

National Environmental Policy Act (NEPA)

This act requires federal agencies to consider the impacts to the human and natural environment from their actions. The Council on Environmental Quality has published implementing regulations (40 CFR parts 1500-1508) and the DOE has published implementing procedures (10 CFR part 1021) that govern Western's compliance with NEPA. Actions such as ROW maintenance can normally be categorically excluded as part of the routine maintenance exclusion (see Appendix B or subpart D of 10 CFR part 1021) as long as the action meets the integral elements of that exclusion. However, other land managing agencies may have other requirements when the actions are taken on their lands.

Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)

This act regulates the manufacture, use, storage, and disposal of chemicals used as pesticides (which include herbicides) as described in 40 CFR parts 150-180. The focus of FIFRA is on pesticide producers; however, this section will emphasize the parts of the regulation applicable to the use, storage, and disposal of pesticides, including herbicides. FIFRA:

- regulates all pesticides including herbicides, insecticides, fungicides, and plant growth regulators;
- regulates all pesticide labels and packaging;
- classifies pesticides as unclassified, general use, or restricted use (40 CFR part 152, subpart I) (restricted use may prescribe restrictions relating to the product's composition, labeling, packaging, uses, or the status or qualifications of the user);
- describes the written records that need to be kept by certified applicators;
- may give fines of up to \$25,000 and jail sentences of up to 1 year for misapplication of pesticides and violation of FIFRA standards;
- provides for the registration of pesticides or the cancellation of a registration;
- provides work protection standards.

Users of restricted-use pesticides should particularly note the following regulations:

- Disposal and Storage of Pesticides (40 CFR part 165) specifies the regulations and procedures for the disposal or storage of pesticides, pesticide containers, and pesticide-related wastes, and for the acceptance for safe disposal by EPA of pesticides whose registration has been cancelled.
- Certification of Pesticide Applicators (40 CFR part 171) outlines the requirement for applicators of restricted-use pesticides. These requirements include categorization of commercial and private applicators, standards for certification of commercial and private applicators, and supervision of non-certified applicators.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)

- Regulates methods of cleaning up recent and past spills of hazardous substances;
- Defines periods within which the U.S. EPA and other agencies must be notified of current spills of hazardous substances;
- Uses reportable quantities of hazardous substances to decide when federal and state agencies are notified of spills;
- Along with the National Contingency Plan, specifies federal natural resource trustees. The DOE is a designated trustee for natural resources that are on, over, or under land under its jurisdiction and not specifically the responsibility of some other resource management agency.

Federal facilities that have released hazardous substances, therefore, should clearly be concerned about natural resource damage liabilities. The DOE may have a dual role where its own activities have resulted in hazardous substance releases. The DOE is the CERCLA lead response agency and, as such, may be subject to natural resource liabilities to other trustees. The DOE is also the trustee for the natural resources under its own jurisdiction.

Superfund Amendments and Reauthorization Act of 1986 (SARA Title III), and the Emergency Planning and Community Right-To-Know Act

- Sets up state emergency response commissions and local emergency planning committees;
- Requires industrial facilities to provide written plans to describe what they would do in the event of a chemical emergency;
- Requires an annual inventory of all chemicals on site when certain amounts are exceeded;

- Provides the state emergency response commissions, local emergency planning departments, and the local fire department with names and quantities of hazardous substances stored.

Federal Occupational Safety and Health Act (OSHA)

- Protects worker health and safety.

OSHA's Hazard Communication Standard

- Requires workers to be provided with a material safety data sheet for all hazardous materials including pesticides;
- Trains workers on the hazards of the materials handled;
- Provides information to workers on how to protect themselves and what to do during emergencies such as spills and fires.

Hazardous Materials Transportation Act

- Requires placards and shipping papers for shipping certain quantities of hazardous materials;
- Requires reporting of transportation accidents involving hazardous chemicals.

State OSHA, EPA, agricultural agencies, and local health and weed-control agencies may also have specific regulations that deal with pesticide use, spills, transportation, and disposal of hazardous materials.

Federal Noxious Weed Act of 1974

- Defines a noxious weed as any living stage of a plant that can directly or indirectly injure crops, other useful plants, livestock, or poultry or other interests of agriculture including irrigation, navigation, the fish and wildlife resources of the United States, or the public health;
- Regulates the sale, purchase, and transportation of noxious weeds into or through the United States;
- Regulates the inspection and quarantine of areas suspected of infestation and provides for the disposal or destruction of infested products, articles, means of conveyance, or noxious weeds;
- May give fines of up to \$5,000 and/or imprisonment up to one year for violation of the regulation;
- Requires federal agencies to work with state and local agencies to develop and implement noxious weed management programs on federal lands.

Endangered Species Act (ESA)

- Protects listed plants and animals that are threatened by habitat destruction, pollution, overharvesting, disease, predation, or other natural or man-made factors;
- Stipulates that listed species cannot be taken without a special permit — take, as defined under the ESA, means “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct” — all federal agencies must ensure that their activities do not jeopardize a listed species or its critical habitat;
- Provides for review of pesticide formulations and their application methods and rates to determine if pesticide use may have potential adverse effects on listed species or their critical habitats.

Fish and Wildlife Coordination Act (16 USC 661-667e)

This act requires all federal agencies to consult with state and federal wildlife management agencies prior to approving any federal action that may affect a stream or other body of water.

Migratory Bird Treaty Act of 1918, as Amended

This act protects migratory birds by making it unlawful to pursue, take, attempt to take, capture, possess, or kill any migratory bird, or any part, nest, or egg of any such bird, unless and except as permitted by regulation. The act is intended to protect birds that have common migratory patterns within the United States, Canada, Mexico, Japan, and Russia.

- Section 704 of the act states that the Secretary of the Interior is authorized and directed to determine if, and by what means, the take of migratory birds should be allowed and to adopt suitable regulations permitting and governing take;
- Certain exceptions apply to employees of the U.S. Department of the Interior to enforce the act and to employees of federal agencies, state game departments, municipal game farms or parks, public museums, public zoological parks, accredited institutional members of the American Association of Zoological Parks and Aquariums (now called the American Zoo and Aquarium Association), and public scientific or educational institutions.

Bald Eagle Protection Act of 1940

This act makes it unlawful to capture, kill, destroy, molest, or disturb bald eagles, their nests, or their eggs anywhere in the United States. The act also protects golden eagles because they are similar in appearance; however, they are accorded somewhat lighter protection than the bald eagle. A permit must be obtained from the U.S. Department of Interior to relocate a nest that interferes with resource development or recovery operations.

- The enacting clause of the original act stated that the Continental Congress in 1782 adopted the bald eagle as the national symbol, that the bald eagle became the symbolic representation of a new nation and the American ideals of freedom, and that the bald eagle was threatened with extinction;
- The act imposes criminal and civil penalties on anyone (including associations, partnerships, and corporations) in the United States or within its jurisdiction who, unless excepted, takes, possesses, sells, purchases, barter, offers to sell or purchase or barter, transports, exports or imports at any time or in any manner a bald or golden eagle, alive or dead; or any part, nest or egg of these eagles; or violates any permit or regulations issued under the Act;
- If compatible with the preservation of bald and golden eagles, the Secretary of the Interior may issue regulations authorizing the taking, possessing, and transporting of these eagles for scientific or exhibition purposes, for religious purposes of Indian tribes, or for the protection of wildlife, agricultural, or other interests.

Aquatic Conservation Strategy (ACS)

The ACS was implemented in 1994 to restore and maintain aquatic and riparian ecosystems, particularly salmon habitat, on federal lands governed by the Northwest Forest Plan. It focuses on riparian reserves, key watersheds, watershed analysis, and watershed restoration, and has nine objectives that proposed activities on Forest Service and BLM land must meet. For a description of how the Proposed Action and No Action alternative will affect each ACS objective, refer to Appendix F.

National Historic Preservation Act

This act directs that government agencies must locate and inventory historic properties and cultural resources eligible for the National Register prior to taking an action that might harm them, with the intent of minimizing such harm through appropriate avoidance measures. Agencies must consider the effects of their actions on identified historic properties prior to implementing the action.

American Indian Religious Freedom Act

This act establishes that it is the policy of the United States to protect and preserve for Native Americans their inherent right of freedom to believe, express, and exercise their traditional religions. This includes access to sites, use and possession of sacred objects, and the freedom to worship through ceremonies and traditional rites.

Executive Order 13007, Indian Sacred Sites

This order directs federal agencies to accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and to avoid adversely affecting the physical integrity of those sacred sites. This includes providing reasonable notice of proposed actions or land-management policies that may restrict access or affect the phys-

ical integrity of sacred sites. It also directs agencies to keep confidential information pertaining to such sites.

Archaeological Resources Protection Act of 1979

This act secures the protection of archaeological resources and sites on both public and Indian lands. The act includes stiffer penalties and fines for a detailed list of prohibited acts, and sets forth uniform regulations for excavation, removal, disposition, exchange, and information disclosure of archaeological resources.

Clean Air Act

- Establishes air quality standards to protect public health and the environment from the harmful effects of air pollution;
- Defines national ambient air quality standards for six criteria pollutants: carbon monoxide, sulfur dioxide, nitrogen dioxide, ozone, PM₁₀, and lead.

Presidential Memorandum Dated April 26, 1994 for the Heads of Executive Departments and Agencies and Guidance for This Memorandum from the Office of the Federal Environmental Executive (60 FR 40837; August 10, 1995)

In this memo and the accompanying guidance, agencies are directed to:

- Use regionally native plants for landscaping;
- Design, use, or promote construction practices that minimize adverse effects on natural habitat;
- Seek to prevent pollution by, among other things, reducing fertilizer and pesticide use, using integrated pest management techniques, recycling green waste, and minimizing run-off;
- Implement water-efficient practices, such as use of mulches, efficient irrigation systems, audits to determine water-use needs, and siting of plants in a manner that conserves water and controls soil erosion;
- Plant regionally native shade trees to reduce air conditioning demands; and
- Create outdoor demonstrations incorporating native plants, as well as pollution-prevention and water-conservation techniques.

Farmland Protection Policy Act

The designation of prime farmland grew out of the program by the Soil Conservation Service (SCS) to map the nation's important farmlands. In 1980, the California Department of Conservation initiated the Farmland Mapping Program to supplement the SCS program. The continuing conversion of agricultural lands led to the passage of the Farm-

land Protection Act (Public Law 97-98) in 1981. The act expressed the need for all federal agencies to recognize the effect of their actions and programs on the nation's farmlands.

The U.S. Department of Agriculture (USDA) was charged with implementing a program to develop criteria for identifying the effects of federal programs on the conversion of farmlands to non-agricultural uses. These criteria were published in 1983. The major requirements are that federal agencies must use USDA criteria to identify and take into account the adverse effects of their programs on the preservation of farmland, and federal agencies must consider alternative actions, as appropriate, to lessen such adverse effects and ensure that their programs, to the extent practicable, are compatible with state, local, and private programs. The act also authorizes local governments to identify farmland of local importance and exempts land already committed to urban development.

The SCS developed the following definitions of important farmlands, as modified for California:

- **Prime Farmland** is land with the best combination of physical and chemical characteristics for the production of crops. It has the soil quality, growing season, and moisture regime needed to produce sustained high yields of crops when treated and managed, including water management, according to current farming methods. Prime farmland must have been used for the production of irrigated crops within the last three years. It does not include publicly owned lands for which there is an adopted policy preventing agricultural use.
- **Unique Farmland** is land that does not meet the criteria for prime farmland, but is currently used for the production of specific high-economic-value crops. It has the special combination of soil quality, location, growing season, and moisture supply needed to produce sustained high quality or high yields of a specific crop when treated and managed according to current farming methods. It does not include publicly owned lands for which there is an adopted policy preventing agricultural use.

Executive Order 12898

On February 11, 1994, President Clinton issued Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority and Low-income Populations.* This order requires that "each Federal agency make achieving environmental justice part of its mission by identifying and addressing as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities, on minority populations and low-income populations..." (Executive Order 12898, 59 FR 7629 [section 1-101]).

In 1997, the U.S. EPA Office of Environmental Justice released the Environmental Justice Implementation Plan, supplementing the EPA environmental-justice strategy and providing a framework for developing specific plans and guidance for implementing Executive Order 12898. Federal agencies received a framework for the assessment of environmental justice in the EPA's *Guidance for Incorporating Environmental Justice Concerns*

in EPA's NEPA Compliance Analysis in 1998. This approach emphasizes the importance of selecting an analytical process appropriate to the unique circumstances of the potentially affected community. Minority populations, as defined by this guidance document, are identified where either:

- The minority population of the affected area is more than fifty percent of the affected area's general population; or
- The minority population percentage of the area is meaningfully more than the minority population percentage in the general population or other appropriate unit of geographic analysis.

Consistent with the definition of minority populations, many environmental justice analyses in environmental review documents apply the 50 percent threshold to the identification of low-income populations as well. Specifically, low-income populations are identified where either:

- The low-income population of the affected area is more than fifty percent of the affected area's general population; or
- The low-income population percentage of the area is meaningfully more than the low-income population percentage in the general population or other appropriate unit of geographic analysis.

The following study has been conducted to comply with Executive Order 12898:

- Economic, racial, and demographic information has been gathered to identify areas of low-income and high-minority populations in the counties in which the study area is located (Modoc, Siskiyou, Shasta, Trinity, Tehama, Glenn, Butte, Yuba, Sutter, Colusa, Yolo, Solano, Sacramento, San Joaquin, Contra Costa, and Alameda).
- The Proposed Action and the No Action Alternative have been assessed for disproportionate impacts resulting from activities associated with each.

Existing Demographics

As shown in Table 5-1, in 2004 the majority (51.1 percent) of the population within the counties in the study area was white (non-Hispanic). Populations of Hispanic origin (20.9 percent), Asian origin (14.6 percent), and Black (9.8 percent) were the largest minorities. The population has increased in all of the counties from 2000 to 2005.

In 2004, Alameda County had the largest percentage ethnic minority populations. In Alameda County, 14.1 percent of the population was Black, 23.7 percent was Asian, and 20.4 percent was Hispanic. The percentage of the population considered Black was highest in Solano County (15.3 percent). The percentage of the population considered Asian was highest in Alameda County (23.7 percent). The percentage of the population considered Hispanic was highest in Colusa County (49.2 percent). The Native American/Native Alaskan (less than 5 percent) and Hawaiian/Pacific Islander (less than 1 percent)

population formed a small percentage of the total populations in all counties. Trinity County had the highest non-Hispanic White population at 87.0 percent.

Table 5-1 Population Percentage by Race/Ethnicity

County	Population			Race/Ethnicity 2004					
	Population 2000	Population 2005 Estimate	Population % Change	Non-Hispanic White	Black	American Indian/Alaskan	Asian	Hawaiian/Pacific Islander	Hispanic
Modoc	9,449	9,524	0.8%	81.2%	0.7%	4.0%	0.1%	0.0%	1.6%
Siskiyou	44,301	45,259	2.2%	83.0%	1.4%	3.6%	1.3%	0.1%	8.4%
Shasta	163,256	179,904	10.2%	84.9%	1.0%	2.6%	2.2%	0.1%	6.8%
Trinity	13,022	13,622	4.6%	87.0%	0.5%	4.3%	0.7%	0.1%	4.5%
Tehama	56,039	61,197	9.2%	76.6%	0.7%	2.0%	0.9%	0.1%	18.4%
Glenn	26,453	27,759	4.9%	61.2%	0.8%	2.1%	3.1%	0.1%	32.5%
Butte	203,171	214,185	5.4%	78.7%	1.5%	1.9%	4.1%	0.2%	11.5%
Yuba	60,219	67,153	11.5%	63.6%	3.1%	2.5%	7.7%	0.2%	20.3%
Sutter	78,930	88,876	12.6%	57.8%	2.2%	1.6%	12.3%	0.2%	24.7%
Colusa	18,804	21,095	12.2%	46.2%	0.9%	2.4%	1.7%	0.6%	49.2%
Yolo	168,660	184,932	9.6%	55.9%	2.5%	1.4%	11.2%	0.4%	27.2%
Solano	394,542	411,593	4.3%	46.1%	15.3%	0.8%	13.9%	0.9%	20.4%
Sacramento	1,223,499	1,363,482	11.4%	54.4%	10.4%	1.1%	12.9%	0.7%	18.1%
San Joaquin	563,598	664,119	17.8%	42.4%	7.7%	1.3%	13.5%	0.5%	33.9%
Contra Costa	948,816	1,017,787	7.3%	54.4%	9.5%	0.7%	12.7%	0.4%	20.4%
Alameda	1,443,741	1,448,905	0.4%	38.6%	14.1%	0.7%	23.7%	0.7%	20.4%
Total	5,416,500	5,819,392	7.4%	51.1%	9.8%	1.1%	14.6%	0.6%	20.9%

Source: U.S. Census Bureau 2007

The U.S. Census Bureau uses income thresholds that vary by family size and composition to determine which families are considered to be below the poverty line. If a family's income is less than the threshold for its size, then that family, and every individual in it, is considered to be below the poverty line. The poverty thresholds do not vary geographically, but they are updated annually for inflation using the Consumer Price Index. For example, in 2005 the average estimated poverty threshold for an individual was an annual income of \$9,573 or less, and for a four-person household, it was \$18,810 or less. The most recent data available for the counties in the project area were developed for 2003 and are presented in Table 5-2. In 2003, the average percentage of the population in study-area counties below the poverty line was 11.6 and the median household income was \$40,213. Yuba County had the highest percentage below the poverty line (16.7 percent) and Modoc County had the lowest median income (\$28,425).

Table 5-2 Median Household Income and Poverty

County	Median Household Income 2003	Persons Below Poverty Line 2003
Modoc	\$28,425	16.5%
Siskiyou	\$31,082	15.5%
Shasta	\$36,418	13.4%
Trinity	\$29,984	14.3%
Tehama	\$32,842	14.8%
Glenn	\$32,652	15.2%
Butte	\$33,443	15.8%
Yuba	\$32,759	16.7%
Sutter	\$39,633	12.9%
Colusa	\$36,497	13.0%
Yolo	\$43,491	12.1%
Solano	\$56,545	8.4%
Sacramento	\$46,296	13.7%
San Joaquin	\$42,749	14.7%
Contra Costa	\$64,424	7.5%
Alameda	\$56,166	10.7%
Average	\$40,213	11.6%

Source: U.S. Census Bureau 2007

Environmental Justice Effects

ROW maintenance activities analyzed in this EA would not involve establishing new ROWs or constructing new transmission lines or tower alignments. The necessity of ROW maintenance activities is dictated by conditions at a particular point along the ROW. Analyses have shown that effects of these ROW maintenance activities to the public would not be significant; therefore, no environmental justice-related project effects are anticipated.

U.S. Department of Energy Policies, Orders, and Memoranda

- **DOE Policy 141.1, *Department of Energy Management of Cultural Resources*, dated 05-02-01**, establishes cultural-resource management as a necessary part of DOE program implementation and establishes program responsibilities, requirements, and authorities.
- **DOE Policy 450.2A, *Identifying, Implementing and Complying with Environment, Safety and Health Requirements*, dated 05-15-96**, sets forth the framework for identifying, implementing, and complying with environment, safety, and health requirements so work is performed in a manner that ensures adequate protection of workers, the public, and the environment.

- **DOE Policy 450.4, *Safety Management System Policy*, dated 10-15-96**, provides a formal, organized process whereby people plan, perform, assess, and improve environmental processes.
- **DOE Order 5400.1, *General Environmental Protection Program*, dated 11-09-88**, establishes environmental-protection program requirements, authorities, and responsibilities for DOE operations to ensure compliance with federal, state, and local environmental laws, regulations, executive orders, and internal policies.
- **DOE Order 5480.4, *Environmental Protection, Safety, and Health Protection Standards*, dated 05-15-84**, specifies requirements for the application of mandatory environmental protection standards. A DOE memorandum dated November 3, 1997, issued from the DOE Office of NEPA Policy and Assistance, emphasizes the need to consider environmentally and economically beneficial landscape practices and the above guidance when developing NEPA documents.
- **Western Area Power Administration (WAPA) Order 430.1, *Right-of-Way Management Guidance for Vegetation, Encroachments, and Access Routes*, dated 03-18-08**, delegates and clarifies responsibilities to maintenance managers and establishes guidance and organizational support for maintenance and safe operation of Western ROWs.
- **WAPA Order 450.1A, *Environmental Considerations in the Planning, Design, Construction, and Maintenance of Power Facilities and Activities*, dated 11-21-01**, describes environmental requirements that may be necessary to support maintenance activities.
- **WAPA Order 450.3A, *Transmission Vegetation Management Program*, dated 03-13-08**, dictates Western approach to transmission vegetation management.
- **WAPA Order 6400.1, *Establishment of Engineering Manual Series*, dated 02-05-80**, describes standards for documents developed for guidance of Western's field activities.
- **WAPA Power System Maintenance Manual, Chapter 11, *Trimming and Felling of Trees and Brush Near Powerlines*, November 2000**
- ***Guides, Requirements, Instruction, and Procedures (GRIP) No.16, *Transmission Line Right-of-Way Management*, February 2001***. This guide sets forth the procedures and practices for management of the transmission line ROWs, which includes easements and fee land owned by Western's Sierra Nevada Region (SNR).
- **GRIP No. 19, *Major Power System Component and Maintenance Program*, May 2002**. This guide outlines Western SNR's maintenance program for major power system components, including both scheduled maintenance practices and trigger-based maintenance practices, to ensure power system reliability, safety of employees, and cost effectiveness. The program is designed to meet the requirements of the customers, public safety, environmental sensitivities, and various power system organizations.

5.2 State

The **California Endangered Species Act (CESA)** (Fish & Game Code §§ 2050, et seq.), generally parallels the main provisions of the federal Endangered Species Act and is administered by the CDFG. Under CESA, an endangered species is defined as a plant or animal that is “in serious danger of becoming extinct throughout all, or a significant portion of its range” and is limited to species or subspecies native to California. CESA establishes a petitioning process for the listing of threatened or endangered species. The California Fish and Game Commission is required to adopt regulations for this process and establish criteria for determining whether a species is endangered or threatened. The California Code of Regulations, Title 14, §670.1(a), sets forth the required contents for such a petition. CESA prohibits the “taking” of listed species except as otherwise provided in state law. Unlike its federal counterpart, CESA applies the take prohibitions to species petitioned for listing (state candidates). State-listed species are afforded protection on all lands, including private lands as well as federal land under the jurisdiction of BLM, NPS, and USFS, as directed by these federal agencies. While CESA does not bind Western’s actions, for the purpose of this EA Western has considered and afforded protection to state-listed species within all ROWs.

California Public Utilities Commission General Order 95, *Rules for Overhead Electric Line Construction*, and proposed revisions dated 11-02-01, formulate uniform requirements for overhead electric and communication line construction for the State of California.

Western will comply not only with all federal regulations regarding pesticides, but also will follow certain state regulations. Western will follow the regulations listed in the **California Code of Regulations, title 3, division 6, Pesticides and Pest Control Operations**. These regulations deal with:

- pesticide applicator certification and licensing (§§ 6500-6574);
- work requirements (§§6600-6686);
- pesticide worker safety (§§ 6700-6795);
- ground water (§§ 6800-6806);
- air (§§ 6860-6890);
- aquatic and marine environments (§§ 6900-6920);
- surface water (§ 6960).

The California Department of Pesticide Regulation evaluates and registers pesticides for use in the state and defines conditions for use (California Department of Pesticide Regulation 2001).

The **Food and Agricultural Code §§ 7270-7274** provides the Department of Food and Agriculture with the authority to form weed management areas, which are local organizations that bring together all interested landowners, land managers (private, city, county, state, and federal), special districts, and the public in a county or other geographical area for the purpose of coordinating and combining their actions and expertise to deal

with their common weed-control problems. A chairperson or a steering committee may voluntarily govern a weed-management area.

5.3 Federal and State Water Quality Regulations and Programs

State and federal laws mandate a series of programs for the management of surface water quality. In the state of California, water resources are protected under the federal Clean Water Act (CWA) of 1948, as amended (33 U.S.C. § 1251) and the state Porter-Cologne Water Quality Control Act, which created the State Water Resources Control Board (SWRCB) and nine regional water-quality control boards (RWQCBs). Each RWQCB is responsible for preparing and updating a water-quality-control plan (basin plan) every 3 years; the basin plan for a specific region identifies water-quality protection policies and procedures for that region (California RWQCB 1998).

- **Section 401 of the Clean Water Act.** Activities covered by the U.S. Army Corps of Engineers' jurisdiction over wetlands (CWA Section 404 Department of Army permits) require Section 401 water-quality certifications from the SWRCB. The water-quality-certification program requires that states certify compliance of federal permits and licenses with state water quality standards.
- **Section 404 of the Clean Water Act.** Authorization from the U.S. Army Corps of Engineers is required in accordance with the provisions of Section 404 when dredged or fill material is discharged into waters of the United States, including wetlands. This includes excavation activities that result in the discharge of dredged material that could destroy or degrade waters of the United States. The repair and upgrade of access roads could impact waters of the United States.
- **Section 1601/1603 of the Fish and Game Code.** The CDFG typically specifies water-quality-protection measures when they issue streambed alteration agreements pursuant to section 1601/1603 of California Fish and Game Code. However, as an agency of the federal government, these requirements do not apply to Western.
- **Nationwide Permits.** Nationwide permits (NWP) are a type of general permit issued by the U.S. Army Corps of Engineers that are designed to regulate with little delay or paperwork certain activities having minimal impacts. Western would perform ROW maintenance work under the NWP listed in Table 5-3. The NWP can be periodically proposed, issued, modified, reissued (extended), and revoked after an opportunity for public notice and comment. NWP expire after 5 years. Western would perform O&M activities under the most-up-to date permit and comply with any modifications. All actions are performed on a limited basis because of the limited resources available and because actions are intended to be performed over a period of at least 10 years. Thresholds of effect are incorporated into these NWP; Western would adhere to the thresholds as specified.

Table 5-3 Summary of Applicable Nationwide Permits

Permit and Title	Description	Thresholds	Notification Requirements
<p>Nationwide Permit 3 - Maintenance</p>	<p>Activities related to: (i) the repair, rehabilitation, or replacement of any previously authorized, currently serviceable, structure, or fill; (ii) discharges of dredged or fill material, including excavation, into all waters of the U.S. to remove accumulated sediments and debris in the vicinity of, and within, existing structures and the placement of rip-rap; and (iii) discharges of dredged or fill material, including excavation, into all waters of the U.S. for activities associated with the restoration of upland areas damaged by a storm, flood, or other discrete event, including the construction, placement, or installation of upland protection structures and minor dredging to remove obstructions in a water of the U.S.</p>	<p>Under (ii), the removal of sediment is limited to the minimum necessary to restore the waterway in the immediate vicinity of the structure to the approximate dimensions that existed when the structure was built, but cannot extend farther than 200 ft in any direction from the structure. Under (iii), minor dredging to remove obstructions from the adjacent waterbody is limited to 50 cubic yards below the plane of ordinary high water mark.</p>	<p>Under (iii), the permittee must notify the district engineer within 12 months of the date of the damage.</p>
<p>Nationwide Permit 12 – Utility Line Activities</p>	<p>Activities required for the construction, maintenance, and repair of utility lines and associated facilities in waters of the U.S. as follows: (i) utility lines: The construction, maintenance, or repair of utility lines, including outfall and intake structures and the associated excavation, backfill, or bedding for the utility lines, in all waters of the U.S., provided there is no change in preconstruction, maintenance, or expansion of a substation facility associated with a power line or utility line in non-tidal waters of the U.S., excluding non-tidal wetlands adjacent to tidal waters. (iii) foundations for overhead utility line towers, poles, and anchors: The construction or maintenance of foundations for overhead utility line towers, poles, and anchors in all waters of the U.S. (iv) access roads: The construction of access roads for the construction and maintenance of utility lines, including overhead power lines and utility line substations, in non-tidal waters of the U.S., excluding non tidal wetlands adjacent to tidal waters.</p>	<p>Activities may not exceed a total of 0.5-acre loss of waters of the U.S.</p>	<p>The permittee must notify the district engineer if any of the following criteria are met: (a) mechanized land clearing in a forested wetland for the utility line right-of-way; (b) a Section 10 permit is required; (c) the utility line in waters of the U.S., excluding overhead lines, exceeds 500 ft; (d) the utility line is placed within a jurisdictional area (i.e., water of the U.S.), and it runs parallel to a stream bed that is within that jurisdictional area; (e) discharges associated with the construction of utility line substations that result in the loss of more the 0.1 acre of waters of the U.S.; (f) permanent access roads constructed above grade in waters of the U.S. for a distance of more the 500 ft.; or (g) permanent access roads constructed in waters of the U.S. with impervious materials. (Sections 10 and 404).</p>

Permit and Title	Description	Thresholds	Notification Requirements
Nationwide Permit 13 – Bank Stabilization	Bank stabilization activities necessary for erosion prevention.	The bank stabilization activity must be less than 500 ft in length.	Bank stabilization activities in excess of 500 ft in length or more than an average of one cubic yard per running foot may be authorized if the permittee notifies the district engineer.
Nationwide Permit 14 – Linear Transportation Projects	Activities required for the construction, expansion, modification, or improvement of linear transportation crossings (e.g., highways, railways, trails, airport runways, and taxiways) in waters of the U.S., including wetlands.	For linear transportation projects in non-tidal waters, the discharge cannot cause the loss of more than 0.5 acre of waters of the U.S.; for linear transportation projects in tidal waters, the discharge cannot cause the loss of more than 0.33 acre of waters of the U.S.	The permittee must notify the district engineer if any of the following criteria are met: (1) the discharge causes the loss more than 0.1 acre of waters on the U.S.; or (2) there is a discharge in a special aquatic site, including wetlands
Nationwide Permit 41 – Reshaping Existing Drainage Ditches	Discharges of dredged or fill material into non-tidal waters of the U.S., excluding non-tidal wetlands adjacent to tidal waters, to modify the cross-sectional configuration of currently serviceable drainage ditches constructed in waters of the U.S.	The reshaping of the ditch cannot increase drainage capacity beyond the original design capacity, nor can it expand the area drained by the ditch as originally designed.	The permittee must notify the district engineer if more than 500 linear ft of drainage ditch will be reshaped.

- Stormwater Regulations.** The Porter-Cologne Water Quality Control Act (Cal. Water Code, Division 7) along with the federal Clean Water Act regulate stormwater quality. State permits which could apply to the Proposed Action include the Construction General Permit and the Municipal Stormwater Permits. The SWRCB is currently developing the proposed Linear Construction Permit, which may also pertain in the near future. RWQCBs would administer the state stormwater permits, although local ordinances may delegate authority to municipal staff to administer municipal permits for the RWQCBs. Staging areas, whether temporary or permanent, may also be subject to the Industrial General Stormwater Permit.
- Waste Discharge Requirements.** O&M activities resulting in discharges into waters of the state – which includes all surface water and groundwater, including saline waters, within California boundaries – are subject to the SWRCB’s Waste Discharge Requirements (WDRs). General WDRs apply to waters deemed by the U.S. Army Corps of Engineers to be outside of federal jurisdiction. They are restricted to dredged or fill discharges of a given volume and size for projects such as land development, detention basins, disposal of dredged material, bank stabilization, revetment, and channelization. If the Proposed Action does not meet the general WDR eligibility requirements, an individual WDR would be issued instead. Larger projects that involve a significantly greater risk to the environment are more appropriately regulated by individual WDRs.

5.4 Local

As described in specific sections of the EA, Western may follow certain county codes and general plans to the extent that such orders or plans do not conflict with Western's duties or would impose a direct regulation of Western. In implementing the Proposed Action, Western may follow county codes and general plans in Alameda, Butte, Contra Costa, Sacramento, San Joaquin, Shasta, Sutter, Tehama, Trinity, and Yolo counties. The project area is within the boundaries of several habitat conservation plans (HCPs) and natural community conservation planning (NCCP) areas. Additionally, the project area is within the North Coast and Central Valley regions of the State Water Resources Control Board.

The California Air Resources Board has designated primary responsibility for permitting all sources of air pollution, except vehicular sources, to the local and regional air pollution control authorities known as air pollution control districts (APCDs) or air quality management districts (AQMDs). Each district establishes its own rules and thresholds to meet air-quality goals. The Project area is under the jurisdiction of the following local air districts in California: Modoc, Siskiyou, Shasta, Tehama, Butte, Glenn, Colusa, Feather River, Colusa, Yolo-Solano, Sacramento Metropolitan, and San Joaquin Valley Unified.

6.0 COORDINATION AND REVIEW OF THE ENVIRONMENTAL ASSESSMENT

Western proactively encouraged the involvement of participating governmental agencies in the planning and preparation of this EA. Western invited the following federal agencies to be cooperating agencies for the project: BLM, NPS, USFS, NMFS, and USFWS. Upon receiving written acceptance of the invitation from NPS, BLM, and USFS, all three of which have jurisdiction over lands traversed by the project, Western prepared and presented them with a memorandum of understanding (MOU), which was signed by each agency. A record of correspondence for the five federal agencies is presented in Appendices A through E.

The MOU emphasizes the importance Western places on receiving specific feedback from the cooperating agencies at key stages of project development. Western understands the importance of creating an efficient procedure to develop documentation to meet all agencies' individual requirements for operation and maintenance of transmission line ROWs, communication facilities, and access roads. Per the MOU, one responsibility of a cooperating agency is to review all project-related documents and materials, including the administrative draft EA and administrative final EA.

Furthermore, Western has proactively sought a comfortable working relationship with each of the individual agencies independently as well as collectively to identify and resolve issues as quickly as possible and attempt to build consensus among all of the governmental agencies. To this end, Western has promoted round-table discussions with the BLM, NPS, and USFS. Since the inception of the project, Western has met with the USFWS and NMFS in order to encourage collaboration on development of Western's Proposed Action, project conservation measures, and standard operating procedures.

Additionally, Western holds biweekly phone conferences with the participating governmental agencies to keep an open line of communication between the agencies that are affected by the proposed project activities. The open line of communication encourages feedback and direct discussion with all those who have a stake in Western's operation and maintenance activities. During these phone conferences, Western communicates to NPS, BLM, and USFS on changes, updates, and clarifications to the project.

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7.0 MONITORING AND ADAPTIVE MANAGEMENT

The monitoring and adaptive management plan for the North Area ROW Maintenance Project is intended to ensure the success of the project while minimizing impacts. Western's 2007 IVM Program requires O&M activities to be monitored to ensure that the desired results are produced as well as the reliable operation of Western's electric transmission system. To this end, Western is continuously monitoring its vegetation management practices to achieve the following IVM performance objectives:

- Protect public and worker safety;
- Prevent operational hazards, such as tall-growing trees on transmission line ROWs;
- Maintain unimpaired access to transmission facilities and ROWs;
- Protect substations, switchyards, and microwave stations from fire hazards;
- Control the spread of noxious weeds in compliance with state and county regulations;
- Manage vegetation growth in a technical and efficient manner;
- Protect environmental quality of water, wildlife, and aesthetic resources;
- Establish stable, low-growing plant communities on transmission line ROWs; and
- Use integrated vegetation management methods to meet objectives.

Where an O&M activity does not meet the performance objectives, adaptive management practices are implemented to modify the activity to be in compliance. This is achieved through implementation of the following program objectives, in concert with the standard operating procedures and project conservation measures presented in Tables 2-1 through 2-5:

- Clearly delegate responsibility for monitoring reports;
- Delineate clear vegetation management objectives;
- Maintain schedules that are consistent with vegetation growth cycles and vegetation control management activities;
- Provide for groundwater and surface-water monitoring; and
- Meet guidelines for processing information and feedback.

With regard to water quality, a groundwater management program is being implemented based on Western's Groundwater Monitoring Plan (Western 1994).

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8.0 TERMS AND ACRONYMS

Agriculture, rice (Agri): rice fields

Agriculture, orchard (Agor): fruit trees

Agriculture, pasture (Agps)

Agriculture, grain (Aggr): alfalfa, hay

Agriculture, vineyard (Agvn): grapes, kiwi

Agriculture, row crop (Agrc): tomatoes, root crops, safflower, etc.

Agriculture, nursery/garden (Agga)

Air basin: An air basin is a defined geographic area in which air-borne pollutants tend to circulate and mix.

Air Pollution Control Districts (APCD): The APCD is a regional regulatory agency responsible for air quality planning, engineering and enforcement.

Air Quality Management Districts (AQMD): AQMD is a regional governmental agency that regulates sources of air pollution within a defined district of California.

Alluvial: Applied to the environments, processes, and products of rivers or streams.

Ambient air quality: The normal or average prevailing quality of the surrounding air in a given area in terms of the type and amounts of various air pollutants present.

Ambient Air Quality Standards (AAQS): AAQS define clean air, and are established to protect even the most sensitive individuals in our communities. An air quality standard defines the maximum amount of a pollutant that can be present in outdoor air without harm to the public's health. The Air Resources Board and the U.S. Environmental Protection Agency are authorized to set AAQS.

Ancillary Facilities: Secondary facilities that promote electrical transmission reliance.

Archaeological Resource Protection Act (ARPA), 16 U.S.C Sections 470aa-mm

Area of Potential Effects (APE): The APE is the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. It is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.

Attainment area: A geographic region where the concentration of a criteria air pollutant does not exceed national ambient air quality standards.

Barren (Bar): Rock, pavement, sand, etc.

Best Management Practices (BMPs): Common-sense actions required by law to manage resources from pollution, BMPs are designed to prevent new pollution.

Biological Opinion (BO)

California Department of Fish and Game (CDFG): Governmental agency in charge of managing California's diverse fish, wildlife, and plant resources, and the habitats upon which they depend, for their ecological values for their use and enjoyment by the public.

California Department of Water Resources (DWR): DWR is a governmental agency that operates and maintains the State Water Project. Additionally, the department also provides dam safety and flood control services, assists local water districts in water management and conservation activities, promotes recreational opportunities, and plans for future statewide water needs.

California Endangered Species Act (CESA)

California Historical Resources Information System (CHRIS): CHRIS includes the statewide Historical Resources Inventory database maintained by OHP and the records maintained and managed, under contract, by twelve independent regional Information Centers.

Carbon monoxide (CO)

California Natural Diversity Database (CNDDDB): CNDDDB is a program that inventories the status and locations of rare plants and animals in California.

California-Oregon Transmission Project (COTP): The 500-kV transmission line extending between the Captain Jack Substation in Oregon and the Tesla Substation near Tracy, California. This transmission line is owned by the Transmission Agency of Northern California (TANC) and operated by Western Area Power Administration.

Cenozoic: Cenozoic is the age of new life where mammals diverged from a few small, simple, generalized forms into a diverse collection of terrestrial, marine, and flying animals.

Center for Disease Control and Prevention (CDC): CDC is a governmental component of the Department of Health and Human Services.

Central Valley Project (CVP): The majority of the electricity sold by Western is generated by power plants owned and operated by the Bureau of Reclamation, in the California Central Valley Project, including those at Shasta, Folsom, Trinity, and New Melones dams.

Central Valley Regional Water Quality Control Board (CVRWQCB)

Chaparral, mixed (Cmi): shrub dominant, chamise, buckthorn, poison oak, fremontia, toyon; <5,000 feet.

Chaparral, montane (Cmo): mostly evergreen shrub, manzanita, ceanothus, chinquapin; 3,000-10,000 feet.

Chaparral, oak (Coa): dense, tall, live/blue oak, manzanita, toyon, buckbrush, poison oak; Sierra foothills.

Clean Water Act (CWA), 33 U.S.C Sections 1251 – 1387 Clovis: Of or relating to a prehistoric human culture widespread throughout North America from about 12,000 to 9,000 BC, distinguished by sharp fluted projectile points made of chalcedony or obsidian.

Code of Federal Regulations (CFR): CFR is a codification of the general and permanent rules published in the Federal Register by the executive departments and agencies of the federal government.

Commercial, industrial (Com): developed land use other than residential or farms.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. Sections 9600 - 9675

Critical Habitat: Critical habitat is defined as specific areas that are essential to the conservation of a federally listed species, and that may require special management considerations or protection.

Decibel (dB): A unit used to describe the strength or intensity of wave-propagated phenomena such as sound transmitted signals. Technically, a logarithmic scale is used. One dB equals the least sound level detectable by the human ear, while 70 dB is equivalent to busy traffic and 150 dB is equal to a nearby jet taking off.

dBA: Abbreviation for decibels adjusted on an A-weighted decibel scale.

Department of Energy (DOE): DOE is a governmental department whose mission is to advance energy technology and promote related innovation in the U.S.

Department of Transportation (DOT): DOT ensures a fast, safe, efficient, accessible, and convenient transportation system that meets vital national interests and enhances the quality of life of the American people.

Elderberry, isolated (Ebis): Elderberry shrub not in savanna setting.

Elderberry, savanna (Ebsv): Concentration of elderberry shrubs.

Electric and Magnetic Fields (EMF): Of or pertaining to the magnetic forces produced in a surrounding medium by the flow of current in a conductor, as used in this document, meaning electric and magnetic fields.

Emergency Planning & Community Right to Know Act (EPCRA)

Environmental Assessment (EA)

Environmental Impact Statement (EIS)

Environmental Protection Agency (EPA): EPA is a federal government agency with the mission to protect human health and the environment.

Ethnography: The branch of anthropology that deals with the scientific description of specific human cultures.

Evolutionary Significant Unit (ESU): ESU is a population of organisms that is considered distinct for purposes of conservation.

Federal Endangered Species Act (FESA or ESA), 16 U.S.C. Sections 1531 - 1599

Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), 7 U.S.C Sections 136 – 136y

Federal Motor Carrier Safety Administration (FMCSA): FMCSA is focused on reducing crashes, injuries, and fatalities involving large trucks and buses.

Finding of No Significant Impact (FONSI)

Forest, Douglas fir (Fdf): Tall evergreen Doug fir w/tanoak, madrone, pines, black oak; 1,000-4,000 feet

Forest, Klamath mixed conifer (Fkm): Evergreen trees w/shrubs; firs and pines, Klamath region

Forest, mixed conifer (Fmc): Firs and pines, cedar, chinquapin, currant, snowberry; 2,000-6,500 feet

Forest, ponderosa pine (Fpp): >50 percent ponderosa pine, cedar, fir, blk oak, live oak, tanoak; 800-5,000 feet

Forest, white fir (Fwf): White fir dominant, live oak, chinquapin, squawcarpet; 4,500-5,000 feet

Fungicides: Chemical compounds used to prevent the spread of fungi in gardens and crops, which can cause serious damage to the plants.

Generation: The act or process of producing electricity from other forms of energy, such as hydro, coal-fired steam turbines, or photovoltaic conversion systems. The amount of electrical energy produced.

Geographic Information System (GIS)

Global Positioning System (GPS)

Glyphosate: A nonselective herbicide that, when applied post-emergence, is effective on many perennial grasses and broadleaf weeds.

Golf (Glf): Golf course

Grasslands, non-native annual/ naturalized (Gnn): Soft chess, wild oats, ripgut, ryegrass; <3,000 feet

Grasslands, native perennial (Gnp): Soft chess, orchardgrass, oatgrass, fescue, hairgrass.

Gully (Gully): Gully in access road.

Habitat Conservation Plan (HCP)

Hazardous Materials Transportation Act (HMTA)

Herbicides: Herbicide is a pesticide used to kill unwanted target plants.

Hertz (Hz): Hz is the international system of units of frequency.

Hydrologic Regions (HRs): HR represents geographic areas that contain the drainage area of a major river or rivers.

Impact: Direct or indirect changes in the existing environment, whether beneficial or adverse.

Integrated Risk Information System (IRIS)

Integrated Vegetation Management Guide and Transmission Vegetation Management Program (IVMP)

Invasive plant: Invasive plants are those that are not part of (if nonnative), or are a minor component of (if native), the original plant community or communities that have the potential to become a dominant or co-dominant species on the site if their future establishment and growth are not actively controlled by management interventions, or are classified as exotic or noxious plants under state or federal law. Species that become dominant for only one to several years (e.g., a short-term response to drought or wildlife) are not invasive plants.

Kilovolt (kV): A unit of potential difference equal to 1000 volts.

Kilovolt per meter (kV/m)

Kilowatts (kW): kW is a unit for measuring power, equal to one thousand watts.

Lacustrine: Lacustrine is a geologic term for a sedimentary environment of a lake.

Ldn: Ldn is the day-night average sound level, a measure of average noise level over a day.

Leq: The term Leq is used for 'equivalent continuous noise level' in a one hour traffic assessment.

Levee (Lev)

Management Indicator Species (MIS)

Material Safety Data Sheets (MSDS)

Meadow, other (Mot): Seasonally dry swales, annual grasses, forbs, some meadow species when wet.

Meadow, wet montane (Mwm): Herbaceous, sedges, rushes, corn lily, clover; >3,940 feet.

Mean Sea Level (msl)

Memorandum of Understanding (MOU)

Mesozoic: Mesozoic is a geologic era of the Phanerozoic Eon. Mesozoic descended from a lineage of so-called “mammal-like reptiles.”

Million Acre Feet (maf)

Modified Mercalli Intensity (MMI)

National Ambient Air Quality Standards (NAAQS)

National Contingency Plan (NCP): NCP is short for the National Oil and Hazardous Substances Pollution Contingency Plan which is the federal government’s blueprint for responding to both oil spills and hazardous substance releases.

National Electric Safety Code (NESC): NESC is the practical safeguarding of persons during the installation, operation, or maintenance of electric supply and communication lines and associated equipment.

National Environmental Policy Act (NEPA), 42 U.S.C. Sections 4371 - 4375

National Environmental Resource Council (NERC): NERC’s mission is to ensure that the bulk electric system in North America is reliable

National Historic Preservation Act (NHPA), 16 U.S.C. Sections 470 – 470t: NHPA is a statute to ensure that government provides leadership for preservation, contribute to and give maximum encouragement to preservation, and foster conditions under which our modern society and our prehistoric resources can exist in productive harmony.

National Oceanic & Atmospheric Administration National Marine Fisheries Service (NMFS): NMFS is a federal agency focused on the condition of the oceans and the atmosphere under the Department of Commerce. This agency oversees ocean and river fish harvest limits and determines which stocks are to be listed as endangered or threatened under the Endangered Species Act.

National Park Service (NPS): NPS is a governmental agency that cares for national parks (a network of nearly 400 natural, cultural, and recreational sites across the nation).

National Pollution Discharge Elimination System (NPDES): The NPDES permit program controls water pollution by regulating point sources that discharge pollutants into water of the U.S.

National Recreational Area (NRA): NRA is a designation for a protected area in the U.S., often centered on large reservoirs and emphasizing water-based recreation for a large number of people.

National Register of Historic Places (NRHP): The U.S.'s official list of cultural resources worthy of preservation.

Nationwide permits (NWP)

Native American Heritage Commission (NAHC): NAHC is a governmental agency which strives for the preservation and protection of Native American human remains and associated grave goods.

Native species: A plant or animal that historically occurred or currently occurs in a particular ecosystem and was not introduced.

Nitrogen Dioxide (NO₂)

Nitrogen Oxides (NO_x)

Natural Community Conservation Planning (NCCP): NCCP is a program of the State of California and numerous private and public partners that takes a broad-based ecosystem approach to planning for the protection and perpetuation of biological diversity.

North Coast Air Basin (NCAB)

North Coast Regional Water Quality Control Board (NCRWQCB)

Noxious weed: A noxious weed is any plant designated by a federal, state or county government as injurious to public health, agriculture, recreation, wildlife, or property.

Occupational Safety and Health Administration (OSHA): OSHA is the main federal agency charged with the enforcement of safety and health legislation.

Office of Solid Waste (OSW)

Operation and Maintenance (O&M)

Orthophoto: An aerial photograph that has been geometrically corrected (orthorectified).

Pacific Gas & Electric (PG&E)

Pacific AC Intertie (PACI)

Paleozoic: Paleozoic is the earliest of three geologic eras of the Phanerozoic Eon. Paleozoic covers the time from the first appearance of abundant, hard-shelled fossils to

the time when the continents were beginning to be dominated by large, relatively sophisticated reptiles and relatively modern plants.

Park (Prk): Maintained public park.

Particulate matter (PM)

Pesticides: Any substance or mixture of substances intended to preventing, destroying, repelling, or lessening the damage of any pest.

Physiographic: A geology term for a landform considered with regard to its origin, cause, or history.

PM_{2.5}: Fine particulate matter less than 2.5 microns in diameter.

PM₁₀: Particulate matter less than 10 microns in diameter but larger than 2.5 microns in diameter.

Porter-Cologne Water Quality Control Act (Porter-Cologne)

Precambrian: Precambrian is an informal name for the eons of the geologic timescale that came before the current Phanerozoic Eon. It spans from approximately 4500 million years ago to the evolution of abundant macroscopic hard-shelled animals.

Programmatic Agreement (PA)

Project Conservation Measure (PCM): Measure developed to avoid adverse impacts to specific sensitive resources with an associated location within the project area.

Reactive and Volatile Organic Compounds and Gasses (ROG)

Regional Water Quality Control Board (RWQCB): There are nine RWQCBs in California with the mission to preserve, enhance and restore the quality of California's water resources.

Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Sections 6901- 6992

Resource Management Plan (RMP)

Right-of-Way (ROW): An easement, permit, or grant for a certain purpose over the land of another, such as the strip of land used for a road, electric transmission infrastructure, communication facilities, or pipeline. Western's rights within the easement include the right to construct, reconstruct, operate, maintain, and patrol the transmission and communication infrastructure. Rights usually reserved to the landowner include the right to cultivate, occupy, and use the land for any purpose that does not conflict with Western's use of its easement

Riparian, Great Valley forest (Rgf): Valley oak, black walnut, sycamore, cottonwood, elderberry; <500 feet

Riparian, Great Valley scrub (Rgs): Willows, elderberry, verbena, blackberry; <1,000 feet.

Riparian, montane aspen (Rma): Aspen, willows, alders, cottonwood, aspen, pines; 6,500-9,850 feet.

Riparian, montane scrub (Rms): Willows, alder, dogwood, near montane meadows; <8,000 feet.

Riparian, montane white alder (Rmw): White alder, maple, ash, bay, willow, cottonwood; <6,000 feet.

Riverine: Any habitat defined by water flowing through a channel.

Scrub, sagebrush bitterbrush (Ssb): big sagebrush/bitterbrush, ponderosa, juniper; 1,600-10,500 feet.

Sheetwash: The removal of loose surface materials by overland flow.

Sierra Nevada Region (SNR): The Sierra Nevada Region is one of four regions that make up the Western Area Power Administration; headquarters are in Folsom, California.

Soil Conservation Service (SCS)

Standard Operating Procedures (SOP): Measure developed to reduce public and worker safety hazards and limit the potential impacts to the environment that shall be followed at all times, during all O&M activities, and throughout the entire project area.

State Historic Preservation Officer (SHPO)

State Water Resource Control Board (SWRCB)

Storm Water Pollution Prevention Plan (SWPPP)

Substations: A subsidiary station of an electricity generation, transmission, and distribution system where voltage is transformed from high to low or the reverse using transformers.

Sulfur Dioxide (SO₂)

Superfund Amendments and Reauthorization Act (SARA): A 1986 Amendment to CERCLA

Toxic Air Contaminants (TACs)

Traditional Cultural Properties (TCPs)

Transmission: The bulk transport of electricity from large generation centers over significant distances to interchanges with large industries and distribution networks of utilities.

Transmission Agency of Northern California (TANC): TANC is a joint powers agency consisting of 15 different agencies. TANC owns the California-Oregon Transmission Project (COTP) 500-kV line within the project area.

Transmission line: A high-voltage, extra-high-voltage, or ultra-high-voltage power line used to carry electric power efficiently over long distances.

Travis Air Force Base (AFB)

Triassic: A geologic period of the Mesozoic Era marked by a major extinction event. This era produced the first flowering plants and the first appearance of corals of the hexacorallia group.

Ultramafic: Rocks that are igneous and meta-igneous with very low silica content.

Undesirable plant: Undesirable plants are species classified as undesirable, noxious, harmful, exotic, injurious, or poisonous under state or federal law, but not including species listed as endangered by the ESA, or species indigenous to the planning area.

Urban (Urb): lawns, trees, backyard

U.S. Army Corps of Engineers (USACE): Governmental agency responsible for the investigation, developing and maintaining the nation's water and related environmental resources.

U.S. Bureau of Land Management (BLM): A Bureau within the DOI responsible for managing public lands, including resources such as timber, minerals, oil and gas, geothermal energy, wildlife habitat, endangered species, recreation and cultural values, and open space.

U.S. Department of Agriculture (USDA)

U.S. Fish and Wildlife Service (USFWS): Governmental agency with the mission of working with others, to conserve, protect, and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people.

U.S. Forest Service (USFS): Governmental agency, under the USDA, which manages public lands in national forests and grasslands.

U.S. Geological Survey (USGS): Governmental agency that is an unbiased, multi-disciplinary science organization that focuses on biology, geography, geology, geospatial information, and water.

Waters, creek, intermittent (Waci): Intermittent creek, < 20 feet wide.

Waters, creek, perennial (Wacp): Continually flowing, < 20 feet wide.

Waters, pond (Wapd): Small, < 6' deep.

Waters, lake (Walk): Large, > 6' deep.

Waters, river (Warv): Perennial/intermittent, > 20 feet wide.

Waters, seep/spring (Wasp)

Waters, impoundment (Waim): Stock pond, man-made ponding feature.

Waters, drainage (Wadr): Ditches, agriculture drainages (usually well vegetated and shallow).

Waters, irrigation canal (Waic): Flooded up to supply irrigation water to fields, usually deeper.

Waters, other (Waot): Culvert/pipe, other waters not classified.

Weed: Plants that interfere with management objectives for a given area at a given point in time.

Wetlands, freshwater marsh (Wfm): Perennial sedge, rushes, nutgrass, cattail, bulrush; <7,500 feet

Wetlands, other (Wot): Wetland not classified in other categories.

Wetlands, seasonal (Wse): Seasonal ponding, ryegrass, barley, curly dock, rushes, eleocharis.

Wetlands, vernal pool isolated (Wvpi): Seasonal ponding, coyote thistle, popcorn flwr, downingia, toadrush, goldfields, typically with colorful, concentric rings.

Western Area Power Administration (Western): One of the DOE's four power marketing agencies.

Western Systems Coordinating Council (WSCC): formed by the merger of WSCC, Southwest Regional Transmission Association and Western Regional Transmission Associate in 2002.

Woodland, black oak (Wbla): Black oak, ponderosa, cedar, live oak, manzanita; 200-8,000 feet

Woodland, blue oak (Wblu): Blue oak, foothill pine, valley grassland understory; <3,000-4,000 feet

Woodland, foothill pine-chaparral (Wfp): Foothill pine, blue oak, buckeye, ridges and canyons

Woodland, live oak (Wlo): Live oak, foothill pine, toyon, buckbrush, coffeeberry, foothills; <2,000 feet

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9.0 LIST OF PREPARERS AND PERSONS CONSULTED

A consultant team of 17 key technical and administrative personnel headed by Aspen Environmental Group prepared this document under the direction of Western Area Power Administration. TANC contributed to the development of this EA and O&M Program with the provision of approximately 30 reference documents to support field surveys of the COTP ROW and associated funding. Table 9-1 presents the preparers of this document and their qualifications. Table 9-2 presents the persons consulted for information in preparing this document and the EA section(s) in which the provided information was used.

Table 9-1 EA Preparers

Name and Title	Education	Years of Experience	Issue Area
Aspen Environmental Group			
Tom Murphy, Project Manager	M.A. Earth Sciences, B.A. Physical Geography	17	EA project manager, geology, public health, water resources, air quality
Suzanne Phinney, Senior Associate	Doctorate, Environmental Science and Engineering, M.S. Marine Biology, B.A. Biological Sciences	31	Quality control/quality assurance, technical review
Matthew Long, Environmental Planner	Master of Public Policy	4	Project support – geology, public health, water resources, air quality
Heather Blair, Environmental Scientist	M.S. Conservation Biology (in progress); B.S. Ecology	5	Purpose and need, alternatives including the proposed action, biology coordination
Jacob Hawkins, Associate, Environmental Scientist	Master of Environmental Science and Management; B.S. Biology	10	Land use, recreation, aesthetics, transportation, noise
Emi Kiyon, Environmental Planner	Master in Environmental Science & Management; B.A., Biology	2	Project support – cumulative impacts, ancillary sections.
Craig Hattori, CAD Manger	B.A. Philosophy	17	Graphics
Brian Fedrow, Technical Editing & Production Manager	M.S. Journalism	20	Document production, technical editing
Mark Tangard, Administrative Manager	B.A. Geography	35	Document production
Burleson Consulting, Inc.			
Roberta Tasse, Deputy Project Manager, Principal Biologist	B.S. Biology	28	Technical review
Nadia Burleson, Principal Environmental Engineer	M.S. Civil Engineering B.S. Chemical Engineering	22	Technical review, aesthetics

Name and Title	Education	Years of Experience	Issue Area
Annie Overlin, Senior Botanist	B.S. Botany	12	Habitats and vegetation, special-status plants
Jennifer Marchek Senior Environmental Engineer	B.S. Chemical Engineering	15	State, Federal, local regulations
CH2M HILL			
Doug Davy	Ph.D. Archaeology	23	Cultural resources
Jason Bone	B.S. Geography	11	GIS
EcoBridges Environmental Consulting			
Anne Wallace, Principal	M.S. Wildlife Biology, B.S. Fisheries and Wildlife	26	Wildlife, special-status wildlife, fishes, special-status fishes, editorial review
Susan Sanders Environmental Consulting			
Susan Sanders, Principal	Ph.D. Zoology, B.A. Zoology	21	Wildlife, special-status wildlife, fishes, special-status fish

Table 9-2 Persons Consulted

Agency or Affiliation	Name/Title	Date Contacted	Issue Area
Modoc County Planning Department	Conrad Montgomery, Senior Planner	12/20/06	Transportation
Siskiyou County Planning Department	Ruth Latourelle, Assistant Planner	12/20/06	Transportation
Shasta County Planning Department	Bill Walker, Senior Planner	1/3/07	Transportation
Trinity County Planning Department	Kathleen Hicks, Planner	12/20/06	Transportation
Tehama County Planning Department	Bob Halpin, Senior Planner	12/20/06	Transportation
Butte County Planning Department	Chris Tolley, Planner	1/3/07	Transportation
Glenn County Planning Department	Andy Paper, Planner	1/3/07	Transportation
Colusa County Department of Planning and Building	Kent Johanns, Planner	1/3/07	Transportation
Sutter County Planning Commission	Doug Libby, Planner	1/3/07	Transportation
Yuba County Planning Department	Colleen Cotter, Planner	1/3/07	Transportation
Yolo County Planning, Resources and Public Works Department	Stephanie Berg, Planner	1/2/07	Transportation
Sacramento County Planning Department	Manuel Mejia, Senior Planner	12/20/06	Transportation
Solano County Planning Commission	Phillip Seilhan, Senior Planner	12/20/06	Transportation
Contra Costa County Community Development	Christine, Planner	12/20/06	Transportation
Alameda County Community Development Department	Bruce Jenson, Senior Planner	12/20/06	Transportation
San Joaquin County Community Development Department	Ray Hoo, Senior Planner	1/2/07	Transportation
San Joaquin County Community Development Department	Bill Factor, Senior Planner	1/5/07	Transportation
Modoc County Public Health Office	Maxine Madison, Clerk	12/13/06	Noise

Agency or Affiliation	Name/Title	Date Contacted	Issue Area
Siskiyou County Clerks Office	Debbie, Clerk	12/14/06	Noise
Shasta County Clerks Office	Amy Spencer, Administrative Board Clerk	12/13/06	Noise
Feather River Air Basin	Karla Sanders, Air Quality Compliance Coordinator	12/7/06	Air
Tehama County Air Pollution Control District	Curtis Wentworth, Senior Pollution Specialist	12/7/06	Air
Shasta County Air Quality Management District	Ross Bell, Pollution Specialist	12/7/06	Air
North Coast Air Quality Management District	Jason Davis, Planning & Air Division Manager	12/7/06	Air
San Joaquin Valley Unified Air Pollution Control District	Dan Garcia, Planner	12/8/06	Air
Klamath County Planning Department	Bill Adams, AICP, Project Manager	08/20//09	Cumulative Impacts
Modoc County Planning Department	Cameron Channell, Assistant Planner	08//2409	Cumulative Impacts
Glenn County	Casey Murray	08/24/09	Cumulative Impacts
Sutter County	Steve Geiger, Principal Planner	08/25/09	Cumulative Impacts
Contra Costa County Public Works	Steve Kowalewski, Deputy Director	08/25/09	Cumulative Impacts
Colusa County Planning Department	Karen Anania, Administrative Secretary	08/26/09	Cumulative Impacts
Yolo County Planning/Public Works Department	David Morrison, Assistant Director	08/26/09	Cumulative Impacts
Siskiyou County	Rowland Hickel, Associate Planner	08/27/09	Cumulative Impacts
Yuba County	Anthony Gon, Community Development Specialist	08/27/09	Cumulative Impacts
National Park Service, Whiskeytown National Recreation Area	Russ Weatherbee, Wildlife Biologist	Ongoing	Biology
Bureau of Land Management, Redding Field Office	Gary Diridoni, Wildlife Biologist	Ongoing	Biology
U.S. Forest Service, Shasta-Trinity National Forest	Stacy Smith, Special Use Officer	Ongoing	Biology
U.S. Fish and Wildlife Service, Sacramento Valley Branch	Justin Cutler, Senior Biologist	Ongoing	Biology
National Park Service, Whiskeytown National Recreation Area	Karin Anderson, Cultural Resources Program Manager	Ongoing	Cultural
Bureau of Land Management, Alturas Field Office	Cheryl Foster-Curley, Archaeologist	Ongoing	Cultural
Bureau of Land Management, Redding Field Office	Eric Ritter, Archaeologist	Ongoing	Cultural

North Area ROW Maintenance EA

Agency or Affiliation	Name/Title	Date Contacted	Issue Area
U.S. Forest Service, Modoc National Forest	Gerry Gates, Forest Archaeologist	Ongoing	Cultural
U.S. Forest Service, Shasta-Trinity National Forest	Winfield Henn, Forest Archaeologist	Ongoing	Cultural
Northeast Information Center, California Historical Resources Information System	Amy Huberland, Associate Director	Ongoing	Cultural
Native American Heritage Commission	Debbie Pilas-Treadway, Environmental Specialist III	Ongoing	Cultural
Yreka, California	Richard Silva, Historian	Ongoing	Cultural

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