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1. INTRODUCTION

1.1 Study Area 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.

A Master Operation and Maintenance (O&M) Program has been prepared for all O&M activities within the North Area ROW. The Master O&M Program contains specific O&M plans for each land manager [National Park Service (NPS), Bureau of Land Management (BLM), and U.S. Forest Service (USFS)], as well as for private lands. This plan focuses on the requirements on private land.

Western has developed long-range maintenance and management strategies for the high voltage transmission lines and related facilities on private lands in central and northern California. The objectives of this O&M Plan are to:

1. prevent operational hazards;
2. provide access for maintenance;
3. protect facilities from fire;
4. control the spread of noxious weeds and protect environmental quality;
5. adhere to principles of Western's Integrated Vegetation Management (IVM) Program;
6. establish stable, low-growing plant communities under ROWs;
7. develop a technically and economically efficient program; and
8. protect public and worker safety.

The purpose of this document is to describe the routine O&M activities proposed by Western associated with its transmission lines, substations, communication system, microwave sites, and other ancillary facilities on private land. This plan outlines the O&M activities that will occur on private land within the North Area ROW. This O&M plan will apply to any and all Western contractors and their employees within the study area. Western is responsible for ensuring that all contractors and their employees are aware of the contents of this plan.

1.2 Western's Reliability and Safety Responsibilities

The overall Master O&M Program focuses on maintaining all facilities in Western's North Area ROW, thereby ensuring reliability of the transmission system and safe, all-weather access to the transmission line structures and other Western facilities. These objectives are consistent with reliability, safety, and environmental regulations and policies, including the National Electric Safety Code, the Western Systems Coordinating Council, North American Electric Reliability Council (NERC) Reliability Standards (Standard FAC-003-1 – Transmission Vegetation Management Program), and the Western directives for protecting human safety and maintaining system reliability. A detailed white paper listing Western's clearance requirements is provided in Appendix A.

Figure 1-1 Project Overview

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2. COORDINATION AND COMMUNICATION

2.1 Private Land Contact

To the extent possible, Western will contact land owners a minimum of 24 hours in advance of any Category B and C O&M activity (described in section 3.4) proposed on the land owner's property. Western will discuss the proposed maintenance activity with the land owner, including the magnitude and schedule of the planned O&M task.

2.2 Noncompliance

Western line crews (or representatives/contractors of Western) shall notify Western's Natural Resources Department if unacceptable resource damage occurs or if there is a violation of Western's standard operating procedures or project conservation measures. If damage to a land owner's property occurs, Western line crews (or representatives/contractors of Western) shall notify Western's Lands Department. Western Lands will immediately contact the land owner and discuss potential remedies.

2.3 Plan Amendments and Changes

Modification and/or changes to the O&M activities on private land will be negotiated between Western, the land owner, and the appropriate resource agencies (such as the U.S. Fish and Wildlife Service).

2.4 Tracking and Identification

It is anticipated that all activities and sites will be tracked by the tower numbers in Western's geographic information system (GIS) and/or the township, range and section numbers. These tracking units may be supplemented with 1:24,000 scale topographic maps and/or photos that identify tower numbers and the road system. See section 7 for more details on Western's GIS system.

3. OPERATION AND MAINTENANCE ACTIVITIES

Western's Operation and Maintenance (O&M) program has been developed to improve the safety and reliability of the electric transmission systems, including the 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 the TANC-owned/Western-maintained communication facilities. The program focuses on preventing transmission outages associated with vegetation interference (grow-in and fall-in) by maintaining clearances between the existing transmission lines and vegetation within and adjacent to the ROWs. In addition, maintaining safe and reliable access to the ROW is paramount to long-term sustainability of Western's infrastructure system, which must meet the North American Electric Reliability Council (NERC) directives, the Institute of Electrical and Electronics Engineers Inc. (IEEE) clearance guidelines, and Western's Order 430.1.

In general, Western will employ vegetation management practices that will promote low-growing native plant communities¹ within the ROW. The methods selected for vegetation management will depend on the sensitivity of the resources in the area, the existing vegetation conditions, the surrounding topography, and the protective requirements negotiated with resource agencies.

3.1 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.

3.1.1 Aerial Inspections

Aerial inspections will be conducted a minimum of every 6 months by helicopter or small plane over the entire transmission system to check for hazard trees² or encroaching vegetation, as well as to locate damaged or malfunctioning transmission equipment. Typically, aerial patrols will 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 will pass over each segment of the transmission line within a one-minute period.

¹ Low-growing native plant communities consist of native grasses, shrubs, forbs, and herbaceous species.

² 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.

3.1.2 Ground Inspections

Annual ground inspections will 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 allow for the inspection of hardware that will 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 are typically conducted by driving a pickup truck along the ROW and access roads. Detailed ground inspections will be performed on 20 percent of all lines and structures annually, for 100 percent inspection every 5 years. They will involve a shake test (i.e., manually shaking the knee braces of the tower to see if there is anything loose on the structure).

3.1.3 Climbing Inspections

Climbing inspections will 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 will occur if problems were identified during ground inspections. Typically, such activities will involve the use of a pickup truck or bucket truck.

3.2 Maintenance Activities

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

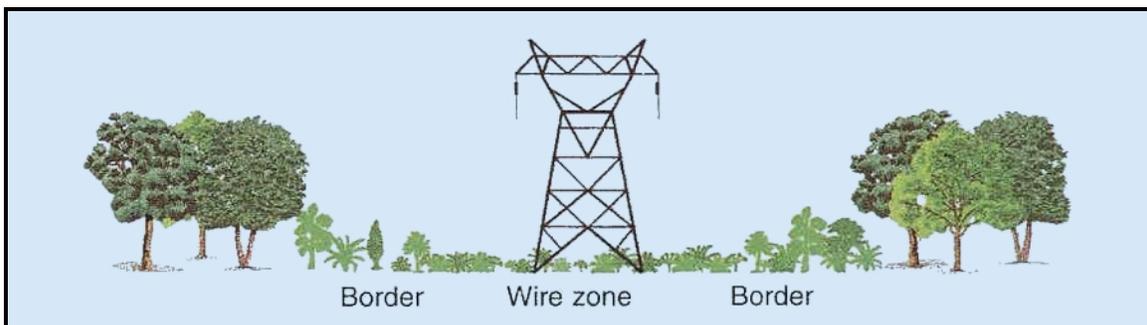
- **Vegetation maintenance (transmission line and access road ROWs).** Vegetation maintenance ensures that vegetation does not interfere with human safety, transmission line conductors, towers, or other hardware or impede access to the transmission line for maintenance crews. In general, vegetation maintenance can 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 B, 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 includes activities to ensure that legal access roads are in appropriate condition for all-weather access to transmission lines by maintenance and inspection crews. These activities 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 includes equipment and system upgrades, routine aerial and ground patrols of transmission lines and ROWs, and transmission system repairs.

3.2.1 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).

Establishment of a wire zone/border zone is a key consideration in the development of IVM programs. For most areas, Western will 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. Also, this approach will 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 3-1 is an illustration of the desired appearance of a ROW subject to the wire zone/border zone management practice.

Figure 3-1 Wire Zone/Border Zone Management Practice

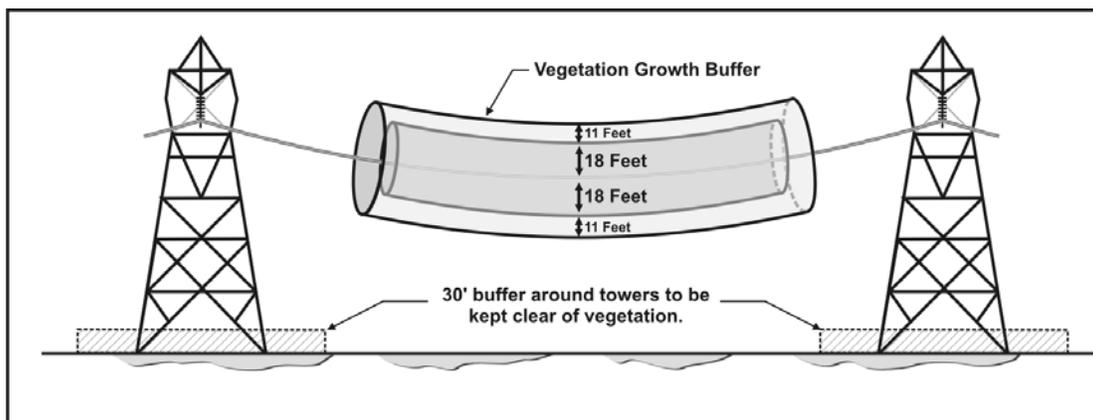


In specific areas where conversion of the ROW from naturally occurring tree-dominated native plant communities into a wire zone/border zone ROW is not appropriate, Western has developed a buffered vegetation management approach that maintains NERC's reliability standards (currently 18 feet of clearance from any vegetation). Under the buffered vegetation management approach, Western will maintain the required

clearance between vegetation and any point of the circuit or transmission system. As with the wire zone/border zone vegetation management approach, this approach will maintain 30 feet of clearance around each transmission tower or transmission structure. Benefits of this approach include the reduction of ground-disturbing activities and the related reduction in the establishment of nonnative plant species. Figure 3-2 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 recommends adding 60 percent to the clearance standard as a buffer to account for the sag in the line during high temperatures and high-load periods. As a result, the buffered vegetation management area will 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 (refer to Figure 3-2).

Figure 3-2 Buffered Vegetation Management Approach for 500-kV Line



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

As described above, Western proposes to implement a combination of vegetation management practices that are consistent with the principles of IVM. Depending on the area and the requirements, Western will develop specific prescriptions to manage vegetation along the ROWs (e.g., fuel shade break). The prescriptions will fall between the wire zone/border zone and buffered vegetation management approaches. (See Table 3-1 for example). The following paragraphs describe the general vegetation management methodologies identified for private lands.

Table 3-1 Sample IVM Prescription

Shaded Fuel Break Prescription
Vegetation within a 29-foot (or most recent requirement plus 60%) buffer of the conductor or that can encroach within the buffer will be manually removed.
Elderberry, redbud, fruit trees, and other low-lying vegetation (typically under 12 feet at maturity) will not be removed. Remaining brush (other than desirables) will be manually thinned to an average of 20 to 30 feet of spacing per single shrub or tree, and toyon will be favored for keeping over Manzanita, and oaks over knobcone pines.
30 feet of vegetation-free clearance will be maintained around each transmission tower or transmission structure.
Directional pruning, whereby trees are pruned to direct growth away from the conductors, will be used 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 acknowledges concerns related to the fuels left in the ROW and will promote the reduction of fuel load during vegetation management activities. All vegetation will be chipped (to not exceed 4 inches) and broadcast back into the ROW. Where access is limited, lopping and scattering (that would not exceed 12 inches from ground) must be authorized by Western prior to work.
When trimming is appropriate, all conifers will be trimmed back to the bole of the targeted tree.
Large-diameter trees will be limbed (branches less than 4 inches) and scattered so that the depth of the slash or tree boles does not exceed 18 inches in height.
Mechanical methods will be constrained where soils are susceptible to compaction or erosion.
Rubber-tired tractors will be prohibited on slopes exceeding 40 percent and on soils where there is a high potential for compaction and erosion (except on access roads). Slopes greater than 40 percent will be avoided by all mechanical equipment. The only exceptions will be on existing access roads and in designated areas where adverse impacts can be avoided.
Legal access roads will be brushed to 16-foot width. Western will refer to the map and land owners for questions and identification of access roads.

3.2.1.1 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 vegetation is removed. The primary disadvantages of manual methods are that they are labor intensive and they are only effective in relatively low-density vegetation. The manual vegetation control techniques employed by Western are described below.

CUTTING

The most commonly used manual method 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 height 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 may be appropriate in some cases (e.g., where large trees cannot be felled by cutting) if agreed to by the land owner. 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 may provide habitat for cavity-nesting species and other wildlife (Western 2007). Girdling could pose a fuels-management problem by having standing dead fuel mixed with live fuel, which can 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. Conifers will not be topped, although this treatment may be used on other species in rare cases as the situation dictates.

Trimming or pruning is the removal of selected branches from tree trunks for the same purposes, along with aesthetic preservation. Directional pruning is practiced by Western to the extent possible, 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 is the preferred method. For this approach, topping is not acceptable because it may encourage faster growth in an undesirable direction (i.e., toward the transmission lines).

SLASH DISPOSAL/FUELS REDUCTION

Manual cutting operations by Western are sometimes followed by slash disposal techniques designed to reduce fire hazards or to improve esthetic 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 or many of the following methodologies: it can be chipped and left on site; burned in piles; extracted from sites; or lopped and scattered.

3.2.1.2 Mechanical Vegetation Control Methods

Mechanical methods employ machines to remove or control vegetation. These methods are often nonselective in that certain plants cannot be targeted for removal or avoided. Mechanical methods, however, may be highly effective at controlling brush on gentle topography with few site obstacles. Most mechanical equipment is 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). In general, Western plans to use mechanical methods to remove vegetation from the existing ROWs, where feasible.

3.2.1.3 Herbicide Control Methods

Under the Proposed Action, Western may expand its use of herbicides for vegetation management. Western's use of herbicides is consistent with local herbicide-use regulations or guidelines.

An herbicide is a chemical used to kill or suppress the growth of plants. The most satisfactory classification of herbicides is based upon how they are used for 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 B provides detailed information on these herbicides. Western will use only employees or contractors with required applicator licenses/certificates.

Western will follow strict safety procedures and best management practices (BMPs) while applying herbicides. These practices, described in Western's Integrated Vegetation Management Guide and Transmission Vegetation Management Program (IVM) (Western 2007), are a part of the O&M program and will include the following:

- Reviewing Federal and California pesticide regulations for restrictions on use of particular herbicides;
- 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 endangered species, habitat, and wetlands), presence/proximity of non-target vegetation, and vegetation conditions (such as height and amount of tall-growing brush);
- Reviewing Western's environmental protection requirements;
- 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 to avoid accidental spills and ensure worker and public safety;
- Adjusting herbicide application methods based on wind speed and direction, which may include avoiding application on windy days when drift potential is greatest.

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 include stump treatment, basal spray treatment, foliage spray treatment, soils treatment, and under-surfacing materials treatment.

STUMP TREATMENT

Stump treatment is used when vegetation is cut to the ground line. This method is primarily used: 1) after initial clearing and 2) during maintenance clearing when trees have grown too tall to use foliage spray or when drift is an issue (Western 2007). Western currently applies either an oil-based herbicide mixture or a ready-to-use non-oil solution.

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 will be used on resprouting species and identified 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 will 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).

3.2.2 Access Road Maintenance

As part of the O&M program, Western must maintain safe and reliable access roads to the existing infrastructure. Western will comply with applicable land owner specifications.

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 in additional detail Western's approach to maintaining its existing legal access roads.

3.2.2.1 Clearing Culverts and Ditches

Existing culverts and ditches must be kept free of debris and obstructions. Ditches on newly constructed roads could require frequent cleaning and checking after each major storm until re-vegetation has occurred. It is a goal of Western 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 will:

- leave grass in the ditch unless it has filled with sediment and is 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; berms will channel water down the road.

3.2.2.2 Culvert and Ditch Specifications

CULVERTS

A culvert will be constructed of corrugated metal or corrugated steel. The area 10 feet upstream and downstream of a culvert and a width 2 feet wider than its diameter will be cleared.

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

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

Culverts need to be large enough to pass a 100-year flood at 67 to 75 percent of capacity. They will be designed to accommodate water velocities and flows necessary for fish, frogs, and other aquatic species to swim through the culvert. Culvert diameters will match the width of the stream at an average point. Stream widths will be measured at the top of the banks as this may best represent the stream size during normal high water or bank-full conditions. The angle or slope of the culvert will be equal to the stream grade to maintain an acceptable water velocity for fish passage. For culvert design specifications, refer to drawings in Appendix E. The designs presented in Appendix E 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 will 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 water bar design specifications, refer to drawings in Appendix E.

ROLLING DRAIN DIPS

A rolling drain dip likewise 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 rolling drain dip design specifications, refer to drawings in Appendix E.

3.2.2.3 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 will not sidecast removed material. Should slide debris occur, the cause will 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 may be required and stabilization of the remaining material may prevent further problems. The appropriate erosion and sediment controls will be installed on disturbed soils as soon as possible (i.e., before site work is finished). Mulching and other forms of erosion control will be used to prevent erosion.

3.2.2.4 Repairing Road Structures

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

- 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;
- Attempt to 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.

3.2.2.5 Controlling Erosion

Western will monitor for erosion, rehabilitate gullies and rills, and ensure that there are no ruts deeper than 3 inches.

3.2.2.6 Repairing Damaged Access Roads

For damaged access roads or roads with existing drainage and erosion problems, Western will 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 may 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, Western will adhere to the following BMPs:

- 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 and into vegetated areas;
- Disperse concentrated stream flows;
- Provide adequate run-off channels;
- Trim slopes to stable configurations and revegetate as soon as possible;
- Attempt to 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.

3.2.2.7 Removing Access Roads

Western will consider removing access roads that are no longer needed.

3.2.3 Transmission System Maintenance

The need for repairs and preventative maintenance activities is based on the results of inspections or other reports. Repairs and preventative maintenance activities include: replacing insulators; tightening, replacing, or repairing towers/poles or hardware; and looking for ROW encroachments. These activities will be performed wherever damage or deterioration of transmission lines or facilities poses a threat to safety or reliability. The type of equipment needed may include a pickup truck, bulldozer, backhoe, bucket truck, and hand tools, and will depend on the required repair or maintenance activity. For major activities, Western will coordinate with the land owner.

3.3 Equipment/System Upgrades

In order for the transmission system to operate in a safe, reliable, and efficient manner, Western needs to replace or upgrade system components based on the age, condition, and technology of the piece of equipment. System upgrades or replacements will include: new conductors, capacitor banks, transformers and breakers, small solar power arrays, and other electrical equipment.

3.4 Emergency Response

Emergencies are any event requiring immediate response to a condition by Western personnel. These may include, but are not limited to, car-to-pole contacts, downed poles, fires, transformer outages, and/or outages due to a downed wire as a result of an unexpected situation (e.g., extreme weather, fallen tree, etc.). Responding crews will vary in number and equipment needs depending on the size and severity of the emergency.

Western will assess the situation and then contact Western Dispatch Office. Western personnel will secure the site for worker and public safety. Western Dispatch Office will contact appropriate internal and external contacts to remediate, repair, or mitigate the

situation. Crews may be required to respond to an emergency in a remote area without roads. In areas without vehicle access, helicopters may be used to respond quickly to emergencies.

3.5 Operation and Maintenance Activity Categories

The following is a list of the O&M activities according to the associated level of potential effect to sensitive resources. 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

Western has developed project conservation measures (PCMs) designed to protect natural resources within the North Area ROWs and access roads. These PCMs were designed to reduce potential impacts and are based on the O&M categories named above and described below. PCMs include identification of limited operating periods, pre-activity flagging of resources, and equipment restrictions. Western will notify land owners of activities that require advance consultation.

Section 6 provides a list of PCMs that Western will follow. Sections 3.5.1 through 3.5.3 provide descriptions of each O&M category.

3.5.1 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 will cause no or nominal effects to sensitive resources as long as standard operating procedures (SOPs) are followed (see Table 5-1). Typical activities under Category A include but are not limited to:

Substation Maintenance

- Maintenance and replacement of transformers and breakers
- Servicing and testing of equipment at existing substations, including oil changeouts
- 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 switch yards
- Replacement of existing substation equipment including regulators, capacitors, switches, wave traps, radiators, and lightning arresters
- Installation of cut-out fuses
- Adjusting and cleaning disconnect switches
- Placement of temporary transformer
- Maintenance, installation and removal of solar power array and controller
- Installation of foundation for storage buildings above ground mat within existing substation yard
- New footings
- Ground mats 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 fenced substation

Transmission Line Maintenance

- Ground and aerial patrols
- Ground wire maintenance
- Aircraft warning device maintenance
- Insulator maintenance
- Bird guard maintenance
- Cross arm maintenance on wood pole transmission line 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 Maintenance

- 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

3.5.2 Category B – Routine Maintenance Activities

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

Transmission Line Maintenance

- Maintenance and repair of existing culvert
- Remove soil deposition around tower legs
- Ground anchors maintenance
- Fill in 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
- Place fill or rock(s) around existing culverts
- Place fill or rock(s) around existing towers or structures
- Vehicle and equipment staging
- Installation and repair of fences and gates
- Installation or replacement of overhead and underground 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

3.5.3 Category C – New Infrastructure

Category C maintenance activities are generally those that have the potential to disturb large areas and will utilize heavy equipment to complete particular tasks. Category C maintenance equipment could include, but is not limited to, the use of steel tracked and/or rubber tired bulldozers, graders, backhoes, and front-end loaders. Typical activities under Category C include, but are not limited to:

Transmission Line and Communication System Maintenance

- Adding new access roads
- Installation of new culverts
- Installation of new foundations 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/replacement within existing ROW
- Installation or replacement of overhead and underground power, communication or ground electrical line (greater than 100 feet)
- Remediation of small spill of oil and hazardous materials (greater than 10 gallons)

3.6 O&M Implementation

As described in section 7, Western has developed a comprehensive O&M geographic information system (GIS), which will be used as the baseline for proactively managing the sensitive resources in the field. Western has color-coded each span based on the resource sensitivities identified within the ROW, as well as the potential for the maintenance categories (A, B, C) to cause adverse effects. The following bullets provide the negotiated actions for each color.

- **Green** = Sensitive resources absent (no PCMs need to be followed); maintenance crews may proceed while complying with SOPs.
- **Yellow** = Maintenance crews must comply with applicable PCMs and SOPs; contacting Western's Natural Resources Department is not necessary unless there are questions regarding PCMs.
- **Red** = PCMs are of sufficient complexity to necessitate contacting Western's Natural Resources Department; securing a qualified monitor or consulting with tribes, SHPO, or other federal agencies may be required.

4. FIRE PLAN

This fire plan establishes standards and practices that will minimize the risk of fire danger, and in case of fire, provides for immediate suppression and notification.

4.1 Fire Call Directory

Should Western (or a representative of Western) identify a potential fire during maintenance activities, Western (or a representative of Western) will immediately call 911 and report the location and extent of the fire. All Western line crew supervisors will have the numbers of local fire agencies readily available, so that communication between Western and fire agency is conducted in a timely manner.

4.2 Fire Season

The fire season is largely dependent on the weather, fuel moisture, and the calculated fire indices. Fire season typically starts in June and ends in early October or when a season-ending rain event occurs. Most wildland fire starts occur in July and August; the most severe fires typically occur in August and September, when fuel moistures reach their yearly minimum. It should be noted that wildland fires have occurred in the area in all twelve months of a calendar year.

4.3 Fire Precaution Measures

4.3.1 Fire Conditions

During periods of high temperatures, dry vegetation, and/or high winds, Western (or a representative of Western) will be responsible for checking daily fire levels during fire season and to cease all operations when fire levels require emergency precautions. Depending on the fire risk, Western may schedule early morning work with no, or limited work in the afternoon hours. Western may also require the maintenance contractor to cease operations at any time due to a fire danger.

In extreme fire conditions, Western may require cessation of operations on a day-by-day basis based on the fire index. During fire season, Western (or a representative of Western) will have one full-time person (fire watch) for the sole purpose of monitoring the fire index and watching the mechanical operations for fire ignition. The fire watch will monitor the humidity level and cease mechanical operations if the humidity level falls below 20 percent.

Western (or a representative of Western) must stay on site one hour (or longer if required by land owner) after the end-of-the-day mowing operations to ensure fire safety.

4.3.2 Water Supply for Fire Fighting

For areas in remote locations or those areas that require mechanical mastication, a 300-gallon tank (minimum) filled with water will be stored at the worksite(s) during the

fire season. The tank will be equipped with an engine-driven pump and a minimum of 250 feet of hose. The water tank will be operational, mobile, and kept at the worksite.

4.3.3 Engines Equipped with Spark Arresters

All internal and external combustion engines at the worksite will be equipped with spark arresters on the exhaust. The arresters must meet the requirements established by the SAE Standard J335. The spark arresters must be properly installed and maintained at all times.

4.3.4 Other Fire Requirements

All maintenance crews using masticator machines will carry a working radio or cell phone to summon help in the event of a fire. During times of high fire danger, masticator machines will concentrate on standing trees, leaving high stumps, and keeping the chipper out of rocks. All equipment, including pickups/service vehicles and machines, will be equipped with a shovel, water pump, and fire extinguisher. Western (or a representative of Western) will follow all appropriate fire restrictions issued by Federal and state agencies.

5. STANDARD OPERATING PROCEDURES (SOPs)

Western has developed a set of SOPs to reduce public and worker safety hazards and limit the potential impacts to the environment associated with the maintenance activities described in section 3. These SOPs will be followed at all times, during all O&M activities, and throughout the entire project area. At a minimum, Western will conduct an annual training class on these procedures for all maintenance crews. Table 5-1 provides a list of SOPs by issue area.

These SOPs will also be included in all contracts and agreements with maintenance contractors. All contractors will be responsible for understanding the requirements, schedule limitations, and notification procedures associated with each SOP. Prior to each maintenance job, Western will reiterate to the contractor the importance in complying with the SOPs during all phases of the maintenance job.

Maintenance crews (Western personnel or contractors) will notify Western's Natural Resources Department of any noncompliance with an SOP. Western will review the noncompliance notice and discuss with the land owner and resource agencies any remedies associated with the noncompliance action, as appropriate.

Table 5-1 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.

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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 April 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/precscint.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. Short distances on slopes up to 40 percent will be allowable.
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. 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.
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.

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SOP	Description
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.
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.

SOP	Description
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	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.
PH-SOP-7	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.
PH-SOP-8	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.
PH-SOP-9	All flammable 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.
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).

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SOP	Description
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.
WR-SOP-8	Impacts to areas under the jurisdiction of the USACE and SWRCB shall be avoided to the extent feasible. Where avoidance of jurisdictional areas is not feasible and the action is not covered under nationwide permits and/or western's programmatic 401 permit, Western would obtain 404/401 permits applicable to the action. Western would perform an impact assessment for the O&M activity, which would identify and quantify the acreage of each jurisdictional area (wetland, riparian, etc.). Western would provide creation, restoration, or preservation mitigation consistent with the 404/401 permitting requirements. The mitigation shall be implemented prior to or concurrent with the action, would be in-kind habitat, would include the appropriate buffers to protect the functions and values of the jurisdictional mitigation area, and is anticipated would 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 would 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 would provide a complete accounting of impacts and mitigation.

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.

6. PROJECT CONSERVATION MEASURES (PCMs)

6.1 Development of PCMs

Western has completed extensive biological and cultural resource surveys along the North Area facilities, communication sites, transmission line ROWs, and documented access roads. These detailed surveys inventoried all biological habitat types, assessed the potential for sensitive species occurrence, and inventoried all cultural resources along Western’s ROWs and documented access roads. All of this site-specific resource information has been included in Western’s GIS as baseline for resource management during O&M activities. See section 7 for details on Western’s GIS database.

Western identified the different types of O&M activities that may occur along the ROW and documented legal access roads. These maintenance activities were grouped into three categories based on the level of potential adverse effects: Category A (inspection and minor maintenance activities), Category B (routine maintenance activities), and Category C (new infrastructure). See section 3.4 for a detailed description of the O&M categories.

Based on the occurrence or potential for occurrence of sensitive resources, as well as the projected O&M activities that may occur, Western developed PCMs to proactively protect the sensitive resources during O&M activities. Each sensitive resource has an associated PCM for each O&M category (A, B, and C). PCMs are listed in Table 6-1 (Special-status Plant PCMs), Table 6-2 (Special-status Wildlife and Fish PCMs), Table 6-3 (Water Resources/Aquatic Habitat PCMs), and Table 6-4 (Cultural Resource PCMs). PCMs protecting water resources and aquatic habitat will also protect fish, wildlife, and plants found in these habitats.

In accordance with the special-status species matrix below, federally and state-listed species will be protected on all ROWs on private land.

	Western ROW (PACI, CVP)	COTP ROW
BLM	<ul style="list-style-type: none"> • Federally listed species • State-listed species • BLM-sensitive species 	<ul style="list-style-type: none"> • Federally listed species • State-listed species • BLM-sensitive species
NPS	<ul style="list-style-type: none"> • Federally listed species • NPS species 	<ul style="list-style-type: none"> • Not applicable
USFS	<ul style="list-style-type: none"> • Federally listed species • State-listed species • USFS-sensitive species 	<ul style="list-style-type: none"> • Federally listed species • State-listed species • USFS-sensitive species
Private	<ul style="list-style-type: none"> • Federally listed species • State-listed species 	<ul style="list-style-type: none"> • Federally listed species • State-listed species

6.2 Implementation of PCMs

Prior to a particular O&M activity, Western will utilize the GIS database to identify the sensitive resources within the proposed O&M activity area. Based on the sensitive resources that are identified, GIS will display the associated PCM numbers identified for the proposed work area. The PCM number will be used to reference the PCM text in Table 6-1 through 6-4. Each PCM number has text describing the requirements associated with each O&M maintenance category (A, B, C). Generally, the PCM requirements for maintenance Category C (new infrastructure) are more stringent than those of Category A (inspection and minor maintenance activities).

Western will ensure that all maintenance crews (or maintenance contractors) understand each particular PCM identified in the work area. Compliance with all applicable PCMs will be included in the contract of each maintenance contractor.

6.3 Changes to PCMs

Should Western want to change a PCM for a particular resource, Western will contact appropriate resource agencies in writing and discuss the changes to the PCM. The revised PCM will be similar in magnitude and extent as the original PCM. Should a resource no longer require protection (e.g., delisted species) by U.S. Fish and Wildlife Service, State Historic Preservation Office, or other appropriate agency, Western will document the removal of the resource in a formal memo to the appropriate resource agency, and then remove the resource from Western's GIS database.

Western will update the GIS data when new resources require protection (e.g., newly listed species). Additionally, Western will review the GIS data at least once a year to verify that all resources are accurate. New resources may require new PCMs, depending on the resource and the O&M activity. Western will coordinate with appropriate resource agencies in developing new PCMs for newly listed resources.

Table 6-1 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. 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>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-013	<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	Follow all measures listed for A. 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.
PCM-B021	<i>Chamaesyce hooveri</i> Hoover's spurge	FT/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.
PCM-B021 (cont.)	<i>Chamaesyce hooveri</i> Hoover's spurge (cont.)	FT/CNPS List 1B.1 (cont.)	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-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 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-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.

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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 6-2 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 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.

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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	Follow SOPs and PCM-W001. 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. 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-B046a			A, B, and C	<u>Critical habitat</u> : Follow PCM-B046. 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-B047	Vernal pool tadpole shrimp <i>Lepidurus packardii</i>	FE	A, B, and C	Follow PCM-W001. 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 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-B047a			A, B, and C	<u>Critical habitat</u> : Follow PCM-B047. 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
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-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>

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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-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. 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 performed 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-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>

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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 asperimus</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 (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. 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 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	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. If O&M activities need to be conducted between February 1 and July 31, a Service-approved biologist ³ 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.
			B	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. If O&M activities need to be conducted between February 1 and July 31, a Service-approved biologist ³ 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. 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-B079a			A, B, and C	<u>Critical habitat</u> : Follow PCM-B079. 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-ID	Species Name	Status ¹	Activity Category	PCM
PCM-B080	Swainson's hawk <i>Buteo swainsoni</i> (nesting)	ST/FSS	A, B, and C	From April 1 to July 31 herbicide application and tree removal will be prohibited. 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 biologist ⁴ , 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 OR a qualified biologist will conduct nest surveys using methods described in SHTAC 2000 (or the most recent survey protocol) to determine absence.
PCM-B081	Tricolored blackbird <i>Agelaius tricolor</i> (nesting colony)	BLMS	A	Follow SOPs.
			B and C	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 biologist ⁴ 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. Follow PCM-W002.
PCM-B082	Western burrowing owl <i>Athene cunicularia</i> (burrow sites winter and summer)	SSC/BLMS	A	Follow SOPs.
			B and C	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). From September 1 through January 31, disturbance will be prohibited within 160 feet of potential burrowing owl dens. OR a qualified biologist ⁴ 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.

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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 blossevillei</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.

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PCM-ID	Species Name	Status ¹	Activity Category	PCM
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.
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 6-3 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 (cont.)	<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 6-4 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.

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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>

7. GIS DATABASE

Western has developed the Master O&M Program using a detailed GIS database. All sensitive resources were captured in the field and brought into a user-friendly GIS database that Western personnel can use to manage the O&M activities throughout the project area. Western has coordinated with federal land managers in developing this database, which will greatly enhance Western's capabilities in processing proposed maintenance activities in a timely manner.

All information needed to process a proposed maintenance activity is included in the GIS database. Western captured all infrastructure (i.e., towers, transmission lines, and access roads) in the ROW using GPS units; defined the North Area ROWs with polygons; obtained aerial orthophotography and conducted videography of the ROW; and took still photos of transmission line corridors. All data have a spatial accuracy of less than 5 meters horizontal resolution. This information can be accessed using ArcGIS or ArcView. The final GIS data includes specific locations for:

- gates;
- crossing lines – other transmission lines, pipes crossing the ROW, fences;
- crossing points – culverts, low water;
- cultural isolates;
- cultural diagnostic artifacts;
- cultural lines;
- cultural sites;
- cultural surveys – where protocol/nonprotocol surveys were conducted;
- species points and polygons;
- elderberry points and polygons; and
- habitat points, lines, and polygons.

Western has also provided datasets that can easily be reviewed:

- **Category A, B, C** – ROW span and access road polygons color-coded green, yellow, or red based on maintenance activity category and sensitive resource presence within each 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, and habitat polygon.

7.1 GIS Data on DVD/External Drive

Western has provided a DVD/External Drive with all files for the North Area O&M Program. The DVD/External Drive will include the following information:

- All GIS data listed above in shapefile format;
- Western's infrastructure data: transmission lines, ROW, access roads, structures, facilities, federal lands, various boundaries, street data;
- Aerial Ortho Imagery (MrSID or TIFF format) and image catalog;
- Aerial videos and tower photos;
- North Area EA MXD file to be used with ArcGIS;
- LinearVision Viewer 2.4.55 to view videos; and
- Readme.txt file.

7.2 GIS Data Accessibility

The GIS data will be accessed by Western resource staff and Western field crews. The following describes the data accessibility for each team member:

- Western's office staff will access GIS data and PCM information through the intranet ArcIMS site. Category A, B, C, and habitat layers are turned on through the table of contents list and each span or habitat is then identified for a list of resources and PCMs.
- Western's field staff will access GIS data and PCM information through the ArcPad field GIS application installed on field laptops. Category A, B, C, and sensitive-resource layers are turned on through the icon buttons at the top of the viewing window. ArcPad does not list sensitive resources and PCMs per span or habitat.
- Cooperating agencies will access GIS data and PCM information through the North Area EA MXD file for ArcGIS. A 9.2 version of ArcGIS ArcView is recommended. Category A, B, C, and sensitive-resource layers are turned on through the table of contents list and each span or habitat is then identified for a list of resources and PCMs.

7.3 GIS Definitions

Definitions for various GIS terms and acronyms are as follows:

- **ArcGIS ArcView** – a GIS application developed by Environmental Systems Research Institute (ESRI) in Redlands, CA.

- **ArcIMS** – internet mapping service application: a web application that serves up GIS capability developed by ESRI.
- **ArcPad** – a simple field GIS application developed by ESRI.
- **GIS** – geographic information system: allows access of spatial data through a graphic window or through a table. Each spatial feature (point, line, polygon) has a true world location and has associated attribute in a table.
- **GPS** – global positioning system: a system of satellites that allows field users to collect data precisely to the feature's true-world location.
- **MrSID** – compressed 20:1 aerial imagery file type using Lizardtech GeoExpress software.
- **MXD** – a project file to view GIS data in an ArcGIS ArcView application.
- **Shapefile** – a simple geographic file of point, line, polygon, with an associated table represented as a graphic in a GIS application.

8. REFERENCES

- USDA Forest Service. 2006. United States Department of Agriculture, Forest Service, Fuels Treatment Plan, June 14, 2006.
- _____. 2000. California–Oregon Transmission Project, Updated Easement Operations and Maintenance Plan, signed October 10, 2000.
- _____. 2000. Managing the Impact of Wildfires on Communities and the Environment, September 8, 2000.
- USDI Bureau of Land Management. 2006. United States Department of the Interior, Bureau of Land Management, California Fire Restriction and Emergency Closure Plan, February 2006.
- USDI National Park Service. 2004. United States Department of the Interior, National Park Service, Fire Management Plan Environmental Impact Statement for Whiskeytown National Recreation Area, Record of Decision signed August 25, 2004.
- _____. 2004. Whiskeytown National Recreation Area, 2004 Fire Preparedness Staffing Plan, 2004.
- _____. 2004. Fire Management Plan, Whiskeytown National Recreation Area, 2004.
- Western. 2007. Western Area Power Administration, Integrated Vegetation Management Guide and Transmission Vegetation Management Program, February 2007.
- _____. 2007. Transmission Vegetation Management Program Statement, February 2007.
- _____. Integrated Vegetation Management Environmental Guidance Manual, March 2003.
- _____. 2002. Draft Environmental Assessment for Right-of-Way Maintenance in the Sacramento Valley, California, May 2002.
- _____. 2001. Right-of-Way Maintenance Guidance for Danger Trees, Encroachments, and Access Routes, November 21, 2001.
- _____. 2001. Sierra Nevada Region Guides, Requirements, Instructions, and Procedures, GRIP No.16.

Appendix A

Clearance Requirements

APPENDIX A CLEARANCE REQUIREMENTS

Western Area Power Administration Clearance Requirements for Transmission Line Circuits White Paper

1. INTRODUCTION

This white paper provides a description of the regulations and guidance pertinent to the management of vegetation as it relates to the reliability of electric transmission systems. As described in the following sections, a variety of clearance standards is used throughout the industry.

According to a 2004 Federal Energy Regulatory Commission (FERC) report¹, the vast majority of transmission owners follow the National Electrical Safety Code (NESC) rules or American National Standards Institute (ANSI) guidelines, or both, when managing vegetation around transmission-system equipment. The NESC deals with electric safety rules, including transmission wire clearance standards, whereas the applicable ANSI code deals with the practice of pruning and removal of vegetation. In developing an effective, compliant, and environmentally responsible vegetation management approach, Western Area Power Administration (Western) has taken into consideration the regulations and guidance described within this white paper.

2. KEY STANDARDS RELATING TO ELECTRIC SYSTEM RELIABILITY AND SAFETY

The following standards, guidelines, rules, and regulations identify requirements and suggested practices for vegetation management in transmission line corridors.

2.1 National Electric Safety Code 1977, 2006

The NESC is the national code covering a variety of basic provisions regarding electric supply stations, overhead and underground electric supply and communication lines. It contains work rules for construction, maintenance, and operation of electric supply and communication lines and equipment.

NESC Rule 218 generally requires that "trees that interfere with ungrounded supply conductors should be trimmed or removed." Additionally, the rule is generally interpreted to require utilities to perform a "reasonable" amount of utility vegetation management (UVM) work. It does not specify cycles, clearances, program

¹ Utility Vegetation Management and Bulk Electric Reliability Report from the Federal Energy Regulatory Commission, September 7, 2004. <http://www.ferc.gov/industries/electric/indus-act/reliability/veg-mgmt-rpt-final.pdf>

requirements, performance objectives, or any other type of requirement that would result in meeting specific UVM objectives.

Rule 218 was revised in 2006 to note that utility experience is a key issue in developing clearance standards. Both the frequency of pruning and the distance by which vegetation is pruned back from the lines are affected by the line voltage class, the relative growth rates, and the failure characteristics of relevant plant species, right-of-way limitations, location of the vegetation relative to the conductors, potential movement of conductors and vegetation during routine winds, and the sag of conductors due to elevated temperatures or ice loadings.

NESC Rule 232, 233, and 234 prescribe clearances of wires from ground, structures, and other installations but provide no specific information with respect to clearances to vegetation. Rule 217A4 requires supporting structures to be kept free from climbing hazards, such as vines. However, no further specificity is provided.

2.2 American National Standards Institute

ANSI Z133.1 *Pruning, Trimming, Repairing, Maintaining, and Removing Trees and Cutting Brush – Safety Requirements* is the industry safety standard for working on vegetation in proximity to energized electrical apparatus. Table 2-1 provides the minimum approach distances from energized conductors for qualified line-clearance arborists. Table 2-2 provides the recommended distance from energized conductors for persons other than a qualified line-clearance arborist.

Table 2-1 Minimum Approach Distances from Energized Conductors for Qualified Line-Clearance Arborists

Nominal Voltage kV phase-to-phase	Distance (feet)	
	Sea Level to 5,000 ft	5,001 to 10,000 ft
230.0 – 242.0	8	9
500.0	19	21

Source: ANSI Z133.1 Revision – October 2000

Table 2-2 Minimum Approach Distances from Energized Conductors for Persons Other than a Qualified Line-Clearance Arborists

Nominal Voltage kV phase-to-phase	Distance (feet)
230.0 – 242.0	16
500.0	26

Source: ANSI Z133.1 Revision – October 2000

2.3 North American Electric Reliability Council Standards

NERC is a nonprofit corporation whose members are ten regional reliability councils. NERC's function is to maintain and improve the reliability of the North American integrated electric transmission system, including preventing outages from vegetation located in transmission ROWs, minimizing outages from vegetation located adjacent to ROWs, and maintaining clearances between transmission lines and vegetation on and along transmission ROWs. As a result of the recommendations following the August 14, 2003 blackouts on the East Coast, NERC was charged with developing a vegetation management standard that would be applicable to all utilities and that would provide greater specificity than the NESC and ANSI standards.

Standard FAC-003-1, Transmission Vegetation Management Program, became effective April 7, 2006 and mandatory for all utilities, pursuant to Section 1211 of the Energy Policy Act of 2005. This standard applies to all transmission lines operated at 200 kV and above and to any lower-voltage lines considered critical to the reliability of the electric system in the region. The transmission owner must prepare, and keep current, a formal transmission vegetation management program (TVMP). The TVMP must identify and document clearances between vegetation and overhead, ungrounded supply conductors, taking into consideration transmission line voltage, the effects of ambient temperatures on conductor sag under maximum design loading, and the effects of wind velocities on conductor sway. Minimum clearance distances shall be no less than those set forth in IEEE Standard 516-2003. Western's North Area transmission lines are 230 kV and 500 kV. As such, Western must demonstrate compliance with Standard FAC-003-1 and is in the process of developing a TVMP. As described in section 2.6, Western is developing Clearance 1 and Clearance 2 standards based on IEEE Standard 516-200 and OSHA Standard 1910.333 (c)(3)(i).

Clearance 1 requirements are defined as the appropriate clearance distances to be achieved at the time of transmission vegetation management. Clearance 2 requirements are the specific radial clearances to be maintained between the vegetation and conductors under all rated electrical operating conditions.

2.4 Institute of Electrical and Electronics Engineers (IEEE) Standard 516-2003

The Institute of Electrical and Electronics Engineers (IEEE) is a leading authority in setting standards for the electric power industry. Standard 516-2003, Guide for Maintenance Methods on Energized Power Lines, provides minimum vegetation-to-conductor clearances to maintain electrical integrity (see Table 2-3).

Table 2-3 IEEE Standard 516-2003: Minimum Vegetation-to-Conductor Distances

Voltage (kV)	Distance (ft)	Distance (m)
500	19	5.7
230	13	3.9

2.5 California Public Resource Code

Western also recognizes the California Public Resource Code (PRC) requirements associated with transmission-system safety issues.

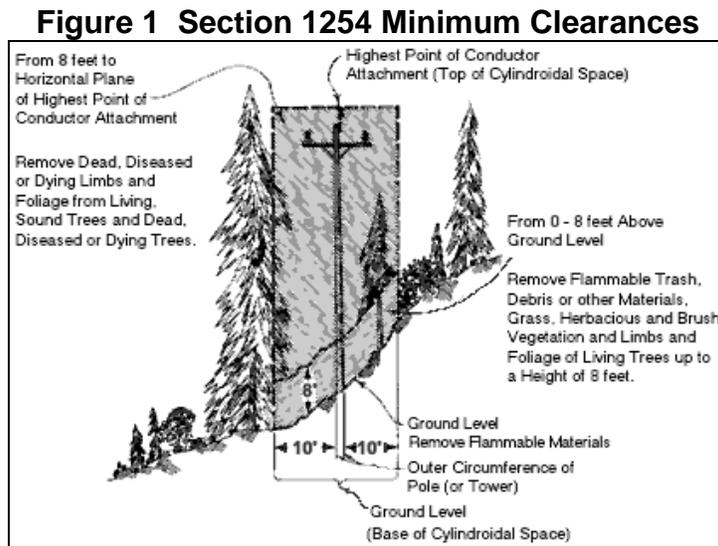
Section 4292 - Power Line Hazard Reduction

According to PRC Section 4292, Western shall coordinate with land managers to prevent fires caused by electric transmission-system equipment. Also, minimum clearing distances surrounding transmission support structures are specified. As stated in Section 4292:

Except as otherwise provided in Section 4296, any person that owns, controls, operates, or maintains any electrical transmission or distribution line upon any mountainous land, or forest-covered land, brush-covered land, or grass-covered land shall, during such times and in such areas as are determined to be necessary by the director or the agency which has primary responsibility for fire protection of such areas, maintain around and adjacent to any pole or tower which supports a switch, fuse, transformer, lightning arrester, line junction, or dead end or corner pole, a firebreak which consists of a clearing of not less than 10 feet in each direction from the outer circumference of such pole or tower.

Section 1254

The following is a graphical representation of Section 1254 showing the minimum clearances required around a utility pole.



The firebreak clearances required by PRC 4292 are applicable within an imaginary cylindrical space surrounding each pole or tower on which a switch, fuse, transformer or

lightning arrester is attached and surrounding each deadend or corner pole, unless such pole or tower is exempt from minimum clearance requirements by provisions of 14, CCR, 1255 or PRC 4296. The radius of the cylindroid is 3.1 m (10 feet) measured horizontally from the outer circumference of the specified pole or tower with height equal to the distance from the intersection of the imaginary vertical exterior surface of the cylindroid with the ground to an intersection with a horizontal plane passing through the highest point at which a conductor is attached to such pole or tower. Flammable vegetation and materials located wholly or partially within the firebreak space shall be treated as follows:

- At ground level - remove flammable materials, including but not limited to, ground litter, duff and dead or desiccated vegetation that will propagate fire.
- From 0 - 2.4 m (0-8 feet) above ground level remove flammable trash, debris or other materials, grass, herbaceous and brush vegetation. All limbs and foliage of living trees shall be removed up to a height of 2.4 m (8 feet).
- From 2.4 m (8 feet) to horizontal plane of highest point of conductor attachment remove dead, diseased, or dying limbs and foliage from living sound trees and any dead, diseased, or dying trees in their entirety.

Section 4293 - Line Clearance Guidelines

Section 4293 provides minimum distances of vegetation clearance from electrical conductor. As specified below, 10 feet in all directions between vegetation and transmission lines would apply to the transmission lines within the North Area Project.

Except as otherwise provided in Sections 4294 to 4296, inclusive, any person that owns, controls, operates, or maintains any electrical transmission or distribution line upon any mountainous land, or in forest-covered land, brush-covered land, or grass-covered land shall, during such times and in such areas as are determined to be necessary by the director or the agency which has primary responsibility for the fire protection of such areas, maintain a clearance of the respective distances which are specified in this section in all directions between all vegetation and all conductors which are carrying electric current:

- (a) For any line which is operating at 2,400 or more volts, but less than 72,000 volts, 4 feet.
- (b) For any line which is operating at 72,000 or more volts, but less than 110,000 volts, 6 feet.
- (c) For any line which is operating at 110,000 or more volts, 10 feet.

In every case, such distance shall be sufficiently great to furnish the required clearance at any position of the wire, or conductor when the adjacent air temperature is 120 degrees Fahrenheit, or less. Dead trees,

old decadent or rotten trees, trees weakened by decay or disease and trees or portions thereof that are leaning toward the line which may contact the line from the side or may fall on the line shall be felled, cut, or trimmed so as to remove such hazard. The director or the agency which has primary responsibility for the fire protection of such areas may permit exceptions from the requirements of this section which are based upon the specific circumstances involved.

2.6 Western Requirements

Effective March 18, 2008, WAPA Orders 430.1 and 450.3A establish guidance and organizational support for the maintenance and safe operation of Western Area Power Administration right-of-way (see Table 2-4). Responsibility for vegetation management and control belongs to Western, but functions are restricted based upon land and resource plans that dictate tree removal or trimming criteria within and adjacent to the ROW. Under this general guidance, vegetation management and control pertains to trees with the immediate potential to fall into transmission-system equipment (hazard trees).

The following table provides criteria for tree removal or trimming, as provided by the 2007 Power System Safety Manual (PSSM), Appendix B, Table B-1. The purpose of the PSSM is to provide direction and guidance necessary so that Western employees can perform work without injury or occupational illness, and to prevent accidents which result in personal injury, illness, property damage, or electrical system interruptions.

As described in section 2.3, Western is in the process of drafting a TVMP order to address NERC's FAC-003-1 clearance requirements. Table 2-4 provides clearance requirements based on information in NERC's FAC-003-1.

Table 2-4 Transmission Line ROW Clearing Requirements

Line Voltage (kV)	General ROW Width (feet)	Clearance 1 Requirements ^a Also WAPA O 430.1	Clearance 2 Requirements ^b
69	75	20 feet	3.3 feet
115	80	21 inches	3.2 inches
230	125 – 150	23 feet	5.3 feet
500	200	29 feet	11.3 feet

Notes: (a) Clearance 1 requirements are from WAPA Orders 430.1 and 450.3A. (b) Clearance 2 requirements are from Western's Power System Safety Manual, Appendix A, Table A-1.

2.7 Utility Vegetation Management and Bulk Electric Reliability Report, Federal Energy Regulatory Commission, Sept. 7, 2004

A CN Utility Consulting Vegetation Management Report² prepared on behalf of the FERC identified a number of preferred utility vegetation-management practices, including the following:

- Application of wire zone/ border zone concepts (Figure 2)
- Proper consideration of line sag and sway
- Frequent field inspection of vegetation conditions
- Comprehensive public education programs

The wire zone/border zone approach is considered both environmentally responsible and effective in ensuring reliability. This method involves creating a low-growing vegetation environment directly under transmission lines, which physically prevents dangerous vegetation from encroaching into energized transmission facilities. As a general rule, the higher the voltage, the more sensitive the line will be to tree-related faults. Therefore, higher-voltage transmission lines are typically located higher above the ground in comparison to lower-voltage lines to provide adequate distance from vegetation.

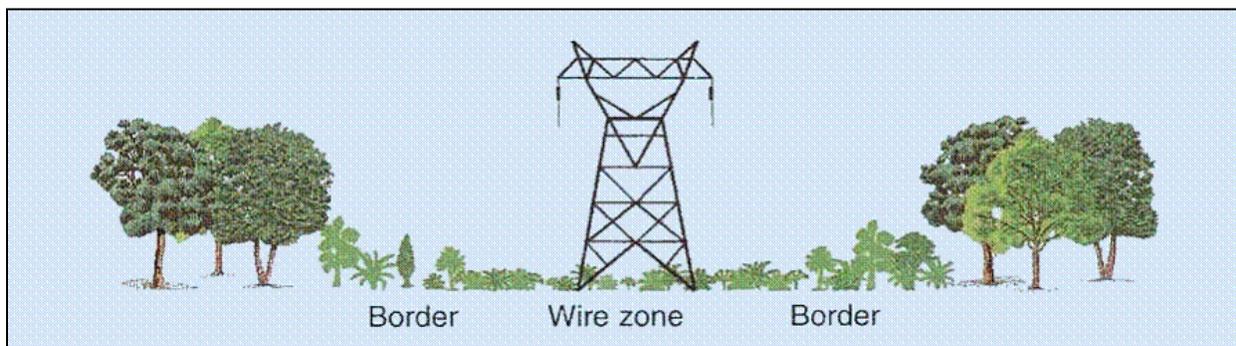
The report states that the wire zone/border zone has “been proven to be effective in reducing and/or eliminating outages related to vegetation on transmission ROW.” Additional benefits include reduced long-term maintenance costs, improved habitat for wildlife, biodiversity, and wildland fire mitigation.

Best management practices identified include the following:

- The ROW width should be determined based on the following objective: “No vegetation, or parts of vegetation, shall be allowed to grow or fall into the transmission facilities.”
- All transmission UVM work should be identified, scheduled, completed and maintained consistent with wire zone/border zone objectives and industry-accepted protocols.
- Conductor sag and sway must be considered whenever managing transmission ROWs.

² CN Utility Consulting, Utility Vegetation Management Final Report, (March 2004) (CNUC Final Vegetation Report). http://www.cnutility.com/images/uvm_final_report.pdf

Figure 2 Wire Zone/Border Zone



2.8 Memorandum of Understanding (MOU) Among the Edison Electric Institute and the U.S. Department of Agriculture (Forest Service), the U.S. Department of Interior (Bureau of Land Management, Fish and Wildlife Service, National Park Service) and the U.S. Environmental Protection Agency.

This MOU was created to enable Federal agencies and utilities to streamline and expedite the management of vegetation near utility facilities, including facilities on Federal lands. The purpose of the MOU is to establish a framework for developing cooperative rights-of-way integrated vegetation management (IVM) practices among the parties to the MOU. The MOU does not impose any binding obligations on any person. The National Park Service, Bureau of Land Management, and Forest Service are a signatory to the MOU, indicating that some level of cooperation with utilities is expected in the management of vegetation near utility lines.

3. CONCLUSIONS

There are many standards, guidelines, and rules that relate to vegetation management; only a handful actually apply to Western as a federal agency, but the provisions of all may be useful in any decision-making and planning undertaken by Western. As presented in this brief white paper, a majority of the clearance requirements are similar to protect public and worker safety, as well as to increase reliability of the system.

As directed by NERC Standard FAC-003-1, Clearance 2 standards must be as restrictive as IEEE Standard 516-200. In addition, Clearance 1 standards must be more restrictive than Clearance 2 standards. Western is using IEEE Standard 516-600 as the basis for developing Clearance 2 standards. Clearance 1 standards are based on Western's Power System Safety Manual, Appendix A, Table A-1.

Appendix B

Herbicide Information

APPENDIX B HERBICIDE APPLICATION

This section describes Western's approach to using herbicides to control vegetation along the North Area ROWs. The approach is based on Western's 2007 Integrated Vegetation Management Guidance (IVM) document and related operations and maintenance (O&M) activities planned for the North Area. Western has developed specific requirements for herbicide use on National Park Service (NPS), U.S. Forest Service (USFS), Bureau of Land Management (BLM), and private lands. Section 1 outlines Western's overall approach to herbicide use for vegetation management. Section 2 summarizes Western's negotiated approach for herbicide use on NPS, USFS, and BLM lands.

1. Western IVM Herbicide Procedures

Historically, Western's vegetation management activities have been restricted primarily to the control of vegetation that will pose a fire or safety hazard to transmission facilities. However, the IVM expands the vegetation-management activities to include the control of noxious or undesirable weeds and to promote low-growing plant communities within the ROW.

Western considered several factors when selecting the appropriate, effective, and safe herbicide for IVM. It is generally desirable to select an herbicide that has low toxicity, will not move from its target or leach into groundwater (low water solubility), and will not remain in the environment for a long period of time (low persistence). Western uses several different ways to apply herbicides. The method selected depends on the type of control needed, the type of vegetation, and the site situation (site conditions and locations). Some of the methods that Western utilizes are stump treatment, basal spray/treatment, foliage spray/treatment, soil treatment (preemergence), and under-surfacing materials treatment.

Sections 7 and 8 of the 2007 IVM provide a wealth of information on herbicide formulation, herbicide application, pre-application procedures, safety precautions, record keeping, and clean up. Table B-1 provides the list of herbicides Western plans to use on NPS, BLM, USFS, and private lands. Section 5 provides a list of standard operating procedures that Western will follow in applying herbicide. For example, PH-SOP-5 requires that all herbicide applicators will have received training and be licensed in appropriate application categories.

2. Western's Approach to Herbicide in NPS, USFS, & BLM

Western has been proactive in collaborating with the NPS, USFS, and BLM in order to understand their concerns with herbicide use on Federal lands. As such, Western has conducted several meetings with the respective agencies to discuss their concerns, especially the use of herbicides. Understandably, the use of herbicides is an important topic of concern. Western has recognized this extremely important issue and has taken initiative to learn more about the use of herbicides on Federal lands. Western has even attended herbicide training with David Bakke, Pesticide-Use Specialist and Invasive

Plants Coordinator State and Private Forestry, of the USFS. The training took place in Sacramento, CA on March 14-16, 2007. This training provided guidance on herbicide use and the associated human and ecological risks.

Western is responsible for the development of interagency agreements, which include the management of noxious weeds. Unlike on private lands where Western develops cooperative agreements with county agents or boards, on federal lands Western will defer compliance with federal and state weed-control laws and regulations to the landowner or administrator. Herbicide use on NPS, USFS, and/or BLM lands is restricted to specifically approved herbicides that the respective agency has approved for application on their jurisdictional lands.

Western will only use herbicides that have been approved and that have had human health and ecological risk assessments prepared. USFS has prepared comprehensive risk assessments for 14 herbicides routinely used in the forest (see website www.fs.fed.us/foresthealth/pesticide/risk.shtml). These documents quantitatively evaluate the probability that a given pesticide use might impose harm on humans or other species in the environment. Table B-1 provides a list of herbicides that Western may request to use on NPS, USFS, and BLM lands.

Table B-1 Herbicides Planned for Use in NPS, BLM, USFS and Private Lands

Herbicide	Trade Name**	EPA Registration Number	Use	Aquatic	Land Use Application			
					NPS	BLM	USFS	Private Lands
Bromacil and Diuron	Krovar [®] 1 DF**	352-505	Substations; non-sensitive areas only	No				Yes
Chlorsulfuron	Telar [®] DF**	352-522	ROW	No	Yes ¹	No	Yes	Yes
Clopyralid	Transline ^{®**}	62719-259	Noxious Weed Control	No	Yes ¹	No	Yes	Yes
2,4-D	Weedar 64 ^{®**}	71368-1	Substations, ROW	No	Yes ¹	Yes	Yes	Yes
	2,4-D LV6 Ester ^{®**}	228-95	Substations, ROW	No	Yes ¹	Yes	Yes	Yes
	HI-DEP ^{®**}	2217-703	Substations, ROW	No	Yes ¹	Yes	Yes	Yes
	2,4-D Amine 4 ^{**®}	1381-103	Substations, ROW	No	Yes ¹	Yes	Yes	Yes
Clopyralid and 2,4-D	Curtail ^{®**}	62719-48	Substations, ROW; noxious weed control	No				Yes
Dicamba	Vanquish ^{®**}	228-397	ROW (Stump Treatment), Substations	No	Yes ¹	Yes	Yes	Yes
	Banvel ^{®**}	51036-289		No				Yes
Dithiopyr	Dimension Ultra 40 [®]	62719-445	Landscaped Areas	No				Yes
Diuron	Karmex [®] DF**	1812-362	Substations	No				Yes
	Diuron 80 DF IVM [®]	62719-310	Substations	No				Yes
Flumioxazin	Payload [®]	59639-120	Bareground – Substations, <i>Kochia</i> control	No				Yes
Fosamine Ammonium	Krenite [®] S**	352-395	ROW	No				Yes
Glyphosate	Roundup [®] PRO**	524-475	Substations	No	Yes ¹	Yes	Yes	Yes
	Aquamaster [®] (aquatic)**	524-343	Areas near water,	Yes				Yes
	Rodeo [®] (aquatic)**		wetlands					Yes

North Area ROW Maintenance Program
 APPENDIX B HERBICIDE INFORMATION

Herbicide	Trade Name**	EPA Registration Number	Use	Aquatic	Land Use Application			
					NPS	BLM	USFS	Private Lands
		62719-324	Areas near water, wetlands	Yes	Yes ¹	Yes	Yes	Yes
Imazapyr	Arsenal [®] (liquid)**	241-346	Substations, ROW	No	Yes ¹	Yes	Yes	Yes
	Stalker ^{®**}	241-398	Stump Treatment	No	Yes ¹	Yes	Yes	Yes
	Arsenal [®] 0.5G**	34913-23	Substations	No				Yes
Oxyfluorfen	GoalTender [®]	62719-447	Landscaped Sites – Bareground Control	No	Yes ¹	Yes	Yes	Yes
Sulfometuron Methyl	Oust [®] XP**	352-601	Storage Yards, Subs	No	Yes ¹	Yes	Yes	Yes
Sulfometuron Methyl and Chlorsulfuron	Landmark [®] MP [®]	352-621	Bareground - Substations	No				Yes
Tebuthiuron and Diuron	Sprakil SR-13 ^{®*8}	34913-15	Substations	No				Yes
Mefluidide	Embarc [®] 2S** (Plant growth regulator)	2217-759	Buffers, around subs. (on grass)	No				Yes
Imazapyr and Diuron	Topsite 2.5G ^{®**}	34913-22	Substations, some ROW Substations	No				Yes
	Sahara DG ^{®**}	241-372		No				Yes
Tebuthiuron	Spike [®] 80DF**	62719-107	Substations	No				Yes
Triclopyr	Garlon 3A ^{®**}	62719-37	ROW	Yes	Yes ¹	Yes	Yes	Yes
	Garlon 4 ^{®*8}	62719-40	Stump Treatment	No	Yes ¹	Yes	Yes	Yes
	Garlon 4 Ultra [®]	62719-527		No	Yes ¹	Yes	Yes	Yes
	Pathfinder ^{®**}	62719-176		No				Yes
Pendamethalin	Pendulum WDG [®]	241-340	Substations	No				Yes
Oryzalin	Surflan A.S. [®]	70506-44-829	Substations	No				Yes
Fluroxypyr	Vista [®]	62719-308	ROW, Substation esp. for Kochia	No				Yes
Pacllobutrazol	Profile 2SC [®] (Tree growth regulator)	67690-22	ROW (sensitive areas) Substations	No				Yes

Herbicide	Trade Name**	EPA Registration Number	Use	Aquatic	Land Use Application			
					NPS	BLM	USFS	Private Lands
			(screens)					
Trifluralin	Biobarrier® Biobarrier II®	59823-1 59823-3	Substations, yards	No				Yes

* NPS does not pre-approve herbicides. On an annual basis, Western shall submit to the NPS regional office an application with intended herbicides and amounts, and identify target species and locations.

NPS shall enter the request into the Pesticide Use Proposal system and track its approval process.

Appendix C

Noxious Weed Management

APPENDIX C NOXIOUS WEED MANAGEMENT

Summary

Western has prepared an Integrated Vegetation Management Guide and Transmission Vegetation Management Program Report (IVM) (February 2007). This document presents Western's vegetation management program. Section 11 of the report is contained in this appendix. It provides a detailed approach to noxious weed management and includes descriptions (Figures 11-1A to 11-1P) and general treatment information (Table 11-1) for selected noxious weeds. For up-to-date listings of weeds being introduced and spread in California, Western will consult resources provided by the California Invasive Plant Council (www.cal-ipc.org).

11.1 INTRODUCTION

Western's historical vegetation management activities have been restricted primarily to the control of vegetation which poses a fire or safety hazard to transmission facilities. The existing vegetation management control program has now been expanded to be more proactive, with active management toward the desired condition of a low growth community on the right-of-way, as well as the control of noxious or undesirable weeds. The following sections describe Western's Noxious Weed Management Policy and its implementation during all stages of construction and maintenance activities.

11.2 BACKGROUND

Virtually all noxious weed species are non-native plants that have found ideal growing environments in North America. In their native habitats, insects, competing organisms, and soil and moisture conditions combine to keep these weeds in check. But in the western United States, an ideal environment, coupled with the species' prolific reproductive capabilities (seed production) and the lack of natural predators, have allowed noxious weeds to become established and to spread rapidly on both public and private rangeland and farmland. Furthermore, disturbance from human activities and development may enhance the probability of non-native plant establishment. However, few strategies for minimizing the spread of non-native species exist. As a result, crop yields and wildlife habitat are being reduced, livestock is poisoned, native plants are displaced, and rangeland in good ecological condition is being invaded. The threat to biological diversity and native ecosystems is a critical issue to most parks.

There are several internet sites with useful information on noxious weeds. A selection of these is provided in Appendix H of WAPA's Integrated Vegetation Management Guide and Transmission Vegetation Management Program (IVM), 2007.

11.3 FEDERAL, STATE AND COUNTY LAWS/REGULATIONS

The Federal Noxious Weed Act of 1974, as amended by Sec. 15, Management of Undesirable Plants on Federal Lands, 1990, mandates each Federal land management agency to:

1. Designate a lead office and person trained in the management of undesirable plant species
2. Establish and fund an undesirable plant management program
3. Complete and implement cooperative agreements with State agencies

4. Establish integrated management systems to control undesirable plant species

Federal agencies responsible for the management of public lands have established an interagency committee which agreed to work cooperatively to manage noxious weeds, increase public awareness, support further research, and provide technical assistance on private lands to accomplish an integrated approach to the management of noxious weeds. All Federal land management agencies have a designated weed coordinator or similar position, which can be found on the agency websites.

Western's General Counsel has concluded that language in the act requires Western to take action on lands we own and have jurisdiction over, including easements and rights-of-way. Additionally, the Department of Energy's (DOE) Office of Environmental Guidance has instructed Western to comply with all Federal and State mandates to control undesirable weeds.

Within Western's service area, all states except Texas have passed laws that address noxious weed management and have developed State noxious weed lists (see Appendix B of IVM 2007- State Noxious Weed Lists). Additionally, the majority of State weed management laws allow the governing body of a weed management district (usually the county) to designate additional undesirable plants for management within its jurisdiction. For example, in 1990 the Colorado Legislature passed the Colorado Undesirable Plant Management Act (HB 1175) requiring county governments to develop integrated weed management plans that would include Federal agency involvement in controlling specific weeds in Colorado. Therefore, **be sure to check with the appropriate County agency** (usually a Weed Management Board) for county-specific requirements.

11.4 FEE-OWNED VERSUS NON-FEE-OWNED LANDS

Western's land management and rights administration fall within two general areas; fee-owned/withdrawn and non-fee-owned (easements, rights-of-way, permits, etc.). Weed management practices, responsibilities, and liabilities for these two situations are quite different. In the fee-owned/withdrawn situation, Western is the property owner/administrator and must assume the burden of full compliance with the weed laws. In the non-fee-owned situation, Western must defer to the landowner or administrator as the responsible party for compliance with Federal and State laws, while ensuring that any actions taken are not detrimental to the rights held by Western.

Implementation of Western's noxious weed policy should be prioritized according to Western's vested interest in the land. First priority for noxious weed control should be on those lands owned by Western in fee. Second priority for control of noxious weeds should be on non-fee-owned Federal lands where transmission facilities either cross or occupy Federal land and where noxious weed infestations occur within permitted areas. Third priority for control of noxious weeds should be on or across non-Federal government lands.

The following sections are proposed guidelines for Western weed management involvement under the two general areas described above.

11.4.1 Western Fee-Owned/Withdrawn Property

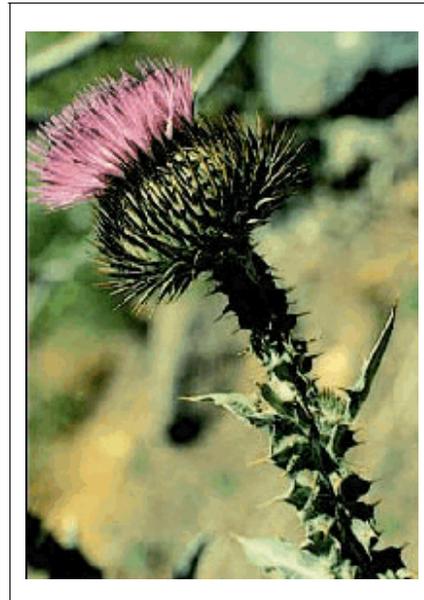
Western shall be responsible for the inventory, treatment, and control of those weed species identified by State and/or county noxious weed laws. While current weed control practices generally involve the eradication of all vegetation within controlled sites, such as substations, other fee-owned property, such as buffer zones, receive minimal weed management effort. Given Western's responsible and liability under the Federal law, Western has looked to State law for coordination and compliance requirements, including the identification of target undesirable plants. Western shall be responsible for the inventory, treatment, and control of those weed species identified by State and/or county noxious weed laws. Where necessary, the Western Regional Office will notify the County Agent or County Board of Western's weed management activities.

Where chemical (herbicide) control is carried out by Western personnel, all spray crew personnel should be familiar with the identification of noxious weed species targeted for management by the state/county. Figures 11-1A through 11-1P provide photos of some common noxious weed species. After targeted weed species are identified, Western-approved herbicides can be selectively applied to remove the undesirable species, while maintaining and encouraging the development of desirable shrubs and grasses. Table 11-1 lists the most common noxious weeds expected to be encountered in Western's service area and the herbicides recommended for each weed. For problem weed infestations such as Canada and musk thistle, knapweeds, and ragweeds outside the substation or yard, the herbicide Transline[®] provides excellent control. The active ingredient is clopyralid. It is registered for selective control of broadleaf weeds in non-cropland areas, industrial manufacturing and storage sites and rights-of-way. By removing only unwanted weeds and brush, Transline[®] allows grass to live, thus preserving a grassy ground cover which prevents erosion.

Where vegetation management activities on Western fee-owned land involve contractor application of herbicides, language in statements of work should instruct the contractor to not only control weed growth within the security fence, but also to selectively control the growth of state/county targeted weed species on nearby Western fee-owned land. These fee-owned lands generally include substations and buffer zones, access roads, and electric transmission line approaches.

Noxious Weeds

SCOTCH THISTLE (*Onopordum acanthium*) (Source: The British Columbia Ministry of Agriculture and Food)



GROWTH HABIT: Biennial, sometimes annual, erect, up to 8 ft. tall. **Rosette formed first year, flowering stem elongates second year.**

LEAVES: Large, coarsely lobed, **hairy on both sides, velvety gray appearance.** Margins lined with sharp conspicuous spines. Basal leaves up to 2 ft. long and 1 ft. wide.

STEMS: Erect, branching, **spiny leaf wings extend down onto stem,** covered with dense fine hairs.

FLOWER: Solitary, terminal, 1 to 2 inches in diameter violet to reddish colored. Bracts spine tipped.

ROOTS: **Large fleshy taproot.**

SEEDS: Deep brown to black, distinctly wrinkled, 3/16 in. long.

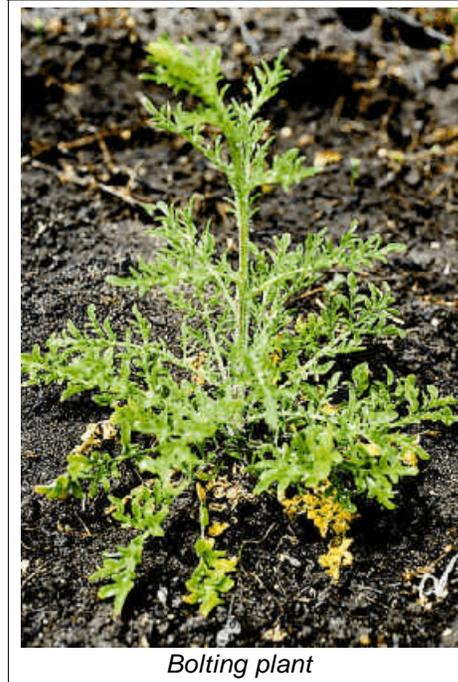
OTHER: **Reproduce by seed only.** Dense stands may be impenetrable to livestock.

FIG. 11-1A

Noxious Weeds

DIFFUSE KNAPWEED (*Centaurea diffusa*)

(Source: The British Columbia Ministry of Agriculture and Food)



GROWTH HABIT: Annual or biennial, bushy, up to 2 ft. tall. **Rosette formed first year flowering stalk elongates second year.**

LEAVES: **Greyish-green**, alternate, basal leaves whorled, **upper leaves much reduced. Covered with fine hair.**

STEM: **Hairy**, erect, **single main stem** from a rootstock, branched near or above the base.

FLOWER: Solitary, usually white, sometimes pink, rose or lavender; **seedhead bracts end as sharp, rigid spines.**

ROOTS: Elongated taproot.

SEEDS: Oblong, dark brown or grey with **longitudinal lines.**

OTHER: May seriously reduce productive potential of infested rangelands.

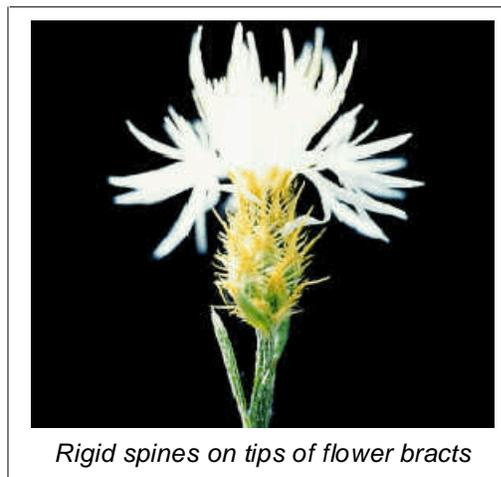
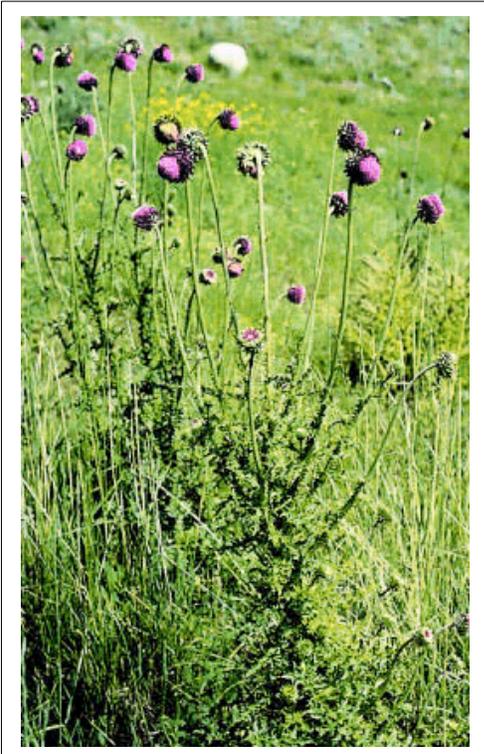


FIG. 11-1B

Noxious Weeds MUSK THISTLE (*Carduus nutans*)

(Source: The British Columbia Ministry of Agriculture and Food)



Large flowers with spine-tipped bracts "nod" at maturity

GROWTH HABIT: Biennial, or winter annual, erect up to 7' tall. Freely branching. **Rosette formed 1st year, flowering stem elongates 2nd year.**

LEAVES: Dark green with light midrib, hairless on both sides, long sharp spines.

STEM: Hairless.

FLOWER: Solitary, terminal, **nodding heads 1 1/2" to 3" diameter, deep rose to violet to purple.**

ROOTS: Fleshy **tap root**, hollow near ground surface.

SEEDS: Can be in excess of 20,000 per plan with 90% viable. Ninety percent may germinate in first 2 years. Seeds may germinate after 10 years in soil.

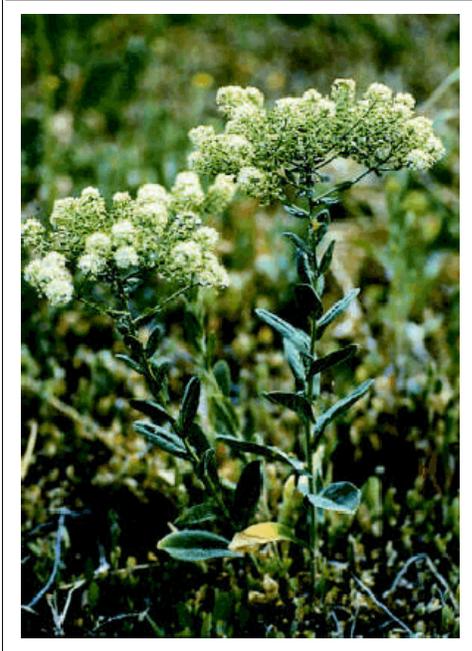
OTHER: **Reproduce by seed only.**

FIG. 11-1C

Noxious Weeds

HOARY CRESS (*Cardaria draba*)

(Source: The British Columbia Ministry of Agriculture and Food)



Heart-shaped seedpods



"White-top" infestation

GROWTH HABIT: Perennial herb, up to 24" tall, erect, **becoming lodged with age.**

LEAVES: Alternate, lance-shaped and slightly irregular, **greyish-green, base of upper leaves clasping stem.**

STEMS: Stoutish, branched toward top.

FLOWERS: Small, white, 4 petals; numerous flower branches and dense flowers give plant a **dense, white, flat-topped appearance.** Numerous white flowers produced at the top of the plant gives rise to its other common name of "white-top".

ROOTS: **Extensive** horizontally and vertically **frequent shoots arising from root stocks.**

SEEDS: Reddish-brown, granular, egg-shaped, contained in heart-shaped pods.

OTHER: **Flowers early** (April and May), **reproduces by seeds, root stocks and creeping roots.**

FIG. 11-1D

Noxious Weeds
FIELD BINDWEED (*Convolvulus arvensis*)
(Source: The British Columbia Ministry of Agriculture and Food)



GROWTH HABIT: Perennial **vine**, reproducing from seeds and roots.

LEAVES: Alternate, simple, **arrowhead-shaped, rounded or blunt tipped.**

STEM: **Prostrate, twining and mat-forming**, up to 10 ft. long.

FLOWER: **Funnel-shaped**, pale pink to white, up to 1 in. wide; **two small scale-like bracts** attached below flower on flower stem.

ROOTS: **Creeping rhizomes**, extensive.

SEEDS: Four per capsule, dark grey to reddish brown, three sided.

OTHER: Seeds viable over 60 years. **Often confused with wild buckwheat which has heart-shaped sharp pointed leaves and tiny inconspicuous flowers.**

FIG. 11-1E

Noxious Weeds
SPOTTED KNAPWEED (*Centaurea maculosa*)
(Source: The British Columbia Ministry of Agriculture and Food)



Flowerhead bracts with black-tipped fringe giving head a "spotted" appearance

GROWTH HABIT: Biennial or short lived perennial, up to 3 ft. tall. **Rosette formed first year flowering stalk elongates second year.**

LEAVES: Long and divided below, **short and narrow above. Covered with fine hair.**

STEM: Erect with slender wiry branches. **Covered with fine hair.**

FLOWER: Seed heads mostly on branch tips solitary, to 1" diameter. **Pink to purple, rarely white. Seed head bracts are black tipped**, with 5 to 7 pairs of short feathery appendages.

ROOTS: Taproot not well developed.

SEEDS: Brownish, 1/8" long, notched on one side of base, short tuft of bristles at tip end.

OTHER: Very aggressive, can infest large areas quickly, offers very little big game or livestock forage value.

FIG. 11-1F

Noxious Weeds
PLUMELESS THISTLE (*Carduus acanthoides*)
(Source: The British Columbia Ministry of Agriculture and Food)



Spiny winged stems

GROWTH HABIT: Biennial, sometimes annual, erect, up to 8 ft. tall. **Rosette formed first year, flowering stem elongates second year.**

LEAVES: Dark green with a light midrib, hair only on the underside, leaf margin with sharp spines.

STEMS: To 4 ft. tall, erect, **winged to flowering heads.**

FLOWER: Solitary, terminal or clusters of 2 to 5. Narrow seedhead bracts spine tipped. **Reddish-purple blooms 1/2 to 1 inch diameter.**

ROOTS: Stout fleshy taproot.

SEEDS: Striped lengthwise, slightly curved, with a protrusion at one end.

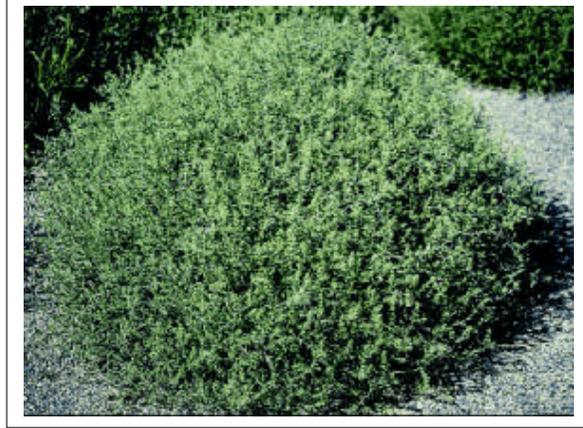
OTHER: **Reproduce by seed only.**

FIG. 11-1G

Noxious Weeds

RUSSIAN THISTLE (*Salsola kali*)

(Source: The British Columbia Ministry of Agriculture and Food)



Spine-tipped leaves



Seedling

GROWTH HABIT: Annual which reproduces by seed.

LEAVES: Alternate with the first ones being dark green, soft, slender, and 1 to 2 1/2 inches long. These drop off and later leaves are short, stiff, spiny, with two sharp-pointed bracts at the base.

STEM: Rounded, bushy, much branched, annual growth to 1.2 meters in height; stem usually red or purple striped.

FLOWER: Inconspicuous, green with 2 spiny-tipped stiff bracts.

SEEDS: Can produce over 200,000 seeds per plant.

OTHER: Nicknamed "tumbleweed" when mature plants blow on the wind.

FIG. 11-1H

Noxious Weeds *KOCHIA (Kochia scoparia)*

(Source: The British Columbia Ministry of Agriculture and Food)



Seedling



Flower clusters

GROWTH HABIT: Annual, erect, up to 6 ft. tall, spreading by seeds.

LEAVES: Narrow, bright green, hairy, numerous and attached directly to the stem. The upper leaves are narrow. Entire margins often turn purple in autumn.

STEM: Erect, round, slender, pale green, much branched. Main stem often tinged with red.

FLOWER: Inconspicuous in the axils of upper leaves.

OTHER: Also called Fireweed or Mexican burning bush.

FIG. 11-11

Noxious Weeds
CANADA THISTLE (*Cirsium arvense*)
(Source: The British Columbia Ministry of Agriculture and Food)



GROWTH HABIT: Perennial, erect, up to 4 ft. tall.

LEAVES: Varies from **light to dark green, oblong or lance-shaped**, deeply cut, spiny toothed margins (some may be smooth), slightly hairy below. Tremendous leaf variability.

STEM: Smooth to **slightly hairy**, branched at top.

FLOWER: **Small bristly clusters, 3/8 to 5/8 inch in diameter**, light lavender to deep rose purple. Plants are male or female.

ROOTS: Extensive, fleshy, **creeping root stocks**.

SEEDS: Smooth, light to dark brown, tipped by a cupped conical point, approx. 1/8" long.

OTHER: Reproduces by seed and creeping rootstocks.

FIG. 11-1J

Noxious Weeds
LEAFY SPURGE (*Euphorbia esula*)
(Source: The British Columbia Ministry of Agriculture and Food)



Greenish-yellow flower clusters and bracts



Creeping rootstocks

GROWTH HABIT: Perennial, erect, up to 3 ft. tall, spreading by seed or **creeping roots**.

LEAVES: Alternate, **long, narrow**, 1/4" wide and 2" long, usually drooping.

STEMS: Branched near top, hairless, **entire plant contains milky sap**.

FLOWERS: Inconspicuous, surrounded by **large heart-shaped floral leaves** which turn **yellow-green** near maturity.

ROOTS: **Brown, numerous pink buds**, deep spreading, very persistent.

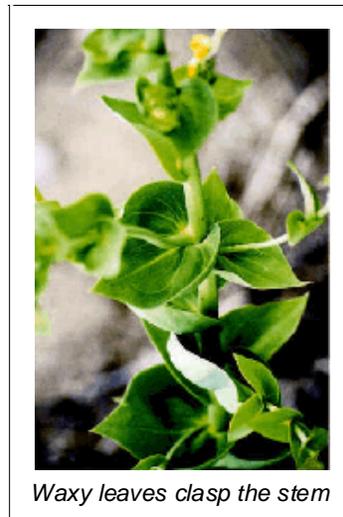
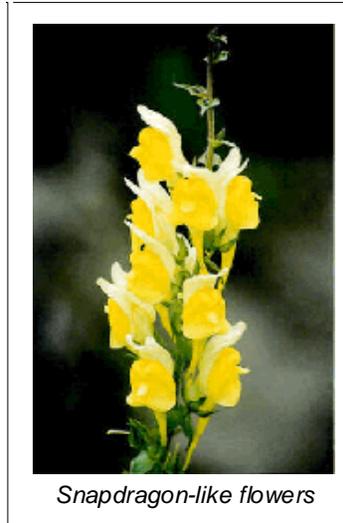
OTHER: Grows in nearly all soil types and habitats. Seed is thrown to 20' by exploding seed capsule. All parts of the plant contain a white milky latex that can irritate skin of livestock and humans.

FIG. 11-1K

Noxious Weeds

DALMATIAN TOADFLAX (*Linaria dalmatica*)

(Source: The British Columbia Ministry of Agriculture and Food)



GROWTH HABIT: Perennial, often over 3 ft. tall, erect.

LEAVES: Light green, alternate, **broad, heart-shaped**, clasping the stem.

STEM: Branching, light green, smooth, and **leafy**.

FLOWERS: Snapdragon type, **bright yellow**, tinged with orange, **to 1 1/2" long with long spur**, born in upper leaf axils.

ROOTS: Vigorous, deep and extensive, **creeping roots**.

SEEDS: Numerous, irregularly angled.

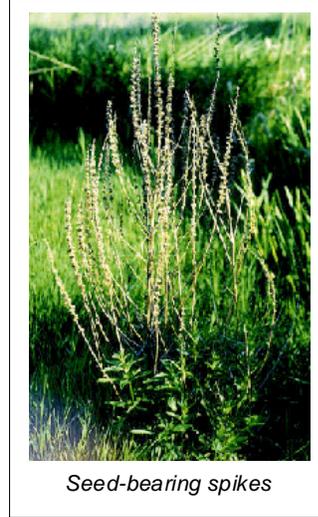
OTHER: Spread by seed and creeping roots. Likely introduced to North America as an ornamental.

FIG. 11-1L

Noxious Weeds
PURPLE LOOSESTRIFE (*Lythrum salicaria*)
(Source: The British Columbia Ministry of Agriculture and Food)



Purple flowers produced on terminal spikes



Seed-bearing spikes

GROWTH HABIT: Wetland perennial, 1 1/2 to 8 ft. tall in height.

LEAVES: Opposite or sometimes whorled stalkless leaves.

STEM: Stiff, four-sided stem.

FLOWERS: Purple flowers in a dense terminal spike.

ROOTS: Woody taproot and branching fibrous root system.

SEEDS: Can produce over 2.5 million seeds annually.

OTHER: Sometimes confused with fireweed (*Epilobium angustifolium*), many infestations have resulted from escape of ornamental varieties. Highly aggressive invader species. If left unchecked, a wetland will eventually become a monoculture of loosestrife. This plant poses a severe threat to waterfowl habitat.



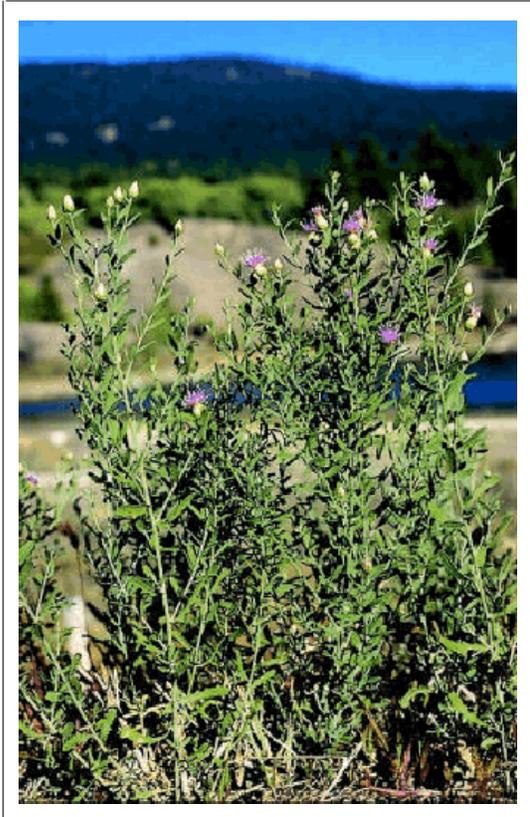
Fireweed

FIG. 11-1M

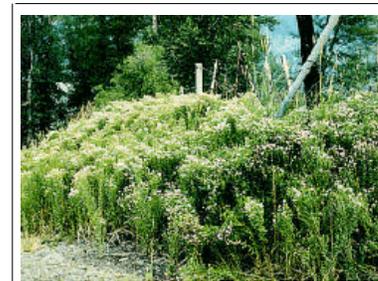
Noxious Weeds

RUSSIAN KNAPWEED (*Acroptilon repens*)

(Source: The British Columbia Ministry of Agriculture and Food)



Purple flower with papery margined bracts



Creeping roots produce dense infestations

GROWTH HABIT: Perennial herb, up to 3 ft. tall, erect, may be in dense clumps. Greyish color.

LEAVES: Alternate, simple, of **several types:**

Upper leaves - small, narrow, unbroken edge;

Stem leaves - intermediate in size, slight toothed margins;

Basal leaves - deeply notched.

STEM: Numerous branched, each ending with a single flower.

FLOWER HEAD: Single, **terminal, lavender, thistle-like, scaly seed head.**

ROOTS: **Dark brown to black and heavily scaled.**

SEEDS: Flattened, ivory-colored, **retained in cup-shaped seed heads.**

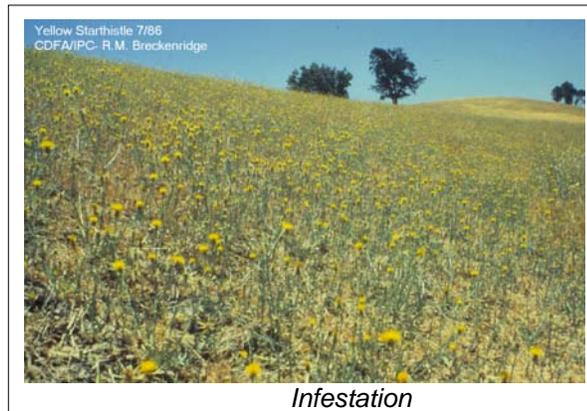
OTHER: Leaves and stems covered with short stiff hairs giving **plant an appearance of knap.** Spreads by seeds and creeping rootstocks. It is very poisonous to horses.

FIG. 11-1N

Noxious Weeds

YELLOW STARHISTLE (*Centaurea solstitialis*)

(Source: California Department of Food and Agriculture)



GROWTH HABIT: Annual, sometimes biennial, erect, to 6 feet tall.

LEAVES: Alternate, mostly linear and somewhat narrowly oblong to oblanceolate.

STEM: Stiff, openly branched from rear or above the base. Leaf bases extend down stems, giving a winged appearance.

FLOWER: Heads ovoid, spiny, solitary on stem tips, consisting of numerous yellow disk flowers.

ROOTS: Tap roots grow vigorously early in the season to depths of 3 feet or more.

SEEDS: Barrel-shaped, about 2 – 3 mm long, with broad bases; laterally notched at the base.

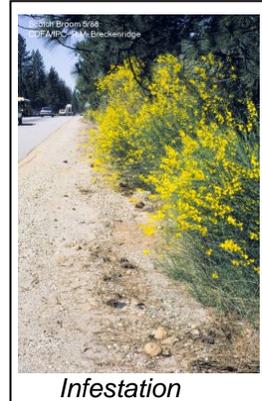
OTHER: Usually senesces in late summer or early fall.

FIG. 11-10

Noxious Weeds

SCOTCH BROOM (*Cytisus scoparius*)

(Source: California Department of Food and Agriculture)



GROWTH HABIT: Shrubs, up to 7 feet tall.

LEAVES: Alternate, compound, 3 leaflets; sometimes single on new twigs. About 5 - 20 mm long, oblong to obovate.

STEM: Erect, dense, green; sharply 5-angled or ridged, and star-shaped in cross section, often with few leaves.

FLOWER: Bright yellow, pea-like, single or paired in leaf axils. Calyx typically less than 5 mm long, 2-lipped, glabrous.

ROOTS: Taproots deep, branched, associated with nitrogen-fixing bacteria.

SEEDS: Pods mature June – July; are dark brown to black, flattened, about 2 - 5 cm long, densely lined with long silky golden to silvery hairs, and contain an average of 5 - 9 seeds.

OTHER: Tolerate frost, but die back after severe cold. Ants attracted to seed appendages and disperse seed while foraging.

FIG. 11-1P

TABLE 11-1 HERBICIDES FOR NOXIOUS WEED CONTROL

Noxious Weed (Common Name)	Recommended Herbicide(s)	Optimum Treatment Time	Quantity	Notes
Canada Thistle	Vanquish [®] +2,4-D	End of bud stage or fall	1 quart each/acre	--
	Tordon [®] +2,4-D		1 quart each/acre	--
	Tordon [®] +Vanquish [®]		1 pint each/acre	--
	Curtail [®] (Clopyralid +2,4-D)	From rosette (6-8 inches) up to pre-bud stage.	2 quarts/acre	--
	Transline [®]		12-16 ounces/acre	--
Musk Thistle	Telar [®]	Bud to early bloom or fall.	1 ounce/acre	Roadside/non-crop land use
	Vanquish [®] +2,4-D	Rosette stage (spring and fall)	1 pint + 1 quart/acre	--
	Tordon [®] +2,4-D		.5 pint + 1 quart/acre	--
	Tordon [®] +Vanquish [®]		.5 pint + 1 pint/acre	--
	Telar [®]	After bolt up to early flower stage.	1 ounce/acre	--
	Curtail [®] (Clopyralid +2,4-D)	Rosette (spring or fall) up to pre-bud stage.	2 quarts/acre	--
Leafy Spurge	Transline [®]	Rosette stage (spring and fall) to pre-bud stage.	12-16 ounce/acre	--
	Tordon [®] +2,4-D	Spring during true flower stage or fall to regrowth.	1-2 pints + 1 quart/acre	3-4 years consecutive treatment necessary.
	Vanquish [®] +2,4-D		1-2 quarts + 1 quart/acre	Should combine chemical control with other methods - e.g., chemical or cultural.
	Roundup [®] +2,4-D	Treat 2-3 times/season with first treatment at true flower stage and subsequent treatments at 30 day intervals.	.5-1 pint + 1-2 pints/acre	Use under trees or combine with reseeding of competitive perennial grass.

North Area ROW Maintenance Program
APPENDIX C NOXIOUS WEED MANAGEMENT

Noxious Weed (Common Name)	Recommended Herbicide(s)	Optimum Treatment Time	Quantity	Notes
Russian Knapweed	Tordon [®] +2,4-D	Bud Stage or fall.	1 quart each/acre	--
	Vanquish [®] +2,4-D		1-2 quarts + 1 quart/acre	--
	Curtail [®] (Clopyralid +2,4-D)	Rosette to early flower.	3 quarts/acre	--
	Transline [®]		18-24 ounces/acre	--
	Telar [®]	Fall.	1 ounce/acre	--
Diffuse and Spotted Knapweed	Tordon [®]	Rosette to early bolt.	1 pint/acre	--
	Tordon [®] +2,4-D		12 ounces + 1 quart/acre	--
	Tordon [®] + Vanquish [®]		.5-1 pint +1-2 pints/acre	--
	Vanquish [®] +2,4-D		1 pint + 1 quart/acre	--
	Curtail [®] (Clopyralid +2,4-D)		2 quarts/acre	--
Field Bindweed	Vanquish [®] +2,4-D	During flower stage or fall.	1 quart each/acre	--
	Tordon [®] +2,4-D		1 quart each/acre	--
	Tordon [®] +Vanquish [®]		1 pint each/acre	--
Hoary Cress (Whitetop)	Telar [®]	Bud to early bloom stage.	.5-1 ounce/acre	Roadside/noncropland
			.5-.75 ounce/acre	Range/pasture
	2,4-D amine	Apply first treatment at early bloom stage, second treatment at mid summer (July), and third treatment to any fall regrowth.	2-3 quarts/acre	--

North Area ROW Maintenance Program
APPENDIX C NOXIOUS WEED MANAGEMENT

Noxious Weed (Common Name)	Recommended Herbicide(s)	Optimum Treatment Time	Quantity	Notes
Perennial Pepperweed (Tall Whitetop)	Telar [®]	Bud to early bloom stage and fall rosette.	1 ounce/acre	Roadside/noncropland
	2,4-D amine	Apply first treatment at early bloom stage, second treatment at mid summer (July), and third treatment to any fall regrowth.	2-3 quarts/acre	--
Yellow and Dalmation Toadflax	Tordon [®]	Bud to early bloom.	1-2 quarts/acre	When using 1 quart/acre treat for 2-3 conservative years
Kochia	Vista [®]	Apply to actively growing weeds.	2/3 - 1 1/2 pt/ac	--
Yellow Starthistle	Transline [®]	Apply from rosette to mid-bolt growth stage.	½ - 1 pint/acre	--
	Roundup [®]	Apply when actively growing.	1 pound AI/acre	--
	HI-DEP [®]	Apply to rosette.	1-2 pounds AI/acre if late in season	--

Sources: Colorado Weed Management Association, Dow, and UC Davis website

Western's completed and approved vegetation management guidance can be used as a vehicle for entering into good neighbor Weed Management Plans, when necessary, with Federal, State, or local government entities. This practice will help to ensure consistency throughout Western. The vegetation management guidance includes any or all of the following:

- Site Specific Weed Inventories
- Integrated Approaches for Control
 - Mechanical Control (Manual, Mowing)
 - Biological Control (Introduce Natural Insect Predators, Grazing)
 - Chemical Control (Herbicides, Fertilizers)
- Environmental Protection Requirements and Best Management Practices
- Herbicide Application Certification Requirements
- New Vegetation Control Methods Procedures
- Monitoring and Reporting Procedures

11.4.2 Western Non-fee-Owned Rights

The administration of Western's rights on other than fee-owned land is difficult to assess in terms of responsibility and liability, especially where weed control is at issue. As stated in the assumptions above and pertaining to weed management responsibility, Western will defer compliance with Federal and State weed control laws and regulations to the landowner or administrator. There is a potential liability issue associated with this assumption in terms of "cause and effect". Weed occurrences may have resulted from or may have been accelerated by construction activities associated with transmission line and related facilities installations. Given the relationship of Western as a right-holder on the land and the fact that it is in Western's best interest to develop a good neighbor policy, Western would provide funding support, where deemed appropriate and where funds are made available, to the government entity responsible for compliance with the Federal and State laws.

The following subsections provide a breakdown of Western's activities involving the various landowner/administrator situations.

Rights On or Across Federal Lands

Western is responsible for the development of Interagency Agreements (IA) which includes the management of noxious weeds (see Section 2.4 of IVM 2007). Where there are active county-wide weed management programs, Western will advise the county of its ongoing efforts with other Federal agencies and will support the integration of such efforts when in the best interest of the government to do so.

IAs will be developed with the Federal agency with surface administration jurisdiction, where necessary. As in the case of BLM, an environmental impact statement was finalized in 1991 that specifies their weed control commitment in the Western States, excluding California. BLM assumes the responsibility of weed management planning and implementation on all lands within their administration. If necessary, Western may execute an IA providing for funding support given Western's right-of-way and Western's acceptance of the estimate and availability of funds.

The Colorado River Storage Project Office and the CSO - Office of Environment developed IAs with Colorado western slope Forest Service District Offices in 1994 and 1995. These agreements can serve as examples for other State weed control activities, where necessary.

Executed IAs will be forwarded to the specific County Agent or Board, when applicable, to ensure coordination and as an effort to demonstrate Western's good intentions toward controlling specific weed problems.

Rights On or Across Non-Federal Government Entities (State or Local)

Cooperative agreements will be developed with State or local government entities with surface administration jurisdiction, where necessary. These government entities are responsible for compliance with State laws, as well as the EPA regulations concerning the application of herbicides. The entity would provide Western with a plan and, after approval and availability of funds, Western will direct transfer of funds to the designated representative. Copies of executed cooperative agreements will be forwarded to the County Agent or Board for coordination purposes, where applicable.

Rights On or Across Private-owned Lands

Cooperative agreements will be developed with County Agents or Boards in those counties where weed management plans have been implemented and where private lands containing Western facilities and their associated rights are within identified weed control areas. The County Agent or Board would be responsible for the inventory and identification of targeted undesirable plants or private lands and the corresponding Western easement. Where Western concurs with the findings and recommendation for control, including cost estimates, funding may then be directed to the respective county representative. Direct coordination with the landowner is not recommended due to the requirements for compliance with State law and EPA regulations. Payments to landowners who are not certified or trained in herbicide application are, in themselves, a liability concern.

11.5 BEST MANAGEMENT PRACTICES FOR NOXIOUS WEED MANAGEMENT

Best Management Practices (BMPs) for weed control will be used to reduce the spread of noxious weed and to increase the effectiveness of treatment. The following lists BMPs that should be considered for use within Western's service area:

- Learn how to identify high-priority weed species. Identification is the first step—know your weeds!
- Report new infestations to the appropriate resource manager.
- Treat intensely when a new or small patch is found; monitor the site periodically and repeat physical removal of the weed or treat with herbicides.
- Inspect roads before maintenance to prevent the spread of weeds by vehicles or equipment.
- Inspect bare soil or disturbed sites frequently for weeds.
- Understand the biology of the weed, including the growth stage, to identify the best and most effective management practices.
- Use seed, hay, and mulch that are certified weed-free.
- Avoid the introduction of ornamental flowers that are on State or county invasive species lists.

- Re-seed areas immediately after disturbance with an appropriate mix of native, competitive species.
- Avoid transporting weed seeds on clothing, vehicles, and equipment.
- Avoid driving in noxious weed infested areas with your vehicle and then traveling to unaffected areas; restrict travel to established roads and trails. .
- Whenever possible, clean all construction and maintenance equipment before moving between sites.

Drought causes plants to shut down their growth process. Spraying weeds during dry periods is not recommended because effectiveness is greatly reduced. Treat after rainfall if the weed is still in the proper growth stage for control.

Not all herbicides work equally on all weeds nor can every herbicide be used in every situation. Read the label, use the information provided in this manual, and consult weed experts and manuals for the most effective treatment method and chemical.

Appendix D

Habitat Descriptions

APPENDIX D HABITAT DESCRIPTIONS

Habitat Types Present in the Project Area

Agriculture, rice (Agri); rice fields, note if flooded or fallow

Agriculture, orchard (Agor); fruit trees, note type if can

Agriculture, pasture (Agps); note if irrigated

Agriculture, grain (Aggr) alfalfa, hay; note if irrigated

Agriculture, vineyard (Agvn); grapes, kiwi

Agriculture, row crop (Agrc); tomatoes, root crops, safflower, etc.; note type if can

Agriculture, nursery/garden (Agga); note type

Barren (Bar); rock, pavement, sand, etc.

Chaparral, mixed (Cmi); shrub dominant, chamise, buckthorn, poison oak, fremontia, toyon; <5,000'

Chaparral, montane (Cmo); mostly evergreen shrub, manzanita, ceanothus, chinquapin; 3,000-10,000'

Chaparral, oak (Coa); dense, tall, live/blue oak, manzanita, toyon, buckbrush, poison oak; Sierra foothills

Commercial, industrial (Com); developed land use other than residential or farms

Elderberry, isolated (Ebis); elderberry shrub not in savanna setting

Elderberry, savanna (Ebsv); note elderberry savanna boundary and associated dominant plants

Forest, Douglas fir (Fdf);tall evergreen Doug fir w/tanoak, madrone, pines, black oak; 1,000-4,000'

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'

Forest, ponderosa pine (Fpp); >50% ponderosa pine, cedar, fir, blk oak, live oak, tanoak;800-5,000'

Forest, white fir (Fwf); white fir dominant, live oak, chinquapin, squawcarpet; 4,500-5,000'

Golf (Glf); golf course

Grasslands, non-native annual/ naturalized (Gnn); soft chess, wild oats, ripgut, ryegrass;<3,000'

Grasslands, native perennial (Gnp); soft chess, orchardgrass, oatgrass, fescue, hairgrass

Gully (Gully); gully in access road, note if repairs needed

Levee (Lev); man-made levee structure

Meadow, other (Mot); seasonally dry swales, ann. grasses, forbes, some meadow species when wet

Meadow, wet montane (Mwm); herbaceous, sedges, rushes, corn lily, clover; >3,940'

Other (Oth); describe habitat type with dominant species

Park (Prk); maintained public park

Riparian, Great Valley forest (Rgf); valley oak, blk walnut, sycamore, cottonwood, elderberry;<500'

Riparian, Great Valley scrub (Rgs); willows, elderberry, verbena, blackberry; <1,000'

Riparian, montane aspen (Rma); Aspen, willows, alders, cottonwood, aspen, pines; 6,500-9,850'

Riparian, montane scrub (Rms); willows, alder, dogwood, near montane meadows; <8,000'

Riparian, montane white alder (Rmw); white alder, maple, ash, bay, willow, cottonwood;<6,000'

Scrub, sagebrush bitterbrush (Ssb); big sagebrush/bitterbrush, ponderosa, juniper; 1,600-10,500'

Urban (Urb); lawns, trees, backyard

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); note origin

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 (note type)

Wetlands, freshwater marsh (Wfm); perennial sedge, rushes, nutgrass, cattail, bulrush; <7,500'

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

Woodland, black oak (Wbla); black oak, ponderosa, cedar, live oak, manzanita; 200-8,000'

Woodland, blue oak (Wblu); blue oak, foothill pine, valley grassland understory; <3,000-4,000'

Woodland, foothill pine-chapparal (Wfp); foothill pine, blue oak, buckeye, ridges and canyons

Woodland, live oak (Wlo); live oak, foothill pine, toyon, buckbrush, coffeeberry, foothills <2,000'

Appendix E

Culvert and Drainage Dip Descriptions

