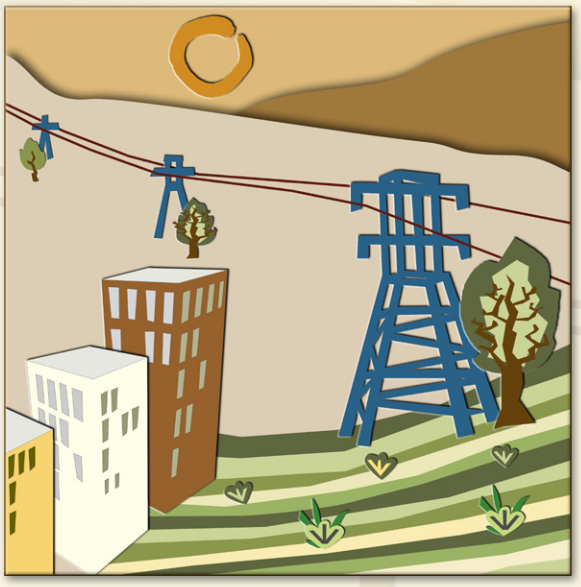

FINAL ENVIRONMENTAL ASSESSMENT for RIGHT-OF-WAY MAINTENANCE IN THE SACRAMENTO VALLEY, CALIFORNIA

August 2005

VOLUME I:
Chapters 1 through 9 and Appendix A

Western Area Power Administration

DOE/EA-1395

WESTERN AREA POWER ADMINISTRATION

FINAL
ENVIRONMENTAL ASSESSMENT
FOR
RIGHT-OF-WAY MAINTENANCE IN THE
SACRAMENTO VALLEY, CALIFORNIA

AUGUST 2005

DOE/EA-1395

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ACRONYMS AND ABBREVIATIONS

AIRFA ..... *American Indian Religious Freedom Act*

ANSI ..... American National Standards Institute

APE ..... area of potential effect

BMP ..... best management practice

BO ..... Biological Opinion

BPA ..... Bonneville Power Administration

CDFG ..... California Department of Fish and Game

CERCLA ..... *Comprehensive Environmental Response, Compensation, and Liability Act*

CESA ..... *California Endangered Species Act*

CFR ..... *Code of Federal Regulations*

cfs ..... cubic feet per second

CNDDB ..... California Natural Diversity Database

CSPD ..... California State Parks Department

CVP ..... Central Valley Project

CWA ..... *Clean Water Act*

DOE ..... U.S. Department of Energy

DOT ..... U.S. Department of Transportation

DWR ..... California Department of Water Resources

EA ..... Environmental Assessment

EIS ..... Environmental Impact Statement

EPA ..... U.S. Environmental Protection Agency

EPCRA ..... *Emergency Planning and Community Right-to-Know Act*

FIFRA ..... *Federal Insecticide, Fungicide, and Rodenticide Act*

ACRONYMS AND ABBREVIATIONS (CONTINUED)

FONSI..... finding of no significant impact

ft ..... foot/feet

GPS..... global positioning system

GRIP..... guides, requirements, instructions, and procedures

HMTA ..... *Hazardous Materials Transportation Act*

IVM ..... integrated vegetation management

kV ..... kilovolt

mi..... mile(s)

mi^2 ..... square mile(s)

MSDS ..... material safety data sheet

NCP ..... National Contingency Plan

NEPA..... *National Environmental Policy Act*

NESC..... National Electrical Safety Code

NHPA ..... *National Historic Preservation Act*

NRHP ..... National Register of Historic Places

NWPs ..... nationwide permits

OSHA ..... Occupational Safety and Health Administration

PM_{10} ..... particulate matter equal to or less than 10 microns in diameter

RED..... Reregistration Eligibility Decision

ROW..... right-of-way

RWQCB..... Regional Water Quality Control Boards

SARA..... *Superfund Amendments and Reauthorization Act*

SCS ..... Soil Conservation Service

ACRONYMS AND ABBREVIATIONS (CONCLUDED)

SHPO ..... State Historic Preservation Officer

SNR ..... Sierra Nevada Region

SRA ..... shaded riverine aquatic

SVAB ..... Sacramento Valley Air Basin

SWRCB ..... State Water Resources Control Board

TCP ..... traditional cultural property

TMDL ..... total maximum daily load

USDA ..... U.S. Department of Agriculture

USFWS ..... U.S. Fish and Wildlife Service

USGS ..... U.S. Geological Survey

VELB ..... Valley elderberry longhorn beetle

WAPA ..... Western Area Power Administration

Western ..... Western Area Power Administration

WSCC ..... Western Systems Coordinating Council

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1.0 PURPOSE AND NEED FOR ACTION

1.1 INTRODUCTION AND BACKGROUND

The Western Area Power Administration (Western), a power marketing administration of the U.S. Department of Energy (DOE), owns, operates, and maintains all or a portion of seven 230-kilovolt (kV) transmission lines and one 115-kV transmission line in Placer, Sacramento, and Sutter counties, California (Figure 1-1). Western must comply with the National Electric Safety Code (NESC), Western Systems Coordinating Council (WSCC), and Western directives for protecting human safety and maintaining the reliable operation of the transmission system.

Western has a Biological Opinion (BO) from the U.S. Fish and Wildlife Service (USFWS) addressing current routine right-of-way (ROW) maintenance practices for these transmission lines (USFWS 1998). The BO identifies threatened and endangered species and their habitats and identifies avoidance measures to apply based on Western's current routine ROW maintenance methods. However, Western proposes expanding the scope of these maintenance methods. This Environmental Assessment (EA) was developed to support further Endangered Species Act Section 7 consultation required when Western conducts maintenance activities that are beyond those covered in the 1998 BO. The Draft EA was delivered to the public on May 24, 2002. Public comments and responses are in Appendix H. On March 30, 2005, the USFWS released a new BO (USFWS 2005; see Appendix B), to be tiered under the 1998 BO. This new BO covers maintenance activities described for the proposed action, presented in this EA, within the study area (Figure 1-1).

1.2 PURPOSE AND NEED FOR ACTION

The purpose of the proposed action is to maintain transmission line and access road ROWs to ensure that Western's maintenance crews have safe and all-weather access to transmission line structures, consistent with safety and environmental regulations and policies. In meeting this purpose, Western's objectives are to maintain its transmission line ROWs to

- Protect public safety,
- Achieve technical and economic efficiency to minimize impacts on transmission line rates,
- Prevent operational hazards,
- Protect facilities from fire,
- Control the spread of noxious weeds,
- Maintain sound relationships with landowners and managers, and
- Streamline regulatory permitting activities.

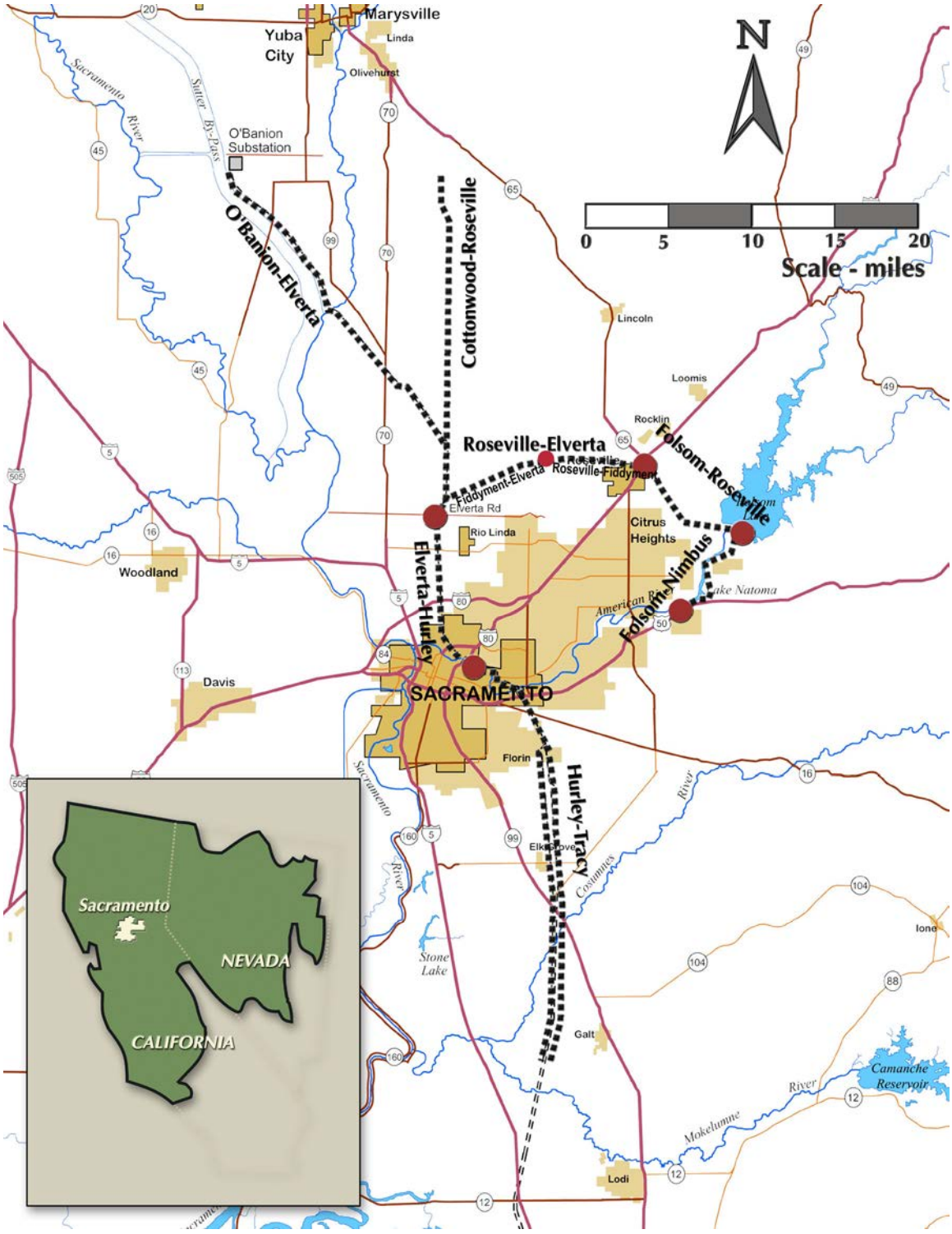

Figure 1-1. Location of Study Area and Transmission Line Rights-of-Way

The needs for the proposed action include the following:

- Eliminating the threat for vegetation to interfere with the lines and towers. Vegetation near transmission lines poses a threat to public safety and the environment from arcing (which can cause fires) and trees falling onto the transmission lines.
- Controlling vegetation in a cost-effective manner that will benefit the public and natural ecosystems.
- Maintaining the transmission line and access road ROWs that will facilitate year-round access to transmission line structures.

1.3 LOCATION AND STUDY AREA DESCRIPTION

The study area is in the Sacramento Valley of northern California, and ROWs lie within Sutter, Sacramento, and Placer counties (Figure 1-1). Eight transmission line ROWs and associated access road ROWs, communication sites, and substations owned, operated, or maintained by Western comprise the study area (note that the Roseville-Elverta transmission line, discussed as a single ROW in this EA, consists of the Roseville-Fiddyment and Fiddyment-Elverta transmission lines). Descriptions of the transmission lines are presented in Table 1-1. ROWs are described in the following text (note that maps included in this section depict only approximate locations).

- **Elverta-Hurley No. 1 and No. 2 230-kV (Figure 1-2)**. This transmission line is comprised of one row of double-circuit towers (see example in Figure 1-3). The ROW is 120 feet (ft) wide in total: 55 ft from centerline to the east/north and 65 ft from centerline to the west/south. The length of this ROW is 56,000 ft or 10.6 miles (mi), with a ROW area of 154.3 acres.
- **Hurley-Tracy No. 1 and No. 2, ending at Sacramento-San Joaquin County Line 230-kV (Figure 1-4).** This transmission line starts at the Hurley Substation and continues south to the Sacramento-San Joaquin County line. This transmission line has two different configurations and ROWs:
    - From the Hurley Substation (tower 11/2) to the Hedge Substation (tower 18/2), the transmission line continues with one row of double-circuit towers with the same 120-ft ROW as above. The length of this ROW segment is 34,300 ft or 6.5 mi, with a ROW area of 94.5 acres.
    - From the Hedge Substation (tower 18/2) to the Sacramento-San Joaquin County Line (tower 37/2), the transmission line splits into two separate ROWs, each with one row of single-circuit towers (Figure 1-5). Line No. 1 is on the east; line No. 2 is on the west. Each ROW is 125 ft wide in total: 62.5 ft on each side of centerline. The length of this ROW segment is 95,900 ft or 18.16 mi, with a ROW area of 550.4 acres.

Table 1-1. Transmission Lines in the Study Area

Transmission Line	Start Point	End Point	Length of Transmission Line (mi) [a]	Kilovolts	Map Figure
Elverta-Hurley No. 1 and No. 2 [b]	Elverta Substation	Hurley Substation	10.99 (No. 1) and 10.73 (No. 2)	230	1-2
Hurley-Tracy No. 1 and No. 2 [b]	Hurley Substation	Study area ends at Sacramento/San Joaquin County Line. Line continues to Tracy Substation	24.66 within study area. 61.54 (No. 1) and 61.30 (No. 2) total to Tracy Substation.	230	1-4
Folsom-Nimbus	Folsom Substation	Nimbus Powerplant	6.62	115	1-6
Folsom-Roseville	Folsom Substation	Roseville Substation	7.10	230	1-7
Roseville-Elverta (consists of two separate lines, Roseville-Fiddyment and Fiddyment-Elverta)	Roseville Substation	Elverta Substation	12.10	230	1-8
Cottonwood-Roseville	Study area begins at Sutter/Yuba County Line. Transmission line begins at Cottonwood Substation.	Roseville Substation	28.34 within study area. 137.04 total to Cottonwood Substation.	230	1-9
O'Banion-Elverta No. 1 and No. 2 [b]	O'Banion Substation	Elverta Substation	26.00 (No. 1 and No. 2)	230	1-10

[a] Length of transmission line is from origin to endpoint, including portions within substations or generating facilities
[b] The Elverta-Hurley, Hurley-Tracy, and O'Banion-Elverta transmission line ROWs contain double-circuit towers—separate transmission lines, denoted as No. 1 and No. 2, share the same towers within the ROW.

- **Folsom-Nimbus 115-kV (Figure 1-6).** This transmission line includes one row of single-circuit towers. The ROW width is 150 ft total: 75 ft on each side of centerline. The transmission line starts at the Folsom Substation and runs south and west to the Nimbus Powerplant. The length of this ROW is 32,400 ft or 6.14 mi, with a ROW area of 111.6 acres.

- **Folsom-Roseville 230-kV (Figure 1-7).** This transmission line includes one row of single-circuit towers. The ROW is 250 ft wide in total: 62.5 ft from centerline to the north/east and 187.5 ft from centerline to the south/west. The transmission line starts at the Folsom Substation and runs north and west to Roseville Substation. The length of this ROW is 34,900 ft or 6.6 mi, with a ROW area of 200.3 acres.

- **Roseville-Elverta 230-kV (consisting of Roseville-Fiddyment and Fiddyment-Elverta; Figure 1-8) and Cottonwood-Roseville 230-kV (Figure 1-9).** These transmission lines share a ROW for a portion of their length. From Roseville Substation to just past the Sacramento County line (Figure 1-6), there are two rows of towers. The row on the north is the single-circuit Cottonwood-Roseville transmission line. The row to the south is the

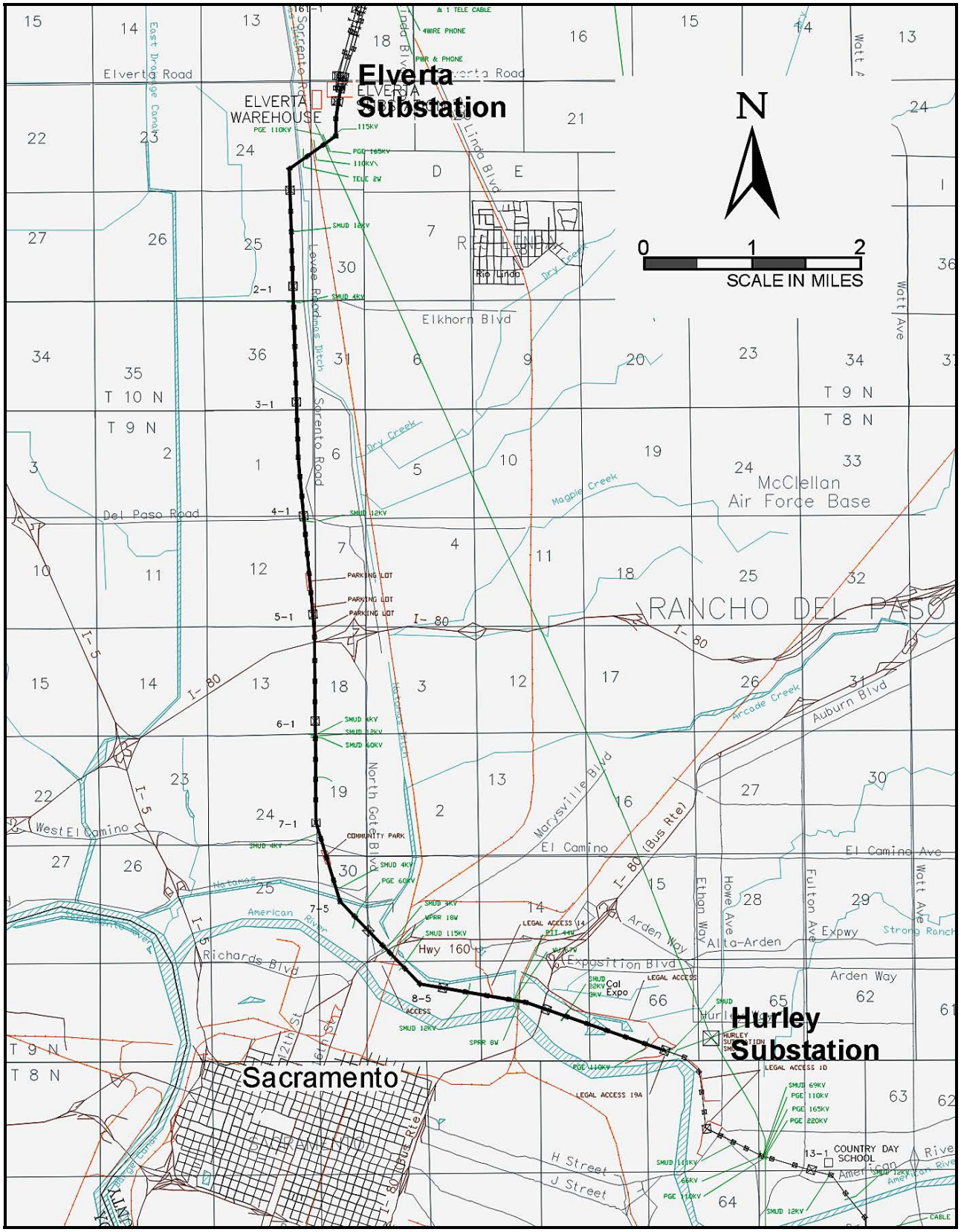

Figure 1-2. Elverta-Hurley No. 1 and No. 2 230-kV Transmission Line (10.99 miles No. 1, 10.73 miles No. 2)

Figure 1-3. Example of Double-Circuit Tower

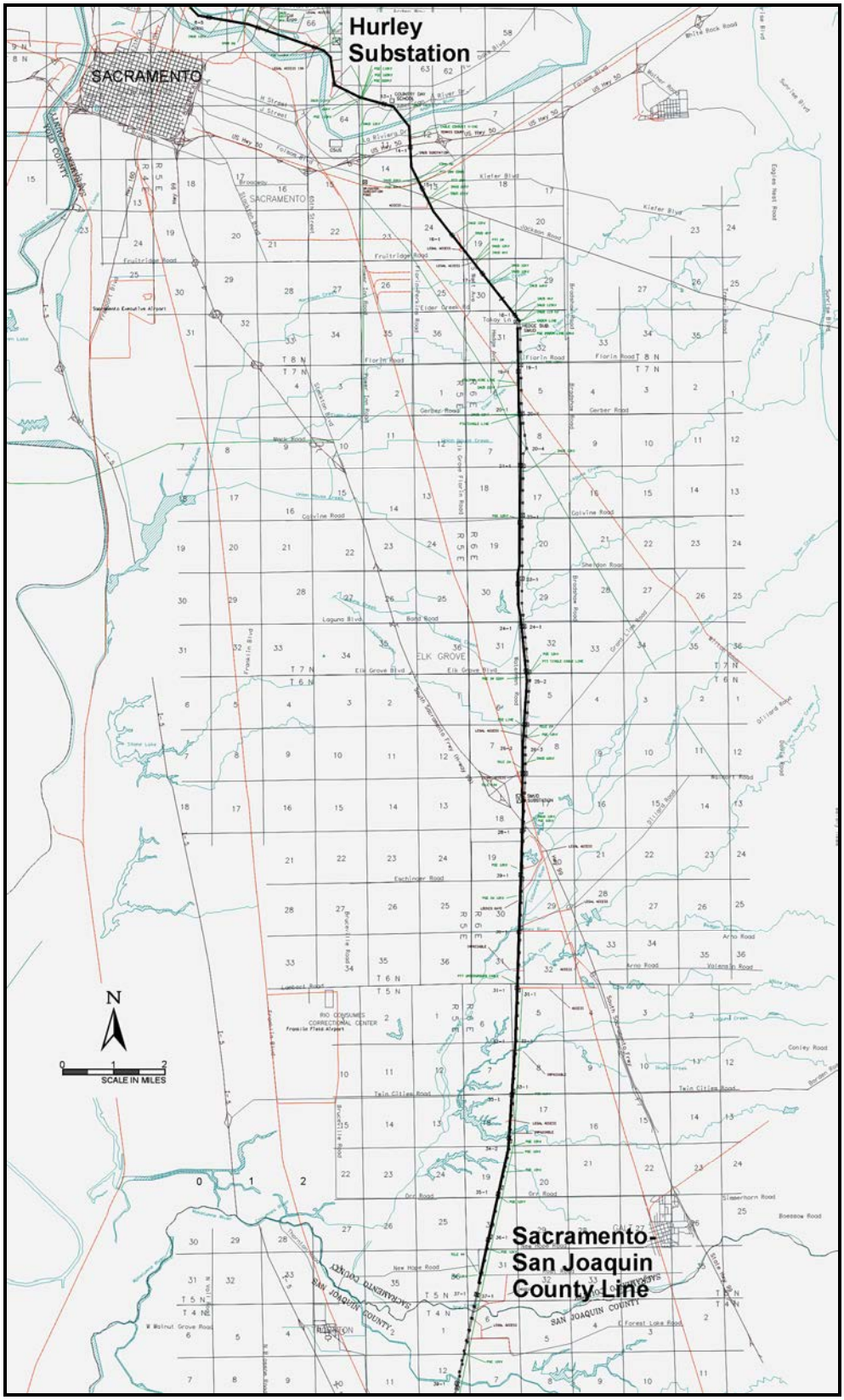

Figure 1-4. Hurley-Tracy No. 1 and No. 2 230-kV Transmission Line (24.66 miles)

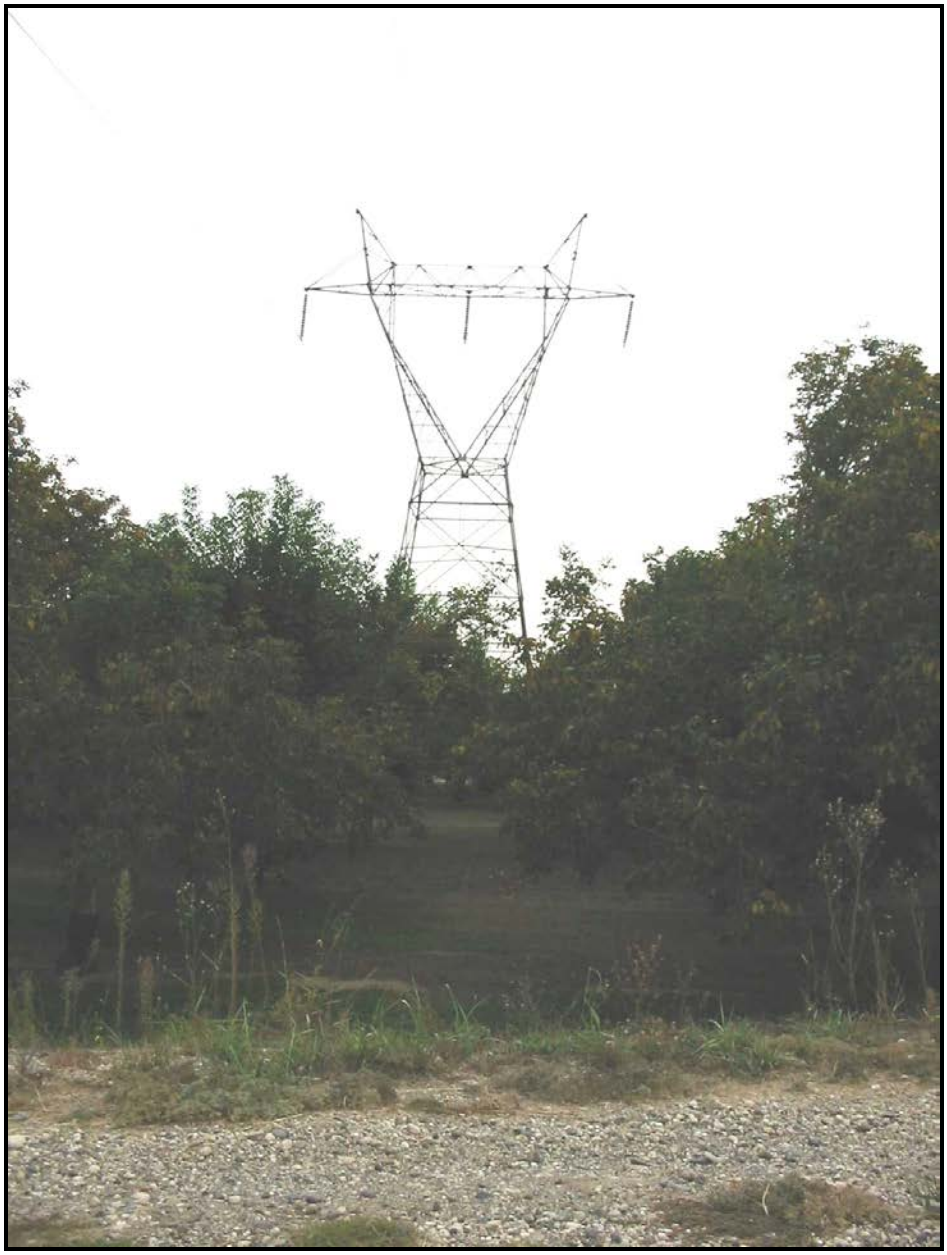

Figure 1-5. Example of Single-Circuit Tower

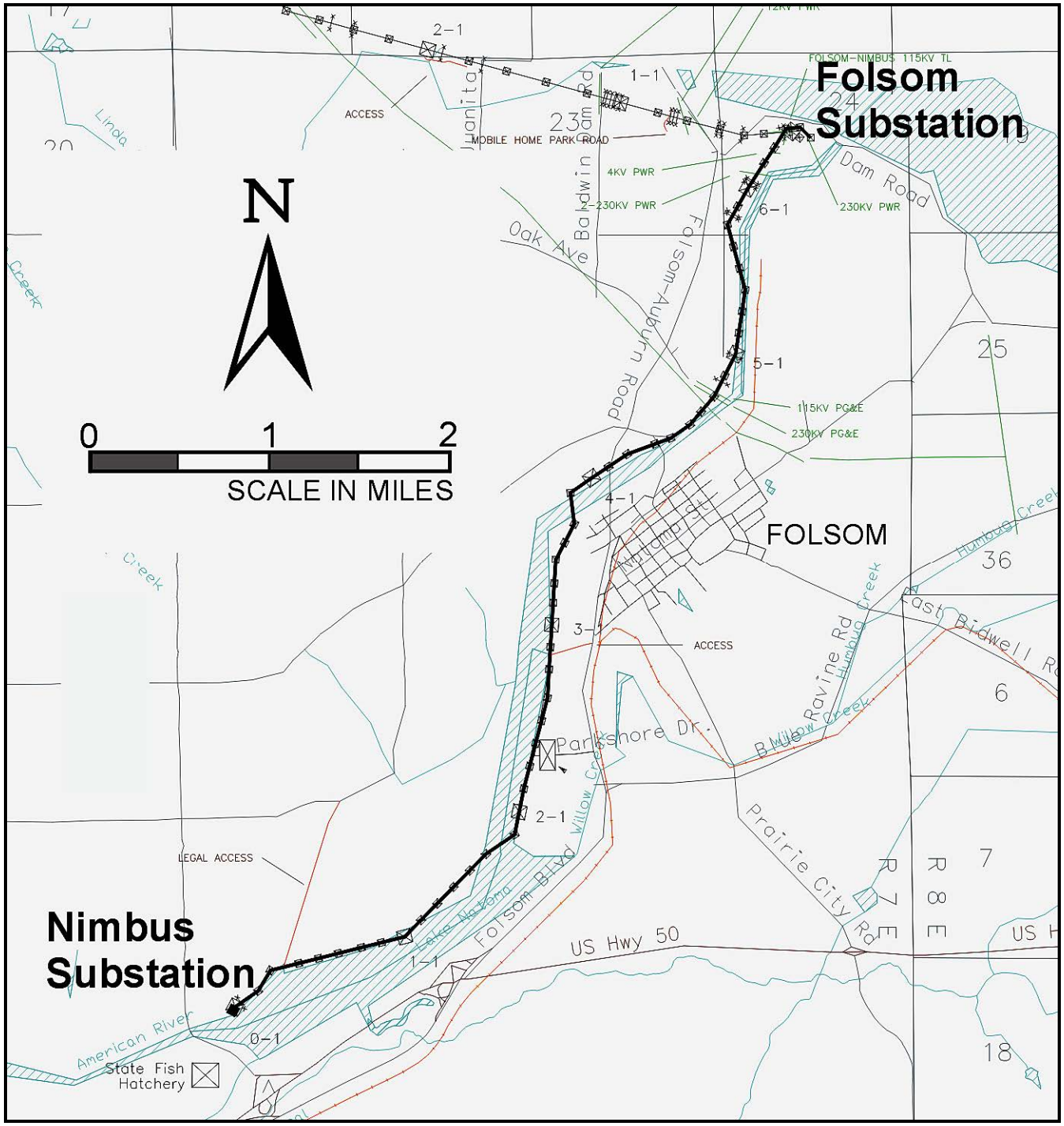

Figure 1-6. Folsom-Nimbus 115-kV Transmission Line (6.62 miles)

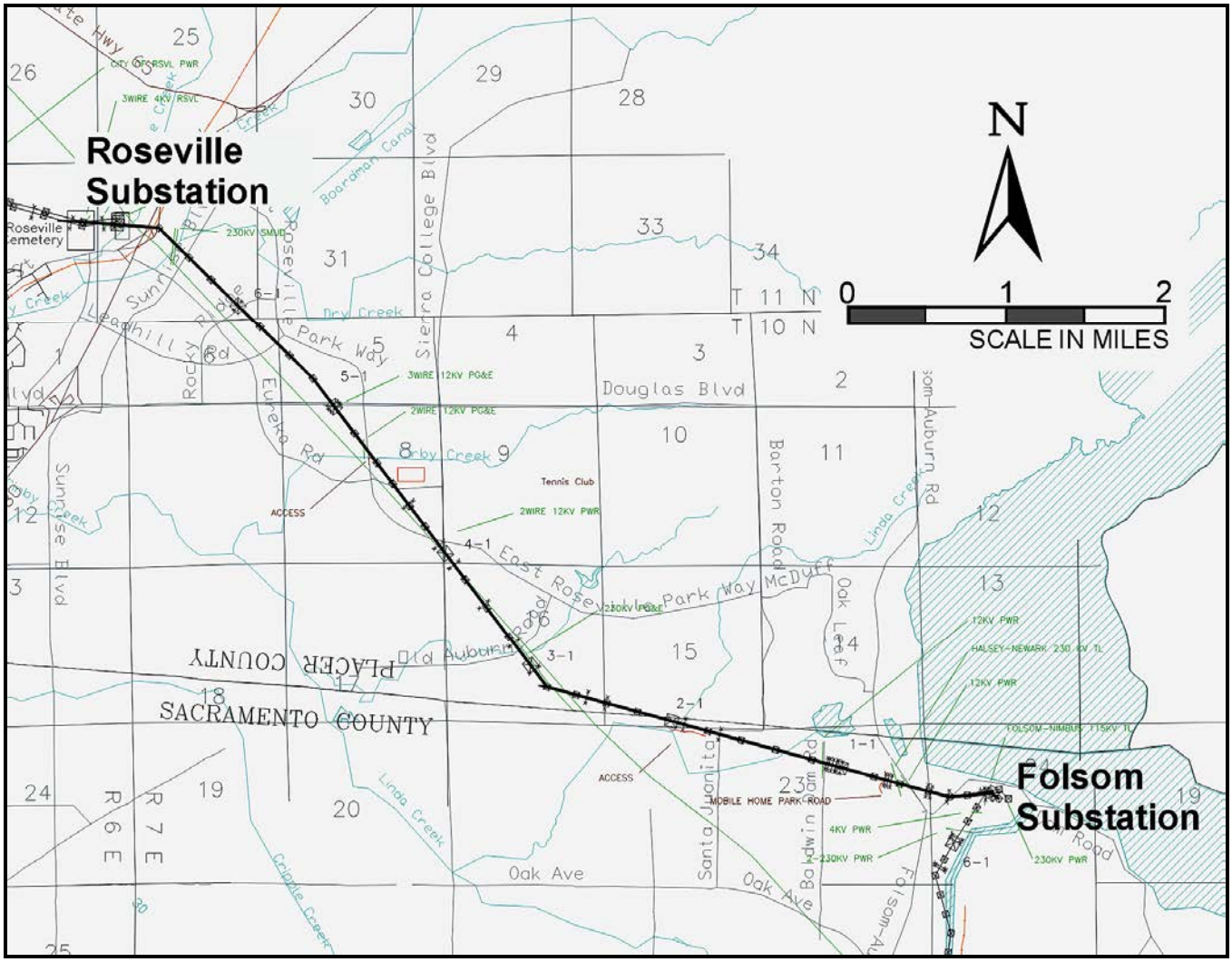

Figure 1-7. Folsom-Roseville 230-kV Transmission Line (7.10 miles)

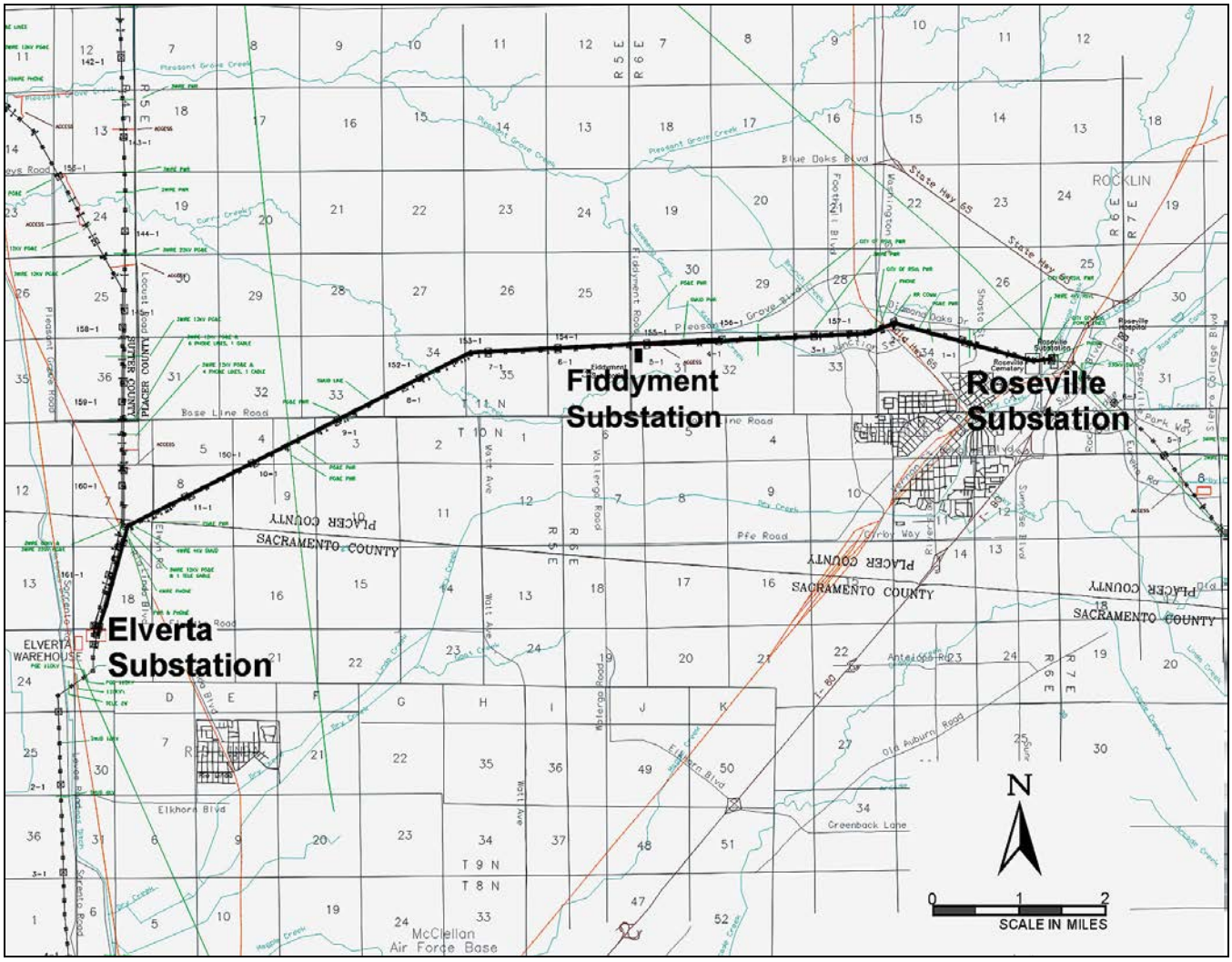

Figure 1-8. Roseville-Elverta (Roseville-Fiddyment / Fiddyment-Elverta) 230-kV Transmission Lines (12.10 miles)

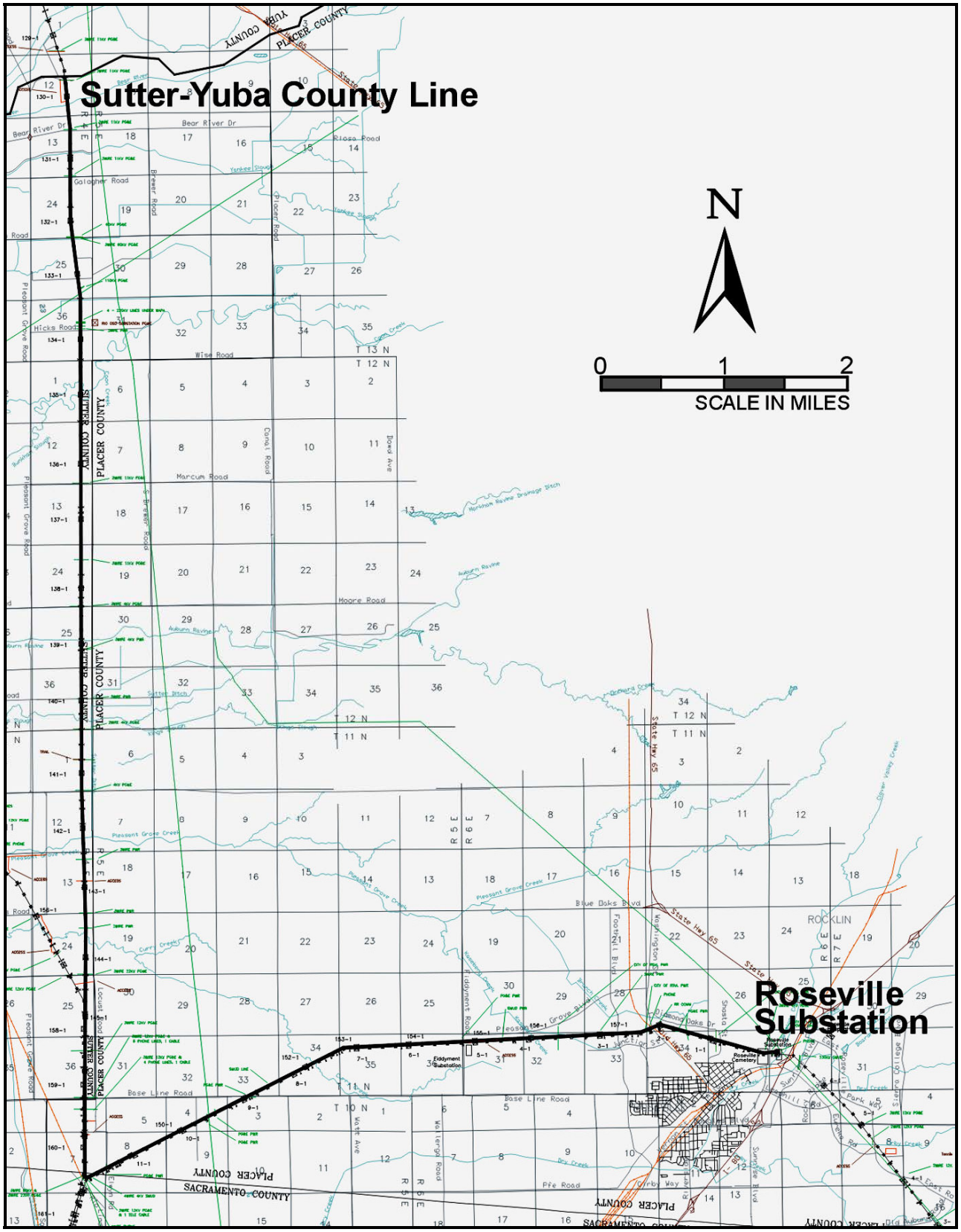

Figure 1-9. Cottonwood-Roseville 230-kV Transmission Line (28.34 miles)

double-circuit Roseville-Elverta transmission line. The ROW is 250 ft wide in total: the north boundary is 62.5 ft north of the Cottonwood-Roseville centerline; the south boundary is 53 ft south of the Roseville-Elverta centerline; the distance between these centerlines is 134.5 ft. The length of this portion of the ROW is 60,000 ft or 11.3 mi, with a ROW area of 344.3 acres.

At the Sacramento County line, the **Roseville-Elverta** transmission line turns south to the Elverta Substation. Through this portion of the route, the ROW is shared with the double-circuit 230-kV **O'Banion-Elverta** transmission line, to the west. The ROW is a total of 612.5 ft wide; the west boundary is 50 ft west of the O'Banion-Elverta centerline. The length of this portion of the ROW is 7,000 ft or 1.3 mi, with a ROW area of 98.4 acres.

At the Sacramento County line, the **Cottonwood-Roseville** transmission line turns north, sharing the ROW for the first portion with the **O'Banion-Elverta** transmission line. The Cottonwood-Roseville single-circuit row of towers is on the east and the O'Banion-Elverta double-circuit row of towers on the west. The ROW is 225 ft total. From the county line north to Cottonwood-Roseville tower 144/4 is 14,300 ft or 2.7 mi, with a ROW area of 73.9 acres.

North of tower 144/4 to the Sutter-Yuba County line, the **Cottonwood-Roseville** ROW is 100 ft total width: 50 ft on each side of centerline. The length of this portion of the ROW is 75,700 ft or 14.34 mi, with a ROW area of 173.8 acres.

- **O'Banion-Elverta No. 1 and No. 2 230-kV (Figure 1-10).** This transmission line includes one row of double-circuit towers. Starting at the Elverta Substation, the ROW is shared with the Roseville-Elverta transmission line for 1.3 mi, and then with the Cottonwood-Roseville transmission line for 2.7 mi, as described above. At tower 157/4, the transmission line runs northwest to the O'Banion Substation on the south side of O'Banion Road. The ROW width varies along this transmission line:

    - From tower 157/4 to 144/2, the ROW is a total of 125 ft wide, 62.5 ft on each side of centerline. The length of this portion of the ROW is 68,200 ft or 12.91 mi, with a ROW area of 195.7 acres.

    - From tower 144/2 to O'Banion Road (tower 135/1), the ROW is a total of 112.5 ft wide, 50 ft to the west and 62.5 ft to the east of centerline. The length of this portion of the ROW is 44,000 ft or 8.3 mi, with a ROW area of 113.6 acres.

Most portions of the lines are located in rural, agriculturally dominated areas. However, major portions of the Folsom-Nimbus, Folsom-Roseville, Elverta-Hurley, and Hurley-Tracy lines are located in suburban/urban areas in or near the cities of Sacramento, Roseville, and Folsom.

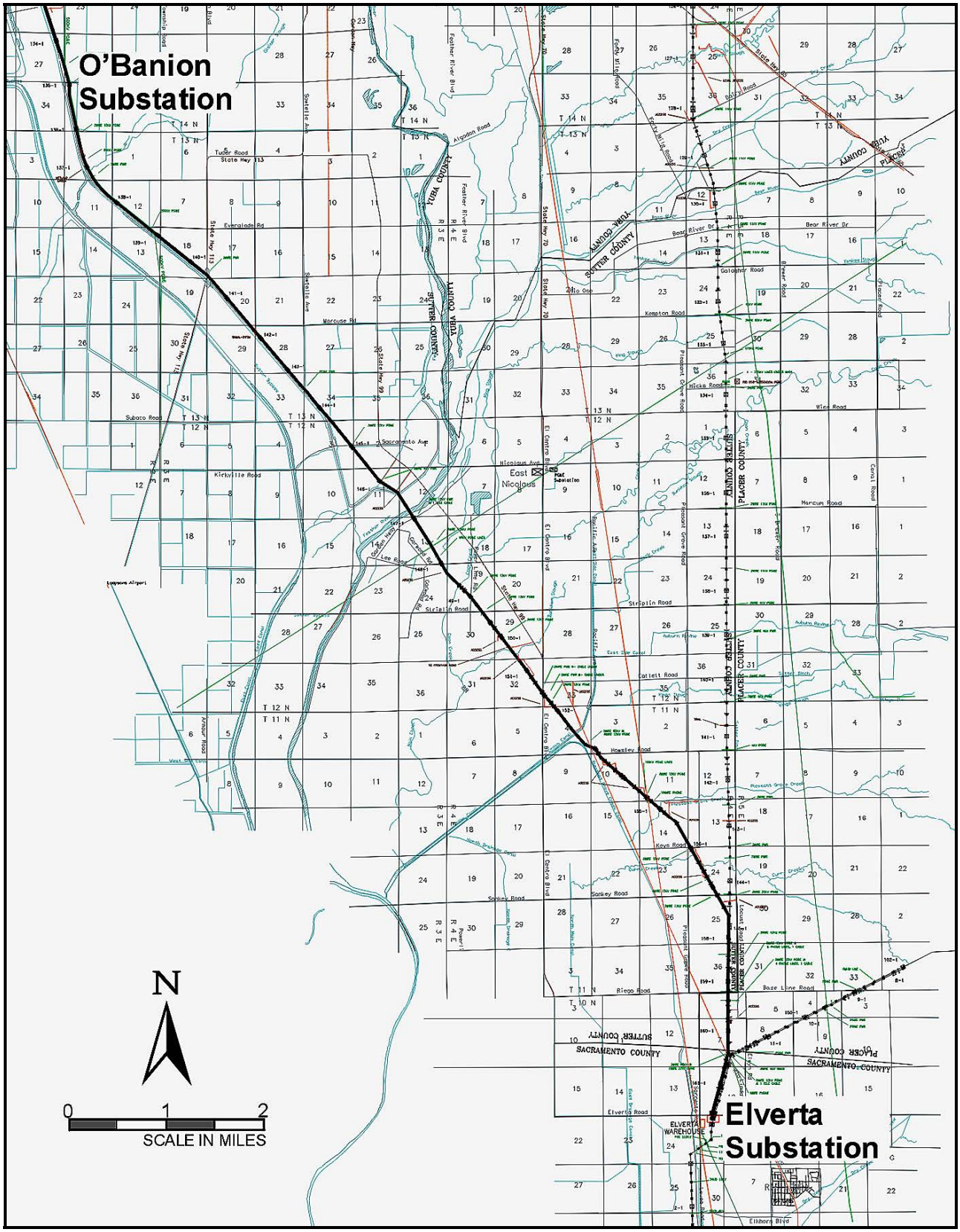

Figure 1-10. O'Banion-Elverta No. 1 and No. 2 230-kV Transmission Line (26.00 miles)

The standard ROW width for legal access roads is 30 ft. The legal access road ROWs are located along the following transmission lines:

- **Folsom-Nimbus** between towers 0/2 and 0/3
- **Elverta-Hurley** at towers 9/3 and 11/1
- **Hurley-Tracy** at towers 11/2 through 12/1, 16/2 through 16/5, 26/2, 27/2, 28/4, 29/2, 29/3, 30/1, and 33/3

The total length of the legal access road ROWs is 9.7 mi, with a ROW area of 35.3 acres.

1.4 SCOPE OF THIS ENVIRONMENTAL ASSESSMENT

This EA examines methods (for example, manual, mechanical, and herbicidal to control vegetation) and management approaches (such as promoting low-growth vegetation and improving access roads) to achieve the objectives stated under the Purpose and Need for Action section (1.2). This EA compares environmental effects of current methods and management approaches with those in the proposed action. These methods and approaches are described in the discussion of the no-action alternative and proposed action in Chapter 2. A description of the affected environment and an analysis of environmental effects associated with the no-action alternative and proposed action are included in Chapter 3. Chapter 3 also includes information on avoidance and conservation measures. Cumulative effects are discussed in Chapter 4.

This EA relies on a combination of existing data and data acquired through recently completed biological and cultural surveys conducted along the eight transmission line ROWs and associated access road ROWs. These surveys are described below.

1.4.1 BIOLOGICAL SURVEY

The biological survey was conducted from September 11 through December 10, 2001. Two-person survey teams consisted of a biologist familiar with habitats and threatened and endangered species in the study area and a field technician responsible for operation of a handheld data collection device with an attached global positioning system (GPS) receiver. A meandering pedestrian survey of the entire 108 mi of transmission line and access road ROWs recorded the locations of a variety of features of biological importance, including

- Rivers and streams;
- Wetlands, including vernal pools; and
- Habitats of threatened and endangered species.

Biological surveys were habitat-based, although any significant biological observations (for example, wildlife encountered) were noted. Recorded features were also accompanied by comments, for example, describing species present and density of a particular vegetation community. Before conducting fieldwork, Western collected and examined data on threatened

and endangered species that could occur within the study area, including California Natural Diversity Database (CNDDB) records and the USFWS BO (USFWS 1998). The survey methodology and timing were discussed in advance with the USFWS to ensure that the data quality would be appropriate to support the EA (Nagano et al. 2001).

This survey was conducted primarily to provide information for this EA. The survey also will allow Western to identify and avoid sensitive habitats and resources. Periodic follow-up surveys would be conducted to account for changing conditions along the ROW.

1.4.2 CULTURAL RESOURCES SURVEY

The cultural resources survey was conducted from August 2001 through February 2002, recording the following:

- Cultural features,
- Isolated artifacts, and
- Historical features such as irrigation canals, levees, railroad beds, and mine tailings.

All data were collected through meandering pedestrian surveys of the entire 108 mi of ROW. The only exception is that cultural resource surveys were not required for rice fields under cultivation (extensive cultivation would have already destroyed cultural or historical resources).

1.5 DECISIONS NEEDED

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

- Briefly provide sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a finding of no significant impact (FONSI),
- Aid Western's compliance with the National Environmental Policy Act (NEPA) when no EIS is necessary, and
- Facilitate preparation of an EIS if one is necessary (40 CFR § 1508.9).

Based on the findings contained in this EA, weighing how each alternative meets the purpose and need, Western determined that a FONSI can be prepared. The FONSI presents supporting rationale for Western's decision.

2.0 DESCRIPTION OF THE NO-ACTION ALTERNATIVE AND PROPOSED ACTION

Among the key factors of Western's reliability is the efficient transmission system maintenance performed by its skilled maintenance crews. In order to further protect human safety and improve its maintenance performance and practices, Western proposes moving from the traditional condition-based maintenance approach to a more long-term ROW maintenance strategy.

ROW maintenance activities can be categorized as follows:

- 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. This maintenance can be performed using a variety of methods including manual (hand-controlled, powered or non-powered tools such as chainsaws and clippers), mechanical (such as heavy-duty mowers and graders), and herbicidal (used either to kill vegetation or retard growth).

- Access road maintenance. Access road maintenance includes activities to ensure that access roads are in appropriate condition for maintenance crews to drive to transmission lines. These activities are grading, surfacing, and constructing water diversions such as culverts, ditches, and water bars.

- Transmission lines and associated structures, hardware, and equipment maintenance. This category of activities includes routine aerial and ground patrols of transmission lines and ROWs and line and tower repairs.

The no-action alternative and the proposed action evaluated in this EA are defined by management approaches and a set of methods used in ROW maintenance. The management approaches are strategies identified within this EA as need-driven or for promotion of low-growing plant communities. The need-driven management approach uses periodic line patrols to identify where vegetation requires control, followed by activities to trim or remove vegetation so it is no longer an immediate threat to the transmission system. Promotion of low-growing plant communities, a strategy commonly known as integrated vegetation management (IVM), encourages low-growing plants where possible along the ROW, lessening the intensity of maintenance in the long term. The methods discussed in this EA combine equipment and techniques routinely used in ROW maintenance activities.

This EA evaluates a no-action alternative and a proposed action, summarized as follows:

- **No-Action Alternative.** Under the no-action alternative, Western would continue its current ROW maintenance practices. The management approach to controlling vegetation and ensuring access is need-driven. Methods to control vegetation are manual and mechanical. Current practices would also be used to maintain access roads, transmission lines and associated structures, hardware, and equipment.

- **Proposed Action.** Under the proposed action, Western would adopt the management approach of promoting low-growing plant communities. To achieve this objective, Western would extend the set of vegetation maintenance methods available to include expanded use of herbicides in combination with manual and mechanical methods. Western would largely continue its current practices for maintenance of access roads, transmission lines and associated structures, hardware, and equipment. Additional activities covered under the proposed action are soil borings and placing rocks around existing culverts, existing towers, or existing structures. The proposed action would be cost-effective and would ensure that system reliability and safety remain at acceptable levels, while extending the lifetime of transmission components.

2.1 NO-ACTION ALTERNATIVE

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

Activities conducted under the no-action alternative are described in detail in the following sections.

2.1.1 VEGETATION CONTROL METHODS

2.1.1.1 Manual

Manual vegetation control is defined as use of powered and non-powered handheld tools or installation of static barriers (such as weed control mats) to maintain vegetation. 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 require relatively low-density vegetation for maximum effectiveness. The manual techniques employed by Western are listed below.

Cutting

The most common manual method is cutting with power saws. Other manually operated tools such as axes, machetes, and clippers may also be used. This technique is highly effective on species that do not resprout. For species that do resprout, which includes most deciduous trees, sprouts may rapidly resurge to original height within several years and at much greater density than the original stems (Bonneville Power Administration [BPA] 2000). Access for subsequent manual treatments is thereby hindered.

Manual cutting operations by Western are sometimes followed by slash disposal techniques designed to reduce fire and safety hazards or to improve esthetic appeal. The slash is lopped and scattered uniformly across the treated area (thereby hastening natural decomposition). Small trees are limbed on one side so they lie flat on the ground. Alternatively, branches and small trees are fed into a mechanical chipper and the chips are spread over the ROW or deposited in piles. Stems too large for chipping are lopped and scattered within the ROW, as the situation requires (Western 2003).

Girdling

Girdling involves manually cutting away bark and cambian tissues around the trunk of target trees. Conifer species are killed by this treatment, but hardwoods frequently will resprout below the girdle unless the cut is treated with herbicide. Girdling results in standing dead trees, which are left to decompose and fall on their own. Girdling is rarely practiced by Western, but may be appropriate in some cases (Western 2003).

Topping and Trimming

Topping involves cutting a tree at some height up the trunk to prevent it from growing into transmission lines, without felling the whole tree. Trimming or pruning is the removal of selected branches from tree trunks for the same purposes. Western uses these highly labor-intensive techniques in special situations where it is desirable to leave trees in place as visual screens (for example, along roads, streams, and rivers) or where easement contracts and land/resource plans dictate tree removal or trimming criteria (such as in orchards and along streams) (Western 2003).

Hand-Pulling and Hoeing

Noxious weed control along ROWs theoretically can be accomplished by hand-pulling and hoeing. Weeds that resprout from rootstocks or root fragments in the soil are not controlled by these methods. Such manual treatments are not practical for large areas (Western 2003).

Using Geotextile Barriers

Geotextile “weed barriers” or landscape fabrics made of synthetic material (technically a physical rather than manual method) can be placed on the ground around plantings in landscaped areas or under gravel yards or surfaces. They inhibit weed growth by shutting out light, yet allowing water penetration. However, they contain no chemicals to provide longer-lasting or systemic control. Weeds can resprout through the mats if the root remains under the mat and if gaps or holes develop. Also, these are most cost-effective when installed during initial construction plantings (landscaped areas) (Western 2003).

2.1.1.2 Mechanical

Mechanical vegetation control methods employ machines to remove or control target vegetation along transmission line and access road ROWs. Depending on the particular equipment and skill of the operator, these methods are selective or nonselective (that is, all plants on a site are affected). Mechanical methods may be highly effective at controlling brush on gentle topography with few site obstacles. However, most mechanical equipment is not safe to operate on slopes over 30 to 35 percent. These methods are also constrained where soils are susceptible to compaction or erosion. Site obstacles such as rocks, stumps, or logs also reduce their efficiency (Western 2003).

Mowing

Mechanized heavy equipment with high-speed rotary blades may be used to cut, chop, or shred woody vegetation on ROWs. Vegetation is typically cut off near ground level, leaving a low ground cover of grasses and other herbaceous plants. Examples of this type of mowing equipment are known as brush-hog, Track-Mack, and Hydro-Ax. The equipment available at the present time, however, is not capable of performing safely, neatly, or efficiently on the steep topography characteristic of most ROWs where woody vegetation is a problem. Also, unless herbicides are applied, resprouting of hardwoods will occur (Western 2003).

Blading/Grubbing

Crawler tractors equipped with brush blades or rakes may be used to physically uproot woody plants. By a combination of cutting and lifting action, roots are ripped out and buried. Disruption of the soil surface is severe; erosion may be a subsequent problem unless reseeding follows blading/grubbing (Western 2003).

2.1.1.3 Spot Application of Glyphosate-Based Herbicides

Western currently applies a glyphosate-based herbicide (Roundup®) on a very limited basis to invasive species in areas around towers. This herbicide is applied directly to the vegetation using a hand or powered sprayer. In the study area, this vegetation is typically blackberry (Hicks 2001). It is not applied near vernal pools or other wetlands that could contain Federally listed threatened or endangered species.

This use of herbicides is small compared to the use analyzed as part of the proposed action in terms of locations, application method, quantity, and variety of herbicides used. Therefore, it is not evaluated for its potential environmental effects under the no-action alternative.

2.1.2 ACCESS ROAD MAINTENANCE

Under the no-action alternative, Western would maintain access roads as needed. Maintenance activities would include grading, surfacing, and constructing, repairing, or replacing water diversions such as culverts, ditches, and water bars. Typically, such activities would involve bulldozers, backhoes, and support vehicles such as pickup trucks.

2.1.3 TRANSMISSION SYSTEM MAINTENANCE

Under the no-action alternative, activities conducted for the maintenance of transmission lines and towers would be the same as current practices. These activities would include conducting periodic aerial and ground patrols; installing, maintaining, and replacing hardware, ground wire, and bird guards; repairing steel equipment; placing fill or rocks around existing culverts, existing tower, or existing structures; excavating and constructing new tower footings at existing towers; installing microwave equipment at existing towers; installing fiber optic cables, underground water, power, communication or ground electrical lines; and performing line and tower repairs. Aerial inspections would be performed on a quarterly basis using a helicopter at 60 ft above the conductors for visual inspection. Ground patrols would be conducted semi-annually, typically using a rubber-tired vehicle, usually a pickup truck, to drive along transmission lines. Problems could be identified during either type of patrol that would require immediate repair or replacement of transmission line hardware. Equipment and activities needed for such repairs would vary greatly. For example, tightening of tower hardware could be performed on the spot with hand tools. On the other hand, repair of a tower footing might require use of a backhoe. Bulldozers or heavy rubber-tired vehicles could also be used for transmission system maintenance activities.

2.1.4 EMERGENCY ACTIONS

In cases of actual system failure or imminent threats to system reliability, public safety, or the environment (such as fire hazard), Western would take whatever steps were necessary to remedy the situation. These steps include removing problem vegetation from the ROW or nearby areas (trees outside of the ROW that could fall onto transmission lines) or clearing and repairing access roads to allow access to transmission lines or structures by repair equipment.

2.2 PROPOSED ACTION

Under the proposed action, Western would promote low-growing plant communities along the ROW. This would take place in a progressive approach that would require somewhat more intense work in the short term (as activities are conducted to reduce the occurrence of high-growth vegetation), but diminished work in the long term.

A combination of manual, mechanical, and herbicidal methods would be necessary to create initial conditions at the site favorable to the establishment of a low-growth plant community. Seeding or planting of low-growth native species may also be necessary. Spot and broadcast herbicide applications would be used, while some of those areas manually or mechanically cut would receive follow-up localized herbicide treatments for vegetation types that tend to

resprout. Noxious weeds would be treated with localized herbicide applications, with some broadcast application being used instead of localized or spot treatments.

This vegetation management approach is described in Western's IVM Environmental Guidance Manual (Western 2003). Within IVM, low-growing species act to prevent the establishment of tall-growing plants. This method requires initial evaluation of the area targeted, including climate, terrain, soil, and dominant species in the area. Consistent with IVM principles, long-term maintenance would be reduced, resulting in less maintenance crew traffic and a more stable vegetation community.

Activities conducted under the proposed action are described in detail in the following sections.

2.2.1 VEGETATION CONTROL METHODS

2.2.1.1 Manual

Manual vegetation control methods that would be used under the proposed action are identical to those discussed under the no-action alternative, Section 2.1.1.1.

2.2.1.2 Mechanical

Mechanical vegetation control methods that would be used under the proposed action are identical to those discussed under the no-action alternative, Section 2.1.1.2.

2.2.1.3 Herbicides

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. Herbicides are generally classified into two major types by use.

- Selective herbicide implies that certain plants are killed but most desirable plants are not significantly injured. For example, some selective herbicides kill broadleaf plants (including brush) but do not affect grasses.

- Nonselective refers to 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.

An additional category, tree-growth regulators, reduces the frequency and amount that trees must be trimmed. A tree-growth regulator is a specially designed compound that, when applied to a tree, controls growth in the tree's crown. A treated tree grows more slowly, and requires less trimming. Western proposes using only herbicides it has approved for use in ROW maintenance based on its evaluations of toxicity, solubility in water, soil adsorption potential, and persistence in water and soil. Further, these herbicides must be registered for use in California. Appendix G provides detailed information on these herbicides. Western would use only employees or contractors with a qualified applicator license.

Western would employ strict safety procedures and best management practices (BMP) in applying herbicides. These practices, described in Western's IVM Environmental Guidance Manual (Western 2003) are built into the proposed action and include the following:

- Reviewing Federal and State of California pesticide regulations for restrictions on use of particular herbicides;
- Reviewing landowner/interagency agreements for herbicide type or application method restrictions;
- Observing site conditions to match specific herbicides and application methods to those conditions, including:
    - Plants that are to be controlled;
    - Season of the year and associated limitations;
    - Presence of sensitive environmental areas (such as endangered species, habitat, and wetlands);
    - Presence/proximity of nontarget 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; and
- Adjusting herbicide application methods based on wind speed and direction, which may include avoiding application on windy days when drift potential is greatest.

Western would continue its current practice of spot application of glyphosate-based herbicides, as described under the no-action alternative, Section 2.1.1.3.

2.2.2 ACCESS ROAD MAINTENANCE

For the proposed action, Western would maintain access roads as described under the no-action alternative. Typical maintenance activities include grading, surfacing, and constructing, repairing, or replacing water diversions, such as culverts, ditches, and water bars. Typically, such activities would involve bulldozers, backhoes, and support vehicles such as pickup trucks.

2.2.3 TRANSMISSION SYSTEM MAINTENANCE

For the proposed action, Western's activities for the maintenance of transmission lines and towers would be the same as current practices, described under the no-action alternative, with the addition of performing geotechnical investigations that would include completion of soil borings up to 100 ft below ground surface. These activities would include periodic aerial and ground patrols, climbing inspections, and repairs. Aerial inspections would be performed on a quarterly basis using a helicopter at 60 ft above the conductors for visual inspection. Ground patrols would be conducted semi-annually using a rubber-tired vehicle, typically a pickup truck, to drive along lines. Problems could be identified during either type of patrol that would require immediate repair or replacement of transmission line hardware. Equipment and activities needed for such repairs would vary greatly. For example, tightening of tower hardware could be performed on the spot with hand tools. On the other hand, repair of a tower footing might require use of a backhoe.

2.2.4 EMERGENCY ACTIONS

Under the proposed action, Western could perform emergency actions as described under the no-action alternative, Section 2.1.4. In cases of actual system failure or imminent threats to public safety, system reliability, or the environment (such as fire hazard), Western would take whatever steps were necessary to remedy the situation. These steps include removing problem vegetation from the ROW or nearby areas (trees outside of the ROW that could fall onto transmission lines) or clearing and repairing access roads to allow access to transmission lines or structures by repair equipment.

Table 2-1 summarizes the ROW maintenance methods, equipment, techniques and activities, and applications evaluated in this EA.

Table 2-1. Comparison of Right-of-Way Maintenance Methods, Equipment, Techniques/Activities, and Applications Analyzed in this Environmental Assessment for the No-Action Alternative and Proposed Action

No-Action Alternative or Proposed Action	Method	Example Equipment [a]	Technique/Activity [a]	Applications [a]
Vegetation Maintenance (Access Road and Transmission Line ROWs)				
No-Action Alternative *Need-driven management approach to trim, mow, clear, remove, and dispose of vegetation as control needs are identified through periodic line patrols*	Manual	Chainsaw, clipper, axe, pickup trucks, chippers	Trimming, removal, disposal, placement of geotextile barriers	Selective vegetation removal and disposal
	Mechanical	Heavy-duty mowers (brush-hog, Hydro-Ax), crawler tractors, chippers	Mowing, removal, disposal	Temporary control of thick stands of vegetation
Proposed Action *Management approach promotes low-growing plant communities. This would require more intense work in the short term to establish low-growth communities, but diminished work in the long term.*	Manual	Chainsaw, clipper, axe, pickup trucks, chippers	Trimming, removal, disposal, placement of geotextile barriers	Selective vegetation removal and disposal
	Mechanical	Heavy-duty mowers (brush-hog, Hydro-Ax), crawler tractors, chippers	Mowing, removal, disposal	Temporary control of thick stands of vegetation
	Herbicides (Western-approved and registered for use in California)	Hand sprayers, power sprayers, herbicide appropriate for technique and application	Spot, localized, broadcast	Spot treatments where selective elimination or growth control of species is desirable. Localized treatment on ROWs with low-to-medium target plant density. Broadcast for treating large/dense areas of ROW vegetation, especially where access by truck is readily available.

Table 2-1. Comparison of Right-of-Way Maintenance Methods, Equipment, Techniques/Activities, and Applications Analyzed in this Environmental Assessment for the No-Action Alternative and Proposed Action (continued)

No-Action Alternative or Proposed Action	Method	Example Equipment [a]	Technique/Activity [a]	Applications [a]
Access Road Maintenance				
No-Action Alternative	Repairing	Bulldozer, caterpillar (tracked vehicle), dump truck, backhoe	Specific to type of repair	Specific to type of repair
	Grading	Bulldozer, caterpillar	Removal and leveling of upper levels of soil profile	Used to construct or repair road surface
	Filling	Dump truck	Delivery of gravel, rock, or soil to fill depressions	Filling of depressions during initial or reconstruction of road
	Cleaning water crossings	Backhoe, dump truck	Removal of debris from culverts and ditches	To maintain optimal efficiency of water diversions to prevent washouts and erosion
	Repair or construction of water bars	Backhoe, dump truck, bulldozer	Grading and shaping of soil to construct/repair a berm to control erosion	Direct water off road surface to prevent washouts or erosion
	Repair or construction of v-shaped ditches	Backhoe	Construction of ditches to allow drainage	Direct water off road surface to prevent washouts or erosion
	Construction or replacement of culverts	Backhoe, truck, trailers	Installation of pipe culvert under across road	Used whenever drainages or streams are of sufficient size

Table 2-1. Comparison of Right-of-Way Maintenance Methods, Equipment, Techniques/Activities, and Applications Analyzed in this Environmental Assessment for the No-Action Alternative and Proposed Action (continued)

No-Action Alternative or Proposed Action	Method	Example Equipment [a]	Technique/Activity [a]	Applications [a]
Access Road Maintenance (continued)				
Proposed Action	Repairing	Bulldozer, caterpillar (tracked vehicle), dump truck, backhoe	Specific to type of repair	Specific to type of repair
	Grading	Bulldozer, caterpillar	Removal and leveling of upper levels of soil profile	Used to construct or repair road surface
	Filling	Dump truck	Delivery of gravel, rock, or soil to fill depressions	Filling of depressions during initial or reconstruction of road
	Cleaning water crossings	Backhoe, dump truck	Removal of debris from culverts and ditches	To maintain optimal efficiency of water diversions to prevent washouts and erosion
	Repair or construction of water bars	Backhoe, dump truck, bulldozer	Grading and shaping of soil to construct/repair a berm to control erosion	Direct water off road surface to prevent washouts or erosion
	Repair or construction of v-shaped ditches	Backhoe	Construction of ditches to allow drainage	Direct water off road surface to prevent washouts or erosion
	Construction or replacement of culverts	Backhoe, truck, trailers	Installation of pipe culvert under across road	Used whenever drainages or streams are of sufficient size

Table 2-1. Comparison of Right-of-Way Maintenance Methods, Equipment, Techniques/Activities, and Applications Analyzed in this Environmental Assessment for the No-Action Alternative and Proposed Action (continued)

No-Action Alternative or Proposed Action	Method	Example Equipment [a]	Technique/Activity [a]	Applications [a]
Transmission Line Maintenance				
No-Action Alternative	Patrols (aerial)	Helicopter	General visual observation of entire transmission system performed on quarterly basis	Locate damaged or malfunctioning equipment that may cause additional damage if left for a longer period of time; check for "danger trees" or encroaching vegetation
	Patrols (ground)	Pickup truck	Detailed observation of entire transmission system performed on semi-annual basis	Check access to towers/poles, tree clearances, fences, gates, locks, and tower hardware
	Inspection (climbing)	Pickup truck, bucket truck	Detailed observation of system hardware performed on 20 percent of structures each year	Identify deterioration of hardware not detected in aerial or ground inspections
	Repairs and preventative maintenance	Pickup truck, bulldozer, caterpillar, backhoe, bucket truck, hand tools	Based on needs identified during inspections or other reports, replace insulators; tighten, replace, or repair towers/poles or hardware; look for ROW encroachments	Performed wherever damage or deterioration of transmission lines or facilities poses a threat to safety or reliability
	Underground water, power, communication, or ground electrical line	Pickup truck, bulldozer, caterpillar, backhoe, bucket truck, hand tools	Based on needs identified during inspections or other reports, install, replace, or repair underground components related to transmission lines or substations	Performed wherever damage or deterioration of underground components poses a threat to safety or reliability, or where new components are necessary for optimal system operation and safety

Table 2-1. Comparison of Right-of-Way Maintenance Methods, Equipment, Techniques/Activities, and Applications Analyzed in this Environmental Assessment for the No-Action Alternative and Proposed Action (continued)

No-Action Alternative or Proposed Action	Method	Example Equipment [a]	Technique/Activity [a]	Applications [a]
Transmission Line Maintenance (continued)				
Proposed Action	Patrols (aerial)	Helicopter	General visual observation of entire transmission system performed on quarterly basis	Locate damaged or malfunctioning equipment that may cause additional damage if left for a longer period of time; check for "danger trees" or encroaching vegetation
	Patrols (ground)	Pickup truck	Detailed observation of entire transmission system performed on semi-annual basis	Check access to towers/poles, tree clearances, fences, gates, locks, and tower hardware
	Inspection (climbing)	Pickup truck, bucket truck	Detailed observation of system hardware performed on 20 percent of structures each year	Identify deterioration of hardware not detected in aerial or ground inspections
	Repairs and preventative maintenance	Pickup truck, bulldozer, caterpillar, backhoe, bucket truck, hand tools	Based on needs identified during inspections or other reports, replace insulators; tighten, replace, or repair towers/poles or hardware; look for ROW encroachments	Performed wherever damage or deterioration of transmission lines or facilities poses a threat to safety or reliability
	Underground water, power, communication, or ground electrical line	Pickup truck, bulldozer, caterpillar, backhoe, bucket truck, hand tools	Based on needs identified during inspections or other reports, install, replace, or repair underground components related to transmission lines or substations	Performed wherever damage or deterioration of underground components poses a threat to safety or reliability, or where new components are necessary for optimal system operation and safety

Table 2-1. Comparison of Right-of-Way Maintenance Methods, Equipment, Techniques/Activities, and Applications Analyzed in this Environmental Assessment for the No-Action Alternative and Proposed Action (concluded)

No-Action Alternative or Proposed Action	Method	Example Equipment [a]	Technique/Activity [a]	Applications [a]
Transmission Line Maintenance (concluded)				
Proposed Action (continued)	Soil borings from surface to 100 ft deep	Pickup truck, mobile drill rig (rubber-tired truck with outriggers), van for sample management	Direct-push or auger drilling with sample recovery	Subsurface soil recovery for geotechnical or environmental analyses

[a] Note that equipment, activities, and applications are typical, but not all-inclusive. Improvements in technology may result in new types of equipment or broadening of applications.
ROW = right-of-way

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 RESOURCES

3.1.1 INTRODUCTION AND RESOURCES NOT EVALUATED

Chapter 3 provides descriptions of the environmental setting to aid in understanding the environmental consequences of the no-action alternative and the proposed action. The locations and characteristics of each potentially affected environmental resource are described. The scope of the discussions varies by resource to ensure that all relevant issues are included. Based on the environmental setting and the description of the no-action alternative and proposed action presented in Chapter 2, this chapter also presents impact analyses for each resource.

Some resource areas are not discussed because it is believed that the proposed project will have little or no impact to these areas. Resource areas falling into this category include radiation and hazardous chemical environment, waste management, socioeconomics, and traffic and transportation.

3.1.2 RESOURCES EVALUATED

This chapter includes a discussion of the study area for the no-action alternative and proposed action. The following resource areas are presented:

- Land Use
- Habitats and Vegetation
- Wildlife
- Special Status Species
- Fisheries
- Soils
- Air Quality
- Water Quality
- Public Health
- Recreation

- Cultural Resources
- Esthetics

3.2 LAND USE

3.2.1 AFFECTED ENVIRONMENT

This section presents information on existing land uses in the study area. The transmission lines are shown in Figures 1-1, 1-2, 1-4, and 1-6 through 1-10. The ROWs are described in Section 1.3. Towers are numbered by mile followed by tower number within that mile. For example, tower 2/4 would be the fourth tower in the second mile of the transmission line. Typically, there are four or five towers per mile.

3.2.1.1 Elverta-Hurley

The Elverta-Hurley transmission line (Figure 1-2) begins in an agricultural and rural area. Between towers 0/5 and 0/6, the transmission line crosses the Natomas drainage ditch, a wetland. Continuing to tower 3/5, the transmission line runs through a mixture of grassland, grazed pasture, field crops, and rice fields. As the transmission line continues south, it moves from a rural area to a corridor between residential areas, then between commercial districts. A drainage marks the north boundary of a business park between towers 3/5 and 3/6. The transmission line continues through business parks and commercial areas until it crosses Interstate 80 between towers 5/2 and 5/3. Tower 5/3 is located in a field crop, which is bounded on the south by a drainage that the transmission line crosses to meet tower 5/4. From towers 5/4 to 7/4, the transmission line continues south through a corridor between residential areas with backyard fences paralleling the ROW. The transmission line turns toward the east at tower 7/5 and enters the American River floodplain within Camp Pollock, a Boy Scouts of America property. From this point east, the transmission line is within highly vegetated riparian areas. The transmission line leaves Camp Pollock at tower 8/1 and continues east along the American River Parkway, a State recreation area, along the American River floodplain through a recreational area near Cal-Expo, with a paved bicycle trail paralleling the ROW.

3.2.1.2 Hurley-Tracy

The Hurley-Tracy transmission line (Figure 1-4) begins at the Hurley Substation, extends northwest to southeast for approximately 7 mi (to tower 18/1), and then extends generally north to south for another 19 mi before it reaches the Sacramento-San Joaquin County line, the end of the study area. Initially, for about a mile (to tower 12/1), the ROW follows the American River Parkway, a State recreation area. Thereafter, it follows a narrow urban corridor of commercial/industrial districts and residences to Fruitridge Road (tower 16/4). South of Fruitridge Road, and from the Hedge Substation (owned by the Sacramento Municipal Utility District) to near Elk Grove Boulevard (tower 24/5), the urban setting becomes more rural, with the ROW and adjacent lands used primarily as pastures. The rural setting in this area, however, is overlaid on a semi-urban grid of numerous streets and highways.

From Elk Grove south to the Sacramento-San Joaquin County line, the ROW and the surrounding lands are predominantly agricultural. Pastures are predominant, but some of the land is used for orchards, vineyards, and field crops. One notable exception is the land directly north of Twin Cities Road: from towers 31/1 through 33/1, the land has been set aside as a nature preserve. Within this stretch, as well as elsewhere along this southern portion of the ROW, the channels and creeks of the Cosumnes River watershed cross the ROW and contribute to many areas of dense, lush wetlands and riparian habitat.

3.2.1.3 Folsom-Nimbus

The Folsom-Nimbus transmission line (Figure 1-6) extends along a recreational area from the Nimbus Powerplant to the Folsom Substation. This recreational area, owned by the U.S. Bureau of Reclamation, Folsom Lake State Recreation Area, runs along both sides of Lake Natoma, a reservoir on the American River formed by Nimbus Dam. The first segment of the transmission line runs along the American River (Lake Natoma) and extends from tower 0/1 to tower 1/6, a distance of approximately 1.5 mi. The first mile is characterized by numerous small inlets, often formed within jutting boundaries of old mining tailings, and some inlets are home to emergent wetlands. After the first mile, the line moves away from the waterline and heads directly toward a bend in the river where it crosses to the east side.

On the east side of the American River, which is also part of the Folsom Lake State Recreation Area, the line continues approximately 2 mi from tower 1/7 to tower 3/6. As with the first segment, a paved bike path follows the ROW along its entire length. Along the entire 2 mi, the ROW is near the water. Small inlets formed by old mining tailings are found along this stretch as well.

At tower 3/6, the line crosses back to the west side of the American River to tower 3/7, located near the southern reach of the Negro Bar recreation site. From this point to tower 4/8, the line first extends the full length of the State Park and then continues along a recreational area corridor between the river and residential areas. At tower 4/8, the ROW continues onto padlocked fenced private lands, and at this point the paved bike path diverts from the ROW.

The fenced lands beginning at tower 4/9 and extending to tower 5/6 are located on the west side of the American River across from Folsom State Prison. From this point eastward, the ROW gradually increases in elevation relative to river level. From the southern to the northern fenced borders, the elevation continues to increase, and the span is characterized more by grasslands than by riparian or woodland habitat.

From tower 5/7 to the Folsom Substation, the ROW is located almost entirely on U.S. Bureau of Reclamation lands, which buffer Folsom Dam from the surrounding residential and recreation areas.

3.2.1.4 Folsom-Roseville

The Folsom-Roseville transmission line (Figure 1-7) begins within the south part of the Folsom Recreation Area and continues through U.S. Bureau of Reclamation land to tower 0/4, where the transmission line meets Folsom-Auburn Road. West of Folsom-Auburn Road, the

transmission line continues through trailer parks and residential backyards, corridors of grassland between residential subdivisions, and suburban park/recreation areas. Near tower 4/5, the transmission line extends into a commercial area, transects parking lots and business parks, and runs behind small businesses. From tower 5/4, the transmission line extends along a grassland corridor between a business area and an apartment complex, then crosses Dry Creek (a riparian corridor) east of tower 6/3. After that, the transmission line crosses over Interstate 80 just west of tower 6/4 and continues on to the Roseville Substation located east of Interstate 80.

3.2.1.5 Roseville-Elverta

The Roseville-Elverta transmission line (Figure 1-8) begins at the Roseville Substation (tower 0/1), runs somewhat northeast to southwest for approximately 11.5 mi, and then turns generally south for 2 mi before it reaches the Elverta Substation. In the northeast-southwest portion, it runs parallel and adjacent to the Cottonwood-Roseville line. For the first 3 to 4 mi, the ROW extends through urban areas with adjacent residential and commercial property. It extends, for example, through Roseville Cemetery and Sierra View Country Club and then follows a narrow residential corridor across Washington, Foothills, and Woodcreek Oaks boulevards. Starting at Woodcreek Oaks Boulevard (tower 3/5), the land becomes more open around the corridor, passing through Mahany Park and a number of small pastures. Undeveloped lands on either side mark the 1-mi stretch prior to Fiddyment Substation.

From Fiddyment Substation (tower 5/1) to Baseline Road (tower 8/4), the ROW passes primarily through and among pasturelands. Except for a 2-mi segment where the lands are devoted to agricultural use (towers 9/1 through 11/2; both rice and field crops), the remaining portion of the northeast-southwest transmission line corridor also passes through pastures, although, by contrast, the farms along this part of the ROW are small.

The 2-mi north-south segment of the Roseville-Elverta line starting at Los Garcias Road (tower 11/5) and ending at Elverta Substation (tower 13/1) is best characterized as pastureland. The ROW itself is undeveloped grassland, but the surrounding lands are small pastures mostly devoted to the grazing of cattle.

3.2.1.6 Cottonwood-Roseville

The Cottonwood-Roseville transmission line (Figure 1-9) begins at the Roseville Substation (tower 160/1), runs northeast to southwest for about 11.5 mi, and then turns north for about 18 mi before it reaches the Sutter-Yuba County line (tower 129/5), the boundary of the study area. Along its northeast-southwest passage, it runs parallel to the Roseville-Elverta line. For the first 3 to 4 mi, the ROW extends through urban territory with adjacent residential and commercial property. It extends, for example, through Roseville Cemetery and Sierra View Country Club, and then follows a narrow residential corridor across Washington, Foothills, and Woodcreek Oaks boulevards. Starting at Woodcreek Oaks Boulevard (tower 156/2), the land becomes more open around the corridor, passing through Mahany Park and a number of small farm pastures. Undeveloped lands on either side mark the 1-mi stretch prior to Fiddyment Substation.

From Fiddyment Substation (tower 155/1) to Baseline Road (tower 151/2), the ROW passes through and between pasturelands. Except for a 2-mi segment where the lands are devoted to agricultural use (towers 151/1 through 149/1; both rice and field crops), the remaining portion of the northeast-southwest transmission line corridor also passes through pasturelands, although by contrast, the farms along this part of the ROW are small.

After the line turns northward at tower 148/1, the Cottonwood-Roseville line runs side-by-side with the O'Banion-Elverta line until the O'Banion-Elverta line diverts to the northwest at tower 144/4, a stretch of approximately 3 mi. Except for a short distance (about 0.2 mi) where the ROW passes through an older residential neighborhood, the ROW between tower 148/1 and the diversion point is characterized by agricultural land use, mostly rice fields. Between the diversion point and the Sutter-Yuba County line, the ROW is almost entirely fenced farmland. The land is used predominantly as rice fields. Some limited areas are set aside as pastures, and very small portions of the ROW and its bordering lands, while agricultural in nature, are currently not in use at all. Bear River crosses the ROW near the county line. The ROW passes through walnut orchards for about 1 mi on either side of the river and south of the county line.

3.2.1.7 O'Banion-Elverta

The O'Banion-Elverta transmission line (Figure 1-10) begins at the Elverta Substation and ends at the O'Banion Substation. For the first 2 mi, it runs parallel and directly adjacent to the Roseville-Elverta line (from towers 161/4 to 160/3); and for the next 3 mi, it runs parallel to and directly adjacent to the Cottonwood-Roseville line (from tower 160/3 to 157/4). Once it diverts from the Cottonwood-Roseville line, it follows a southeast to northwest route ending at tower 135/1 at O'Banion Road.

The 2-mi segment from the Elverta Substation to Los Garcias Road is best characterized as pastureland. The ROW itself is undeveloped grassland, but the surrounding lands are small pastures mostly devoted to cattle grazing.

From tower 160/3, where the O'Banion-Elverta line joins the north-south portion of the Cottonwood-Roseville line, to tower 157/4 (near Sankey Road), the line extends about 3 mi. Except for a short distance (about 0.2 mi) where the ROW passes through an older residential neighborhood, the ROW through to the diversion point is characterized principally by agricultural land use, mostly rice fields.

Finally, from the diversion point to O'Banion Road, more than 95 percent of the ROW and its bordering lands are agricultural. Most of this land is rice field, with the remainder distributed among a variety of field crops, including hay, alfalfa, melons, and tomatoes, and walnut orchards.

North of where the ROW crosses the Feather River and its floodplains (at about tower 145/1), the ROW extends along the Sutter Bypass to tower 135/1. The ROW is directly adjacent to the Sutter Bypass levee, which is the boundary of a State wildlife refuge.

3.2.2 ENVIRONMENTAL CONSEQUENCES

3.2.2.1 Basis of Significance

An action would be considered to have a significant effect on land use if it would change or restrict use of land for a particular purpose.

3.2.2.2 General Discussion of Effects

Western's contract rights for transmission line and access road easements grant, at a minimum, the right to remove objects interfering with the operation and maintenance of the transmission line. This includes the right to remove trees, brush, or other objects considered to be dangerous or an impediment to access. Western's clearing needs can often conflict with a landowner's desired use.

For crop and pasture areas, the farmer manages the pasture or other crop on the ROW. Orchards are regulated by Western, which dictates maximum heights of orchard trees and requests the landowner to trim accordingly. On farmed lands, one concern is the vegetation that grows around the base of the tower legs. Because tilling and farming close to the tower legs is difficult, these small areas are sometimes left unfarmed, with a small decrease in farmed acreage, depending on the tower type and crop (Figure 3-1). The unfarmed areas become prime spots for noxious weed invasion or growth of other nuisance plants, such as blackberries and assorted vegetation. This can lead to accessibility problems and stress on the towers that leads to structural failure.

Where agricultural lands are next to the ROWs, care needs to be taken so that the agricultural plants are not harmed while vegetation on the ROW or access road is controlled. Also, if noxious weeds are allowed to spread on the ROW, they might spread into agricultural areas and invade crops.

3.2.2.3 No-Action Alternative

Vegetation Maintenance. Manual and mechanical vegetation maintenance methods would have no significant land-use impacts in agricultural areas. There would be little debris disposal necessary, unless the area was fallow. Care would be taken to ensure that debris from ROW maintenance would not be left in an adjacent farmland. Mechanical methods could increase the potential for water runoff or soil movement into agricultural fields from disturbed or compacted soils. However, because such occurrences would be extremely localized and because of the flat topography present in agricultural areas analyzed in this EA, any impacts would be less than significant.

Figure 3-1. Example of Untilled Agricultural Land under Tower

Access Road Maintenance. Access road maintenance would have no effect on existing land use—access road ROWs exist only for ingress and egress to the transmission line ROW.

Transmission Line Maintenance. Transmission line maintenance activities would have no effect on existing land use.

3.2.2.4 Proposed Action

Vegetation Maintenance. Effects from manual and mechanical vegetation control methods would be identical to those described for the no-action alternative, above. Under the proposed action, the duration and intensity of manual and mechanical vegetation maintenance would be less in the long term (greater than 5 years) than under the no-action alternative.

Some land uses that occur next to Western transmission lines could preclude the use of herbicides, especially broadcast application. These land uses would include residential areas, recreation sites, and other land uses where people are concentrated, even if the chemicals involved were benign. Because of this, herbicide methods would be controlled (such as spot chemical treatments rather than broadcast) when necessary in or near areas where people are concentrated to avoid any contact. Any potential effects would become less than significant by applying best management practices as described in Section 2.2.1.3.

If herbicides were used near crop or pasturelands, drift or migration through water runoff could kill crop plants or expose animals (sheep, cows, and horses). Any potential impacts would become less than significant by applying best management practices as described in Section 2.2.1.3.

Access Road Maintenance. Access road maintenance would have no effect on existing land use—access road ROWs exist only for ingress and egress to the transmission line ROW.

Transmission Line Maintenance. Transmission line maintenance activities could have localized, short-term effects on existing land use from repairs or soil boring. These effects would not be significant.

3.2.3 AVOIDANCE MEASURES

To avoid adverse effects to land use, Western would

- Follow best management practices described in Section 2.2.1.3;
- Read and follow herbicide label directions;
- Use growth regulators, after research, on landscape trees so they do not encroach on the transmission line;
- Continue to use appropriate methods (such as door hanger, letters, phone calls, e-mails, and/or meetings) during planning for vegetation control activities to notify landowners where Western has a ROW easement, to inform them of upcoming activities, and to request any information that needs to be considered;
- Minimize the spread of noxious weeds or contamination of cropland by other undesirable vegetation by cleaning seeds from equipment before entering cropland or moving between areas of different crops; and
- Observe appropriate buffer zones necessary to ensure that no drift would affect crops for ROWs adjacent to agricultural fields. These buffer zones would vary based on wind speed and direction.

3.3 HABITATS AND VEGETATION

3.3.1 AFFECTED ENVIRONMENT

The study area covers a significant portion of the Sacramento Valley and includes a variety of habitat types. For the purposes of this section, habitat types and associated plant species are largely based on *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986). The dominant natural habitat types common to the Sacramento Valley study area include elderberry savanna; vernal pools; riparian forest, woodland, and scrub; perennial streams and rivers; and grassland (Table 3-1). The following sections describe these habitat types and their locations within the study area.

Table 3-1. Habitats Found in Western's Rights-of-Way in the Sacramento Valley

Habitat	Acreage
Commercial or Industrial	123
Elderberry Savanna	14
Fallow	92
Fieldcrop	246
Grassland (Valley and Foothill Grassland)	527
Other	95
Orchard	28
Pasture (Non-Native Grassland)	329
Residential	179
Rice	273
Riparian	130
Vineyard	22
Wet meadow (Freshwater Seep)	6
Vernal Pools	16
Woodland (Oak Woodland)	45

3.3.1.1 Elderberry Savanna

Habitat Description. Elderberry savanna is an open, winter-deciduous shrub savanna dominated by elderberry (*Sambucus* spp.) (Holland 1986). Nonnative annual grasses and forbs typically dominate the understory of this vegetation type. This habitat type occurs on deep, fine-textured alluvium on elevated stream terraces away from the active channel but within the active floodplain.

Elderberry savanna is dependent on disturbance factors such as flooding, grazing, or fire. In the absence of these factors, natural succession ultimately leads to the development of a mixed riparian forest vegetation type.

Location within Study Area. This habitat type occurs within the American River floodplain along the southern portion of the Elverta-Hurley and northern portion of the Hurley-Tracy transmission lines. The biological survey also identified numerous individual or small clusters of elderberry bushes along the Folsom-Nimbus transmission line (entire length), the eastern portion of the Folsom-Roseville transmission line, the northern portion of the Cottonwood-Roseville transmission line (along the Bear River), and the southern portion of the Hurley-Tracy transmission line (near the Cosumnes River).

3.3.1.2 Vernal Pools

Habitat Description. Vernal pool habitat includes the entire complex of vernal pool wetlands and adjacent uplands that are critical to the special status species that occur in the pools (Holland 1986). Uplands may represent components of other habitats such as annual grasslands or blue oak woodlands; therefore, the limits of the vernal pool habitat type are defined by the presence of the vernal pool itself. A complex suite of physical and biological characteristics characterizes vernal pools.

Typical plant species associated with vernal pools include goldfields (*Lasthenia* spp.), coyote thistle (*Eryngium* sp.), woolly marbles (*Psilocarphus brevissimus*), slender popcorn flower (*Plagiobothrys stipitatus* var. *stipitatus*), downingia (*Downingia* sp.), and water pygmy weed (*Crassula aquatica*).

Location within Study Area. The biological survey identified vernal pools along the Folsom-Nimbus, Folsom-Roseville, Roseville-Elverta, Cottonwood-Roseville, O'Banion-Elverta, and Hurley-Tracy transmission lines.

3.3.1.3 Riparian Forest, Woodland, and Scrub

Habitat Description. Riparian forest consists of broadleaved, winter-deciduous trees, forming closed canopies, and are associated with the floodplains of low- to mid-elevation streams and rivers (California Department of Fish and Game [CDFG] 2005). Dominant species include valley oak (*Quercus lobata*), Fremont cottonwood (*Populus fremontii*), Oregon ash (*Fraxinus latzfolia*), and sycamore (*Platanus racemosa*) (Holland 1986). Riparian forests along streams with steeper gradients and coarse bedloads, above the Sacramento Valley floor, resemble Holland's white alder riparian forest. This riparian forest type is not as tall and is dominated by white alder (*Alnus rhombifolia*) with a shrubby, deciduous understory of willow (*Salix* sp.), dogwood (*Cornus sericea* and *C. sessilis*), and Oregon ash (Holland 1986). Most stands of riparian forest contain trees of similar age, as flood events control when these forests are started (CDFG 2005).

Riparian woodland is similar to riparian forest in composition but deviates in structure. Trees of riparian woodlands tend to be more widely spaced resulting in an open canopy (CDFG 2005). This type of riparian habitat tends to occur along more intermittent streams, often with bedloads of cobbles or boulders (CDFG 2005).

Riparian scrub is an open to dense, broadleafed, winter-deciduous shrubby vegetation type that is typically dominated by one or more species of willow. Dense stands usually have little herbaceous understory component; however, more open stands have herbaceous understories that are usually dominated by introduced grass species (Holland 1986). Riparian scrub occurs along streams and rivers of the Central Valley but is most common along smaller streams below 1,000 ft (Holland 1986).

Location within Study Area. Riparian forest, woodland, and/or scrub habitats commonly occur along major rivers and streams throughout the study area, including the American River

(Folsom-Nimbus, Elverta-Hurley, and Hurley-Tracy), Feather River (O'Banion-Elverta), Bear River (Cottonwood-Roseville), and Cosumnes River (Hurley-Tracy).

3.3.1.4 Perennial Streams and Rivers

Habitat Description. Perennial streams and rivers contain flowing water during the entire year. Average flows are generally greater than five cubic ft per second (cfs). The substrate of perennial streams and rivers in the project area vary from extremely coarse cobbles and gravels, where the gradient is large, to fine-textured silts, where the gradient is small. A significant feature of the perennial streams and rivers is the riffle and pool complexes that are significant for spawning fish.

Location within Study Area. Perennial stream and river habitats include channels of the American River, Feather River, Cosumnes River, and their perennial tributaries in the study area. These habitats occur along all transmission lines.

3.3.1.5 Grasslands

Habitat Description. Grassland habitat includes upland and lowland habitat with perennial or annual grasses and an arid climate. Associated forbs (such as broadleaved herbs) are often conspicuous because of their showy flowers. General terms that have been used for grasslands in the San Joaquin Valley include California prairie (Kuchler 1977) and Valley and Foothill prairie (Holland 1986).

Location within Study Area. Grasslands are present along all transmission lines in the study area.

3.3.2 ENVIRONMENTAL CONSEQUENCES

3.3.2.1 Basis of Significance

An action would be considered to have a significant effect on vegetation and habitats if it would result in permanent loss or degradation of non-target native vegetation population or degradation of habitat.

3.3.2.2 General Discussion

While Western intends to control target vegetation, changes could also occur to the overall vegetation population structure and diversity on the ROW. This section evaluates potential effects to non-target vegetation (vegetation that would not adversely affect human safety or reliability) and the vegetation structure described in Section 3.3.1.

Effects on non-target vegetation from ROW maintenance (regardless of the method used) could include the following:

- Trampling, crushing, or removing plant species;
- Increased exposure to direct sun and weather;
- Changes in plant community composition and diversity;
- Changes in soil moisture, nutrient level, and soil structure due to compaction; and
- Increases in noxious weed invasion.

Non-target plant species could also be removed or injured. The effect on vegetation would be greater if vegetation management were to occur during the growing season than during the winter, when plants are dormant and usually less affected by disturbances. Timing is, therefore, a measure to avoid effects to non-target vegetation. Regardless of maintenance timing, many species would recover from the effects by the following season. Plants that are plentiful in the area would re-establish themselves through roots or seed dispersal.

Controlling tall-growing vegetation would affect vegetation structure (plant community composition) and diversity. Grasslands and shrublands are naturally occurring low-growing plant communities that usually need little vegetation control. Brush or grass may need to be cleared around tower legs for access or fire protection. Overall, because vegetation control needed in these areas is limited, there would be little effect on the structure or diversity of the plant community.

In wooded areas, the dynamics of the ROW plant community, after maintenance, are complex and change constantly. These dynamics, discussed in detail in Bramble and Byrnes 1983, Brisson et al. 1997, and BPA 2000, include

- Interaction with trees in adjacent forests as they send a continuous flow of tree seeds to the ROW;
- Reduction in vegetation diversity as taller species out-compete lower growing species;
- Reduction in vegetation diversity after ROW maintenance by exposure of some plant species to sun, wind, or extreme temperatures; and
- Establishment of invasive species.

In wooded areas, maintaining ROWs so that only small or no trees can grow could increase the overall diversity of plant species in the area. This ROW open space, when surrounded by shaded woods, would provide a habitat for meadow-type plants (e.g., shrubs and grasses) to flourish. These meadow plants do not grow in shaded forests and would be species that lie dormant until favorable growing conditions arise (Bramble and Burns 1983).

3.3.2.3 No-Action Alternative

Vegetation Maintenance. Manual methods are selective. They generally would affect only the vegetation that has been targeted for cutting. As noted above, surrounding vegetation would

potentially be crushed or damaged by workers or debris. The main effect to vegetation of manual brush cutting is that it would encourage regrowth of multiple-stemmed sprouts for certain species. This, in turn, results in increased effort during future maintenance cycles, with a higher potential for damage to non-target vegetation (and sensitive habitats) during maintenance activities.

Most deciduous trees and some conifers will resprout when cut; some will also root sprout. In the study area, examples of these types of trees are eucalyptus, box elder, oak, redwood, mulberry, and willow. To kill these trees, the roots also must be killed. Otherwise, with every cycle of tree cutting, more sprouts (or stems) would grow; over time, the tree stem density would increase. Resprouts would grow back thick and keep low-growing shrubs from establishing themselves. Therefore, given the effect to vegetation (both target and non-target), as well as the higher cost associated with increased maintenance during successive maintenance cycles, it would be difficult to convert to a low-growing plant community using manual methods alone (no follow-up herbicide treatments) to eliminate tall brush in plant communities that have re-sprouting species.

A study by Nowak et al. (1993) compared tree densities and species composition on transmission line corridors in New York State over a 16-year period and across a wide range of management schemes, environmental conditions, and plant communities. On corridors where managers used periodic selective hand cutting with no herbicide treatments, tree density increased. On corridors where managers used herbicides to remove trees periodically and selectively, tree populations remained at constant low density.

Mechanical methods (such as using mowers or Hydro-Ax, a rubber-tired tractor that can use a variety of shear and saw attachments) are nonselective or much less selective than manual methods: they tend to clear or cut all vegetation within the path. This could have negative effects on species that Western would want to encourage to grow (such as low-growing brush, forbs, and grasses) or would need to avoid (such as special-status species).

Using some kinds of mechanical equipment, such as tracked vehicles, could disturb the ground (rutting and compaction), which could adversely affect soil productivity and potentially affect plant growth or encourage noxious weeds to invade and grow.

Mechanical methods usually encourage deciduous species to resprout. Therefore, if the ROW were dominated by deciduous species, the use of mechanical clearing without herbicides would most likely increase the tree-stem density of the ROW over time.

Large amounts of woody debris scattered on the surface of the ground could crush vegetation, shade the vegetation surroundings, increase soil moisture, and temporarily lower the quantity of soil nitrogen available for plant growth until decomposition of the material is nearly complete. Using heavy equipment for chipping could also crush non-targeted vegetation or affect the soil in which it grows through compaction and rutting.

Overall, mechanical methods share some disadvantages with manual methods (encouraging resprouting of certain species), and some equipment may cause more ground disturbance. However, mechanical methods are more efficient (in terms of both time and cost), can be used

in areas of dense vegetation unsuited to manual methods, and may achieve longer periods between maintenance activities, thereby reducing the frequency of effects.

Access Road Maintenance. Access road maintenance would have little effect on habitats and vegetation. Some bushes or trees might be removed along the edge of access roads during construction or maintenance of water diversions such as water bars and ditches. However, access road ROWs are only 30 ft wide in the study area, so the amount of vegetation removed would be small.

Transmission Line Maintenance. Transmission line maintenance activities would have little effect on habitats and vegetation as ground patrols are conducted only twice yearly using rubber-tired vehicles (pickups). The use of heavier equipment, such as backhoes, when performing maintenance activities, would be extremely localized (for example, at the base of a tower).

3.3.2.4 Proposed Action

Vegetation Maintenance. Effects from manual and mechanical vegetation control methods would be similar to those described for the no-action alternative in the absence of follow-up herbicide treatments. The use of herbicides may be restricted in some areas with sensitive habitat.

Potential direct impacts on flora and fauna in wetlands and vernal pools include mowing, blading, cutting, chopping, flailing of woody vegetation, topping and trimming of trees, hand pulling and hoeing of noxious weeds, and inhibiting growth of weeds by using geotextile barriers. Rutting from vehicle traffic can also affect wetland habitats. However, it has been shown that compacting can actually be beneficial to vernal pool species because it keeps out invasive species. In addition to the manual, mechanical, and physical methods of removing vegetation, Western also proposes using herbicides to kill or suppress growth of plants. Removal of plants (depending on the scale of the removal activities) could alter the habitat in localized areas. This change in habitat due to maintenance activities is expected to be minimal. Since the ROW is already established, maintenance activities are not anticipated to cause further fragmentation of habitat.

The degree to which herbicides would affect non-target vegetation depends on two factors: (1) the specific herbicide used (whether it is selective or non-selective), and (2) whether the herbicide contacts non-target vegetation. Such contact could occur through the application technique, such as drift (when herbicide drifts through the air or blows away from the area), water or soil movement, and accidental spills or accidental or careless applications. Effects of the specific herbicide on non-target vegetation would depend on the “selectivity” of the herbicide. A selective herbicide kills only one type of vegetation (e.g., broadleaf plants). A non-selective herbicide might kill a number of plant types (such as broadleaf and grasses). The more selective a particular herbicide, the less the potential for non-targeted vegetation to be harmed.

The application technique would determine whether or not the herbicide contacts non-targeted vegetation. Because spot herbicide applications treat individual plants (stump treatment or injection), there would be little potential for the herbicide to contact non-targeted vegetation.

Localized herbicide applications, which treat individual or small patches of plants, could affect non-target plants in the process of treatment, or non-target plants could come in contact with the herbicide through direct application and/or drift. Localized treatments would not be likely to cause much drift because relatively small areas are treated and the person who applies the herbicide (the applicator) would have a high degree of control.

Broadcast applications treat large areas, rather than individual plants. If there were any non-target plants in the area, the herbicide would come in contact with them. Broadcast applications would also have a greater potential to cause herbicide drift, because there is usually a relatively long distance between the spray source (such as a truck) and the plants or area treated. If there is any wind or other drift-causing factor during application, the herbicide could blow off-target and potentially contact non-targeted plants. Adhering to label instructions and weather restrictions and using adjuvants in the herbicide to increase droplet size would minimize or eliminate this potential drift.

Rain or erosion could move herbicides off-site through soil or water, allowing the herbicide to contact vegetation outside the intended treatment area. The likelihood of this happening would depend on the mobility of the particular herbicide, its persistence, the soil type, the proximity to water of the initial application, and the amount of rain (if any) present during and/or immediately after application. Regardless of technique, accidental spills of herbicide could cause herbicides to contact non-targeted vegetation. However, legal requirements and applicator training would emphasize prevention of such spills. The impacts of herbicide spills could range from low to high, depending on the persistence and mobility of the herbicide involved, as well as on how quickly and thoroughly a spill is cleaned up.

The beneficial effect of herbicides is the ability to control the resprouting of vegetation. This results in substantially longer periods between maintenance activities (Nowak et al. 1993). In addition to the obvious benefit in maintenance efficiency, disturbance to non-target vegetation in the ROW is reduced. Overall, the benefits to habitats and vegetation from promoting low-growth vegetation communities include

- Less overall disturbance to habitats from maintenance activities as low-growth vegetation communities reduce maintenance frequency,
- Overall increase in habitat diversity,
- Wildlife and aquatic habitat for early successional species, and
- Less disruptive maintenance measures.

Access Road Maintenance. Access road maintenance would have little effect on habitats and vegetation. Some bushes or trees might be removed along the edge of access roads during construction or maintenance of water diversions such as water bars and ditches. However,

access road ROWs are only 30 ft wide in the study area, so the amount of vegetation removed would be small.

Transmission Line Maintenance. Transmission line maintenance activities would have no significant effect on habitats and vegetation as ground patrols are conducted only twice yearly using rubber-tired vehicles (pickups). The use of heavier equipment, such as backhoes, when performing maintenance activities, would be extremely localized (for example, at the base of a tower).

3.3.3 AVOIDANCE MEASURES

To avoid adverse effects to habitats and vegetation, Western would

- Cut conifers below the lowest live limb to eliminate the continued growth of lateral branches;
- Use seeds, seedlings, or plants that are consistent with management objectives and adapted to climatic conditions, soils, landscape position, and the site itself;
- Use native seed/plants to the extent practical, or in accordance with management plans for recreational areas such as the Folsom Lake State Recreation Area;
- Follow herbicide product label directions for appropriate uses, restrictions, etc.;
- Use herbicide-thickening agents (as appropriate), label instructions, and weather restrictions to reduce the drift hazard to non-target plants;
- Follow all herbicide spill requirements in the rare case of an herbicide spill, including containment and cleanup procedures;
- Visit ROWs after treatments to determine whether target vegetation was controlled and whether non-target plants were affected. Any unexpected results would be noted and procedures would be changed to achieve better results during future treatments;
- Time maintenance activities to avoid sensitive periods; and
- Conduct pre-maintenance surveys by a qualified biologist.

3.4 WILDLIFE

3.4.1 AFFECTED ENVIRONMENT

The Sacramento Valley hosts a rich assemblage of wildlife. Nesting and migrating birds, large and small mammals, reptiles, and amphibians are found throughout the study area. The most diverse assemblages of wildlife species are found in riparian and wetland habitats. More than 50 amphibian and reptile species occur in lowland riparian systems, in addition to 55 species of mammals (Grenfell 1988). Wetlands provide food, cover, and water for more than 160 species

of birds (including migrating birds and waterfowl) and numerous mammals, reptiles, and amphibians (Kramer 1988). All transmission line ROWs include a variety of habitats and potential for the occurrence of wildlife.

3.4.2 ENVIRONMENTAL CONSEQUENCES

3.4.2.1 Basis of Significance

An action would be considered to have a significant effect on wildlife if it would result in the loss of a population of resident or migratory wildlife species.

3.4.2.2 General Discussion

Managing vegetation along ROWs and access roads could affect wildlife in two ways: (1) directly, by disturbing or harming animals during treatments, and (2) indirectly, by changing habitat conditions (effects on habitats are described in Section 3.3.2).

Disturbances from managing the vegetation on the ROW include removing trees that have nesting birds in them or other animals that use them for shelter. The presence of humans could scare animals, causing them to relocate or be stressed, or interfere with breeding. Any methods that would reduce the frequency and/or duration of human activities along the ROW would be considered less disturbing to wildlife.

The most obvious habitat changes from vegetation management occur in wooded areas. Significant portions of the Folsom-Nimbus, Folsom-Roseville, Elverta-Hurley, and Hurley-Tracy lines pass through such areas. Removing trees can change habitats. Situations where trees might be removed are in wooded areas along ROWs and in riparian and wetland habitat where trees are too close to the conductors and need to be cut.

An obvious habitat change would occur where mature trees or snags (standing dead trees) are cut. During maintenance, any large mature trees that Western removed would, in most cases, be “danger trees” located within or next to the ROW. Danger trees are those trees located within or adjacent to the ROW that present an immediate hazard to the transmission line or tower or have the potential to encroach within the safe distance to the conductor as a result of bending, growing, swinging, or falling (Western 2003). Removing danger trees is necessary not only to ensure reliability of the transmission system, but also as an environmental protection measure. If these trees were to come too close to the conductors, arcing could occur, resulting in a fire that would destroy the tree and surrounding habitat.

In wooded areas, maintaining low-growing plants within a ROW would maintain an “edge effect” (a place where two differing habitats meet) that was created when the transmission line was built. For some animals that live in wooded areas, but like to use adjacent open areas such as a ROW for foraging and hunting, this edge effect would be beneficial.

For some animals, an open corridor through a wooded area could divide or fragment their habitat. Western prefers that vegetation exist on the ROWs to reduce erosion and increase accessibility of the ROW.

3.4.2.3 No-Action Alternative

Vegetation Maintenance. An effect associated with manual methods of vegetation maintenance (primarily chainsaw) would be noise. Chainsaw noise would disturb animals, causing them to temporarily leave the area. Because manual clearing is selective, with little to no effect on non-target vegetation, this method would have less effect on the ROW habitat than other methods of clearing. However, manual cutting of deciduous trees without follow-up herbicide applications to kill the trees would require more frequent maintenance cutting cycles, increasing the human presence and animal disturbance.

Mechanical methods (especially blading) would disturb soil, and therefore disturb soil-dwelling species such as ground squirrels, moles, and salamanders. Ground-nesting birds could also be disturbed during mechanical vegetation removal. Although potentially distressing, noise and human activity would generally be of short duration and may temporarily drive wildlife from the work area, keeping them away from harmful activities.

As with manual methods, mechanical cutting of deciduous trees without follow-up herbicide applications to kill the trees would require more frequent maintenance cutting, increasing the human presence and animal disturbance. Effects from herbicide use are described under the proposed action (Section 3.4.2.4).

Access Road Maintenance. Access road maintenance would have some effect on wildlife. Repairs would be short-term activities in an extremely localized area. Any effects to wildlife would be temporary, and routine work would not take place if site conditions would present impacts to any threatened or endangered species.

Transmission Line Maintenance. Transmission line maintenance activities would have minor effects on wildlife as ground patrols are conducted only twice yearly using rubber-tired vehicles (pickups). The use of heavier equipment, such as backhoes, when performing maintenance activities, would be localized (for example, at the base of a tower) and of short duration.

3.4.2.4 Proposed Action

Vegetation Maintenance. Effects from manual and mechanical vegetation control methods would be similar to those described for the no-action alternative in the absence of follow-up herbicide treatments. The use of herbicides would be restricted in areas of sensitive habitat, such as vernal pools.

Wildlife could be exposed to herbicides by the following means:

- Being directly sprayed,
- Inhaling spray mist or vapors,
- Drinking contaminated water,

- Feeding on or otherwise coming into contact with treated vegetation or animals that have been contaminated, and
- Directly consuming the chemical.

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

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

The end effect of herbicide use within the proposed action is the ability to promote a stable, low-growth vegetation community. This would result in benefits to some species from

- Less overall disturbance to wildlife from maintenance activities as low-growth vegetation communities reduce maintenance frequency,
- Overall increase in habitat diversity,
- Wildlife and aquatic habitat for early successional species,
- Less disruptive maintenance measures, and
- Corridors for wildlife movement.

Because of the low toxicity of herbicides Western proposes for use, no significant adverse effects to wildlife from herbicide use are anticipated.

Access Road Maintenance. Access road maintenance would have some effect on wildlife. Repairs would be short-term activities in an extremely localized area. Any effects to wildlife would be temporary, and routine work would not take place if site conditions would present impacts to any threatened or endangered species.

Transmission Line Maintenance. Transmission line maintenance activities would have minor effects on wildlife as ground patrols are conducted only twice yearly using rubber-tired vehicles (pickups). The use of heavier equipment, such as backhoes, when performing maintenance activities, would be localized (for example, at the base of a tower) and of short duration.

3.4.3 AVOIDANCE MEASURES

To avoid adverse effects to wildlife, Western would

- Where feasible and appropriate, top and leave tall dead trees (snags) in place for wildlife habitat;
- Not perform routine maintenance in flooded areas;
- Time maintenance activities to avoid sensitive periods; and
- Conduct pre-maintenance surveys by a biologist during the period when birds protected under the *Migratory Bird Treaty Act* or *Bald and Golden Eagle Protection Act*, could be nesting. This period would extend from January 1 through August 15.

3.5 SPECIAL STATUS SPECIES

3.5.1 AFFECTED ENVIRONMENT

The special status species addressed in this report were identified from lists provided by the USFWS and a search of the CNDDB. In February 2001, the USFWS provided a species list that included all of the listed and proposed species that may occur in the project area. This list was updated in 2005 (Appendix B). A CNDDB search was performed in June and October 2001, for all U.S. Geological Survey (USGS) 7.5-minute quadrangle maps in the study area (CNDDB 2001): Carmichael, Elk Grove, Folsom, Galt, Gilsizer Slough, Lodi North, Nicolaus, Pleasant Grove, Rio Linda, Rocklin, Roseville, Sacramento East, Sheridan, Sutter Causeway, and Verona, California. A copy of the CNDDB is included in the Biological Data Report (Appendix A).

Table 3-2 identifies the listed and proposed species known to occur or with suitable habitat within the study area, as well as their status, habitat requirements, and reasons for decline or concern. Habitat along transmission lines and access road ROWs in the study area was noted during the biological survey described in Section 1.4.1.

3.5.2 ENVIRONMENTAL CONSEQUENCES

3.5.2.1 Basis of Significance

An action would be considered to have a significant effect on special status species if it would result in *take* (harm, capture, or death, including altering the habitat to the point that it kills or injures individuals of the species through the impairment of breeding, reproductive, and feeding behaviors) of a special status species, beyond limits of “incidental take” specified in the BO (USFWS 1998, USFWS 2005), or have an adverse effect on a species’ designated critical habitat.

Table 3-2. Special Status Species Known to Occur or with Suitable Habitat in the Study Area

Species	Status [a] Federal/ State	Habitat Association	Occurrence in Project Area	Reason for Decline or Concern	Potential for Effect	Avoidance Measures
Vernal Pool Species (plants)						
Gratiola heterosepala Boggs Lake hedge-hyssop	--/E	Clay soils in areas of shallow water, lake margins and vernal pool margins	Folsom-Nimbus, Folsom-Roseville, Roseville-Elverta, OBanion -Elverta, Hurley-Tracy	Agricultural conversion and urban development	Disturbance or destruction of habitat by equipment during maintenance activities; adverse effects from herbicides	Identification and avoidance of habitat where possible; herbicide use buffer zones
Orcuttia tenuis Slender orcutt grass	T/ E	Vernal pools, generally between 650 3,600 feet	Folsom-Nimbus, Folsom-Roseville, Roseville-Elverta, OBanion -Elverta, Hurley-Tracy	Agricultural conversion and urban development	Disturbance or destruction of habitat by equipment during maintenance activities; adverse effects from herbicides	Identification and avoidance of habitat where possible; herbicide use buffer zones
Orcuttia viscida Sacramento orcutt grass	E/E	Vernal pools below 330 feet	Folsom-Nimbus, Folsom-Roseville, Roseville-Elverta, OBanion -Elverta, Hurley-Tracy	Agricultural conversion and urban development	Disturbance or destruction of habitat by equipment during maintenance activities; adverse effects from herbicides	Identification and avoidance of habitat where possible; herbicide use buffer zones
Vernal Pool Species (invertebrates)						
Lepidurus packardi Vernal pool tadpole shrimp	E/--	Vernal pools; ephemeral stock ponds	Folsom-Nimbus, Folsom-Roseville, Roseville-Elverta, OBanion -Elverta, Hurley-Tracy	Habitat loss to agriculture and urban development	Disturbance or destruction of vernal pools by equipment during maintenance activities; adverse effects from herbicides	Identification and avoidance of habitat where possible; herbicide use buffer zones
Branchinecta lynchi Vernal pool fairy shrimp	T/--	Vernal pools and other seasonal freshwater wetlands	Folsom-Nimbus, Folsom-Roseville, Roseville-Elverta, OBanion -Elverta, Hurley-Tracy	Habitat loss to agriculture and urban development	Disturbance or destruction of vernal pools by equipment during maintenance activities; adverse effects from herbicides	Identification and avoidance of habitat where possible; herbicide use buffer zones

Table 3-2. Special Status Species Known to Occur or with Suitable Habitat in the Study Area (continued)

Species	Status [a] Federal/ State	Habitat Association	Occurrence in Project Area	Reason for Decline or Concern	Potential for Effect	Avoidance Measures
Fish						
Oncorhynchus tshawytscha Winter-run Chinook salmon	E/E	Riverine; cool, clear water with spawning gravel; migrate to the ocean to feed and grow until sexually mature	Hurley-Tracy at American River	Habitat degradation from blockage of adult passage to spawning areas, lethal water temperatures during egg incubation and early rearing	Reduction or elimination of shade trees; increase in turbidity due to erosion	Maintenance and herbicide use buffer zones along waterways
Oncorhynchus tshawytscha Central Valley spring-run Chinook salmon	T/T	Cold, clear water with clean gravel of appropriate size for spawning; most spawning occurs in headwater streams; migrate to the ocean to feed and grow until sexually mature	Hurley-Tracy at American River and Cosumnes River; OBanion - Elverta at Feather River	Habitat degradation, restricted access to spawning habitat	Reduction or elimination of shade trees; increase in turbidity due to erosion	Maintenance and herbicide use buffer zones along waterways
Oncorhynchus mykiss Central Valley steelhead	T/--	Riverine; cold, clear water with clean gravel of appropriate size for spawning; most spawning occurs in headwater streams; steelhead migrate to the ocean to feed and grow until sexually mature	Hurley-Tracy at American River and Cosumnes River; OBanion - Elverta at Feather River	Habitat degradation, restricted access to spawning habitat; increased water temperatures and sedimentation; decreased water quality; flow alterations	Reduction or elimination of shade trees; increase in turbidity due to erosion	Maintenance and herbicide use buffer zones along waterways

Table 3-2. Special Status Species Known to Occur or with Suitable Habitat in the Study Area (continued)

Species	Status [a] Federal/ State	Habitat Association	Occurrence in Project Area	Reason for Decline or Concern	Potential for Effect	Avoidance Measures
Invertebrates						
Desmocerus californicus dimorphus Valley elderberry longhorn beetle	T/--	Elderberry savanna, riparian, and oak savanna habitats with elderberry shrubs	Folsom-Nimbus, Folsom-Roseville, Cottonwood-Roseville, Elverta-Hurley, Hurley-Tracy	Loss and fragmentation of riparian habitats	Loss of habitat by removal of elderberry shrubs; habitat fragmentation	Elderberry removal to be compensated with mitigation credits and research
Amphibians						
Ambystoma californiense California tiger salamander	T/SSC	Grasslands and low (under 1,500-foot) foothill regions where lowland aquatic sites are available for breeding. Prefer natural ephemeral pools or ponds that mimic them (e.g., stock ponds that are allowed to go dry)	Hurley-Tracy	Loss and fragmentation of habitat from human activities and the encroachment of nonnative predators	Adverse effects from glyphosate-based herbicides; direct effects from maintenance crews or equipment	Vernal pool and aquatic buffer zones; maintenance crew education on identification of suitable habitat and avoidance procedures
Reptiles						
Thamnophis gigas Giant garter snake	T/T	Sloughs, canals, and other small waterways where there is a prey base of small fish and amphibians; requires grass banks and emergent vegetation for basking and areas of high ground protected from flooding during winter	OBanion -Elverta, Elverta-Hurley, Hurley-Tracy, Cottonwood-Roseville	Loss of habitat from agriculture and urban development	Increase in turbidity due to erosion; adverse effects from herbicides	Seasonal restrictions on maintenance activities in potential habitat; maintenance crew education on identification of suitable habitat and avoidance procedures

Table 3-2. Special Status Species Known to Occur or with Suitable Habitat in the Study Area (continued)

Species	Status [a] Federal/ State	Habitat Association	Occurrence in Project Area	Reason for Decline or Concern	Potential for Effect	Avoidance Measures
Birds						
Buteo swainsoni (Nesting) Swainsons hawk	--/T	Nests in oak or cottonwoods in or near riparian habitats; forages in grasslands, irrigated pastures, and grain fields	Hurley-Tracy, OBanion -Elverta, Cottonwood-Roseville	Loss of riparian, agriculture and grassland habitats; vulnerable to human disturbance at nest sites Nests along Sacramento River, Natomas Basin, and the Yolo Bypass	Potential direct effects on nest sites because of tree removal or trimming; potential disturbance to nest sites and foraging areas	Education on identification and avoidance of raptor nests and identification of suitable Swainsons hawk habitat; establish 200-ft buffer around active nests for maintenance activities
Coccyzus americanus occidentalis (nesting) Western yellow-billed cuckoo	--/E	Wide dense riparian forests with a thick understory of willows for nesting; sites with a dominant cottonwood overstory are preferred for foraging; may avoid valley oak riparian habitats where scrub jays are abundant	OBanion -Elverta	Loss of riparian habitat to agriculture and water control development; possible pesticide contamination	Potential direct effects on nest sites because of tree removal or trimming; potential disturbance to nest sites and foraging areas	None: no suitable habitat identified in study area
Riparia riparia (nesting) Bank swallow	--/T	Nests in bluffs or banks, usually adjacent to water, where the soil consists or sand or sandy loam to allow digging	Hurley-Tracy	Loss of natural earthen banks to bank protection and flood control; erosion control related to stream regulation by dams	Potential effects from ground-disturbing activities on nesting sites along the American River	No ground disturbing activities in potential nesting area

Table 3-2. Special Status Species Known to Occur or with Suitable Habitat in the Study Area (concluded)

Species	Status [a] Federal/ State	Habitat Association	Occurrence in Project Area	Reason for Decline or Concern	Potential for Effect	Avoidance Measures
Mammals						
Sylvilagus bachmani riparius Riparian brush rabbit	E/E	Dense, brushy areas of riparian forests above flood level	Hurley-Tracy	Loss of riparian habitat due to agriculture and water control development	No known occurrences in the project area; loss of habitat	Promote growth of brush elements of riparian habitat
Neotoma fuscipes riparia Riparian (San Joaquin Valley) woodrat	E/SSC	Riparian habitats where trees and brush are available for cover and nesting	Hurley-Tracy	Loss of riparian habitat, limited range	No known occurrences in the project area; loss of habitat	Promote growth of brush elements of riparian habitat

Sources: CNDDB 2001, USFWS 2001

[a] Status explanations:

Federal

E = listed as endangered under the Federal *Endangered Species Act*
T = listed as threatened under the Federal *Endangered Species Act*
-- = no listing

State

E = listed as endangered under the California *Endangered Species Act*
T = listed as threatened under the California *Endangered Species Act*
SSC = species of special concern in California
-- = no listing

3.5.2.2 General Discussion

This section examines effects and avoidance measures related to special status species. Effects to vegetation and habitats are discussed in Section 3.3 and are applied here to threatened and endangered species and their habitats within the study area. Appendix A presents details on threatened and endangered species in the study area, their status, distribution, and life history. Effects are considered significant if they would adversely affect individuals or habitat for these species.

Federal- or State-listed threatened and endangered animal and plant species that have been observed or have suitable habitat within the study area are listed in Table 3-2. Effects from vegetation maintenance activities are discussed in Appendix A and below. With the exception of the valley elderberry longhorn beetle (VELB), impacts to threatened and endangered species are not expected to be significant due to measures that are incorporated to reduce, avoid, or mitigate impacts.

3.5.2.3 Vernal Pool Species

Five threatened or endangered species in the study area are typically associated with vernal pools: two invertebrates, the vernal pool tadpole shrimp (*Lepidurus packardi*) and vernal pool fairy shrimp (*Branchinecta lynchi*); and three plants, Boggs Lake hedge-hyssop (*Gratiola heterosepala*), slender orcutt grass (*Orcuttia tenuis*), and Sacramento orcutt grass (*Orcuttia viscida*). The biological survey did not test for occurrence of any of these species except for the orcutt grasses. No orcutt grasses were noted within Western's ROW.

No-Action Alternative

Vegetation Maintenance. Under the no-action alternative, vehicles accessing the ROW for manual vegetation maintenance could cause damage to vernal pools and vernal pool species by increasing turbidity, destroying plant and animal species, or altering the topography of the vernal pool. Mechanical methods could be similarly destructive to vernal pools, especially during the wet season.

Access Road Maintenance. The biological survey did not identify vernal pools along access roads in the study area.

Transmission Line Maintenance. Transmission line patrols and repairs have the potential to cause damage to vernal pools and vernal pool species by increasing turbidity, destroying plant and animal species within tire tracks, or altering the topography of the vernal pool.

Proposed Action

Vegetation Maintenance. Under the proposed action, the short-term (1- to 2-year) effects of establishing low-growth species in the ROW, possibly including removal of particular plant species, could impact vernal pools by vehicle traffic as described under the no-action alternative. Over the long term (greater than 2 years), the proposed action would require less active management, therefore, less vehicle traffic and potential for vehicle damage. In addition, the vegetation would be more stable reducing the sudden effects that could damage vernal pool habitat. However, additional effects from the proposed action could be caused by herbicides affecting vernal pool vegetation (with likely effects to the invertebrate species) through overspray or runoff.

Access Road Maintenance. The biological survey did not identify vernal pools along access roads in the study area.

Transmission Line Maintenance. Transmission line patrols and repairs have the potential to cause damage to vernal pools and vernal pool species by increasing turbidity, destroying plant and animal species within tire tracks, or altering the topography of the vernal pool.

Avoidance Measures

To avoid adverse effects to vernal pool species, Western would establish buffer zones specific to the type of maintenance activity and season. These buffer zones are listed in Table 3-3 and appear in the 2005 BO.

3.5.2.4 Fish

Three threatened or endangered fish species are known in the study area: Winter-run chinook salmon, Central Valley spring-run chinook salmon (*Oncorhynchus tshawytscha*), and the Central Valley steelhead (*Oncorhynchus mykiss*). At least one of these species may be present in waters of major rivers (Cosumnes River, American River, and Feather River) and their tributaries within the study area at any time of the year. Spawning areas of both salmon species and the Central Valley steelhead are upstream from the study area.

No-Action Alternative

Vegetation Maintenance. Under the no-action alternative, negative effects to fish could result from elimination or reduction of shade trees on the southern point where the Hurley-Tracy transmission line crosses the American River, or from increased turbidity associated with runoff if maintenance vehicles in the area cause increased erosion. Neither of these possibilities could be regarded as significant given the size and volume of the American River at the Hurley-Tracy crossing.

Table 3-3. Vernal Pool Buffer Zones for ROW Maintenance Methods, Equipment, Techniques/Activities, and Applications

Buffer and Other Considerations		Method	Example Equipment [c]	Technique/Activity [c]	Applications [c]
Dry Season [a]	Wet Season [b]				
Vegetation Maintenance (Transmission Line and Access Road ROWs)					
None	To pool edge	Manual	Chainsaw, clipper, axe	Trimming, removal, disposal	Selective vegetation removal
None	100 ft	Mechanical	Heavy-duty mowers (brush-hog, Hydro-Ax), crawler tractors, chippers	Mowing, removal, disposal	Temporary control of thick stands of vegetation
To pool edge	25 ft	Herbicides	Hand-held applicator	Cut-stump	Control of woody vegetation
100 ft	100 ft	Herbicides	Hand sprayers, power sprayers, herbicide appropriate for technique and application	Spot, localized	Spot treatments where selective elimination of species is desirable. Localized treatment on ROWs with low-to-medium target plant density.
150 ft	150 ft	Herbicides	Vehicle with boom	Broadcast	Treating large/dense areas of ROW vegetation, especially where access by truck is readily available.

Table 3-3. Vernal Pool Buffer Zones for ROW Maintenance Methods, Equipment, Techniques/Activities, and Applications (continued)

Buffer and Other Considerations		Method	Example Equipment [c]	Technique/Activity [c]	Applications [c]
Dry Season [a]	Wet Season [b]				
Access Road Maintenance					
To pool edge. Erect silt fences for work within 25 ft. Do not deposit material within 250 ft upslope of pool.	50 ft. Silt fences or similar means of runoff control will be used if runoff from ground-disturbing activities could reach vernal pool. Construction would apply concepts stated in the U.S. Forest Service Publication *Forest Roads: A Synthesis Of Scientific Information* (June 2000).	Repairing	Bulldozer, caterpillar (tracked vehicle), dump truck, backhoe	Specific to type of repair	Specific to type of repair
		Grading	Bulldozer, caterpillar	Removal and leveling of upper levels of soil profile	Used to construct or repair road surface
		Filling	Dump truck	Delivery of gravel, rock, or soil to fill depressions	Filling of depressions during initial or reconstruction of road
		Cleaning water crossings	Backhoe, dump truck	Removal of debris from culverts and ditches	To maintain optimal efficiency of water diversions to prevent washouts and erosion
		Repair or construction of water bars	Backhoe, dump truck, bulldozer	Grading and shaping of soil to construct/repair a berm to control erosion	Direct water off road surface to prevent washouts or erosion
		Repair or construction of v-shaped ditches	Backhoe	Construction of ditches to allow drainage	Direct water off road surface to prevent washouts or erosion
		Construction or replacement of culverts	Backhoe, truck, trailers	Installation of pipe culvert under across road	Used whenever drainages or streams are of sufficient size

Table 3-3. Vernal Pool Buffer Zones for ROW Maintenance Methods, Equipment, Techniques/Activities, and Applications (concluded)

Buffer and Other Considerations		Method	Example Equipment [c]	Technique/Activity [c]	Applications [c]
Dry Season [a]	Wet Season [b]				
Transmission Line Maintenance					
None	50 ft. No buffer for travel on established roads and access roads.	Patrols (ground)	Pickup truck	Detailed observation of entire transmission system performed on semi-annual basis	Check access to towers/poles, tree clearances, fences, gates, locks, and tower hardware
		Inspection (climbing)	Pickup truck, bucket truck	Detailed observation of system hardware performed on 20 percent of structures each year	Identify deterioration of hardware not detected in aerial or ground inspections
None for non-ground disturb-ing activities. 25 ft for ground disturb-ing activities.	50 ft. Silt fences or similar means of runoff control will be used if runoff from ground-disturbing activities could reach vernal pool.	Repairs and preventative maintenance	Pickup truck, bulldozer, caterpillar, backhoe, bucket truck, hand tools	Based on needs identified during inspections or other reports, replace insulators; tighten, replace, or repair towers/poles or hardware; look for ROW encroachments	Performed wherever damage or deterioration of transmission lines or facilities poses a threat to safety or reliability
250 ft	250 ft	Underground water, power, communication, or ground electrical line	Pickup truck, bulldozer, caterpillar, backhoe, bucket truck, hand tools	Based on needs identified during inspections or other reports, install, replace, or repair underground components related to transmission lines or substations	Performed wherever damage or deterioration of underground components poses a threat to safety or reliability, or where new components are necessary for optimal system operation and safety
250 ft	250 ft	Soil borings from surface to 100 ft deep	Pickup truck, mobile drill rig (rubber-tired truck with outriggers), van for sample management	Direct-push or auger drilling with sample recovery	Subsurface soil recovery for geotechnical or environmental analyses

[a] Dry season defined as that time of year when no standing water is present in a vernal pool.
[b] Wet season defined as that time of year when standing water is present in a vernal pool.
[c] Note that equipment, activities, and applications are typical, but not all-inclusive. Improvements in technology may result in new types of equipment or broadening of applications.

Access Road Maintenance. No access roads cross perennial waterways in the study area.

Transmission Line Maintenance. Routine transmission line patrols would not affect waterways. Ground-disturbing repairs near waterways could lead to increased turbidity, but such activities would be localized (for example, at the base of a single tower) and of short duration.

Proposed Action

Vegetation Maintenance. Under the proposed action, negative effects would be the same as those described for the no-action alternative, with the addition of chemical runoff if herbicides were used. Western selects herbicides for use partially based on their low toxicity and bioaccumulation potential. Dilution would play a major role in diminishing any impact to these fish from herbicide runoff from the ROW. As part of the best management practices described for the proposed action in Section 2.2.1.3, Western would ensure that all herbicides are compatible with the environment in which they are used, including any restrictions on use near water bodies.

Access Road Maintenance. No access roads cross perennial waterways in the study area.

Transmission Line Maintenance. Routine transmission line patrols would not affect waterways. Ground-disturbing repairs near waterways could lead to increased turbidity, but such activities would be extremely localized (for example, at the base of a single tower) and of short duration.

Avoidance Measures

To avoid adverse effects to fish species, Western would

- Trim trees providing shade to riverine areas only to the extent necessary; and
- Define a 100-ft buffer on each side of all perennial watercourses. In this buffer, no chemicals would be mixed, no open petroleum products would be allowed and only hand clearing of vegetation would be permitted (no foliar application of herbicides). This buffer would not apply to cut-stump treatments using herbicides approved for aquatic use by the EPA, subject to any additional restrictions imposed by the State of California.

3.5.2.5 Invertebrates

The VELB is found in association with its host plant, the elderberry (*Sambucus* spp.) and is Federally listed as a threatened species (USFWS 1980). Critical habitat for the Federally listed threatened VELB is located near the Elverta-Hurley transmission line, and other VELB habitat is located on the Elverta-Hurley, Folsom-Nimbus, Folsom-Roseville, Cottonwood-Roseville, and Hurley-Tracy transmission line ROWs in the study area. Elderberry grows to heights that can interfere with transmission line conductors, hamper access to towers and the transmission

line, and impair the structural integrity of towers by growing within the towers themselves (Figure 3-2).

Figure 3-2. Elderberry Causing Stress to Tower 9/4, Elverta-Hurley Transmission Line

No-Action Alternative

Vegetation Maintenance. Under the no-action alternative, no control of elderberry would take place except for emergency situations. Emergency situations are those where there is an imminent threat to system reliability or public safety. In emergency situations, elderberry removed would be counted toward Western's "incidental take" as specified in Western's BO from the USFWS (USFWS 1998). Under the 1998 BO, incidental take is limited to 10 elderberry plants or plant clusters per year for routine maintenance activities within Western's entire California service area. (Note that a new BO [USFWS 2005] has been prepared based on the proposed action, with incidental take restrictions described below.) Any exceedance of the incidental take would require mitigation according to USFWS Conservation Guidelines (USFWS 1999). Elderberry could be removed using manual or mechanical methods.

Access Road Maintenance. No potential VELB habitat was recorded along access roads during the biological survey.

Transmission Line Maintenance. Routine transmission line patrols or ground-disturbing repairs would have the potential to affect VELB habitat; however, mature elderberry shrubs would be identified and avoided.

Proposed Action

Vegetation Maintenance. The primary objective of Western's IVM Program is to minimize the need for active ROW maintenance by establishing low-growth vegetation communities. Ultimately, this approach results in a more stable habitat and reduces the need for heavy equipment and work crews to disturb the ROW. Fast-growing elderberry shrubs and other deciduous trees that currently require intense maintenance occur in areas of VELB habitat. Western shall employ the following measures to eliminate adverse effects to the VELB and simultaneously reduce the level of active maintenance necessary along the ROW:

- Manually remove tall-growing species (such as California walnut, California sycamore, and box elder) that are within 20-ft of elderberry shrubs. These trees can interfere with the transmission line.

- Manually trim elderberry bushes that have the potential to interfere with transmission lines in compliance with guidelines and procedures from American National Standards Institute (ANSI) A300 Part 1. Application of this standard would reduce trauma to the plant and minimize future growth. Trimming would take place above the 10-ft level primarily used by the VELB, as mentioned in the 2005 BO, page 8.

The removal of elderberries within 40 ft of transmission line tower centers and within 20 ft of poles is necessary to ensure system reliability and public safety by preserving structural integrity of transmission line towers, allowing access to the tower perimeter or pole for routine maintenance or repairs, and removing a "path to ground" that could cause arcing. Removal of these elderberries would exceed Western's allowed incidental take specified in the 2005 BO (USFWS 2005). Loss of VELB habitat shall be mitigated according to the USFWS conservation guidelines (USFWS 1999) and the results of formal consultation described below and in the 2005 BO (USFWS 2005). Stumps of removed elderberry would be spot-treated with an herbicide to prevent root sprouting.

Western shall also perform manual trimming of elderberry shrubs between transmission line towers. VELB exit holes have been identified from a few inches to 10 ft above ground level (USFWS 1984, Barr 1991), but usually within 6 ft of the ground (Collinge et al. 2001). More recent investigations have determined that VELB typically do not utilize parts of the bushes that are over 1 meter in height (Huxel 2001). To protect the VELB, Western would restrict its trimming of elderberry to the 10-ft or higher level, consistent with the 2005 BO (USFWS 2005). According to Huxel (personal communication 2001) this would prevent removal of stems containing beetle larvae and allow a full canopy recovery within 2 to 3 years.

Access Road Maintenance. No potential VELB habitat was recorded along access roads during the biological survey.

Transmission Line Maintenance. Routine transmission line patrols or ground-disturbing repairs would have the potential to affect VELB habitat; mature elderberry shrubs would be identified and avoided.

Mitigation

ROW Maintenance Activities Requiring Elderberry Removal

Under the proposed action, 422 stems, 1-inch or greater diameter, would be removed from areas within 40 ft of tower centers (approximately 20 ft from tower legs) and within 20 ft of poles. This action is necessary for the safety and reliability of the system; elderberry have been observed growing within tower structures and causing stress to towers that could lead to structural failure.

Conservation guidelines for the VELB (USFWS 1999) prescribe minimization ratios as listed in Table 3-4. A survey conducted in January and February, 2002, identified elderberry bushes for removal along Western's ROWs and counted stems according to protocols described in the Conservation Guidelines for the VELB (USFWS 1999). A follow-up survey, conducted in April 2004, refined these numbers based on latest site conditions. Results of these surveys and required mitigation are summarized in Table 3-5.

The total elderberry mitigation stems listed in Table 3-5 assumes 100 percent of elderberry stems would be transplanted. Because of concern for safety in working with equipment near transmission lines and the structural integrity of towers, Western may not be able to transplant all elderberry shrubs, and therefore be required to double mitigation for untransplanted stems. Western will evaluate each shrub at the time of removal to determine whether transplant is feasible. Western would add 2.8 acres to the 18.8 acres of compensation area calculated in Table 3-5 to account for 15 percent of plants, with various stem sizes, that would not be feasible to transplant. In addition, Western would perform mitigation to cover incidental take of up to 10 elderberry shrub clusters per year as well as trimming elderberry above the 10-ft level. Western would set aside an additional 5 acres for this mitigation over the 20-year term of the 1998 programmatic BO (USFWS 1998). The total size of the compensation area under the proposed action is 26.6 acres. If, due to funding or other constraints, Western scales back its maintenance program and decides not to remove some shrubs, the mitigation acreage would be adjusted accordingly.

Western has negotiated with the County of Sacramento to restore VELB habitat along the American River Parkway in return for payment. The compensation area would be located near Western's ROW between Business I-80 and SR-160 north of the American River. This area is a former agricultural field that currently contains non-native herbaceous grasses and star thistle. However, native vegetation is adjacent to the field. Western would contract with a qualified third party to remove non-native vegetation and prepare the compensation area for planting, and perform the following tasks in accordance with Conservation Guidelines for the VELB (USFWS 1999):

Table 3-4. Minimization Ratios for Elderberry Shrubs Based on Location, Stem Diameter, and Presence or Absence of Exit Holes

Location	Stems (maximum diameter at ground level in inches)	Exit Holes	Elderberry Seedling Ratio	Associated Native Plant Ratio
Non-riparian	≥ 1 & ≤ 3	No	1:1	1:1
		Yes	2:1	2:1
Non-riparian	> 3 & < 5	No	2:1	1:1
		Yes	4:1	2:1
Non-riparian	≥ 5	No	3:1	1:1
		Yes	6:1	2:1
Riparian	≥ 1 & ≤ 3	No	2:1	1:1
		Yes	4:1	2:1
Riparian	> 3 & < 5	No	3:1	1:1
		Yes	6:1	2:1
Riparian	≥ 5	No	4:1	1:1
		Yes	8:1	2:1

Source: USFWS 1999

- Remove elderberry from current locations, transport to the compensation area, and replant;
- Plant appropriate ratios of elderberry seedlings and associated native species;
- Provide long-term protection, weed control, litter control, fencing, and signage;
- Monitor and develop survey reports over a period of 10 consecutive years or 7 years over a 15-year period; and
- Replace failed plantings if the survival rate drops below 60 percent during the first year.

A total of 411 of the 422 stems to be removed under the proposed action are located in the American River Parkway within 3 miles of the compensation area.

No conservation easement is necessary given the land use plan already in place for the American River Parkway, which is protective of VELB habitat. The County of Sacramento would maintain the area in perpetuity according to this land use plan.

The proposed mitigation would enhance opportunities for survival of the VELB for the following reasons (Holyoak 2004, personal communication):

Table 3-5. Summary of Required Valley Elderberry Longhorn Beetle Mitigation under the Proposed Action

	Riparian						Non-Riparian		
	Exit Holes [a]			No Exit Holes [a]			No Exit Holes [a]		
Stem Size	*Count*	*Multiplier*	*Mitigation*	*Count*	*Multiplier*	*Mitigation*	*Count*	*Multiplier*	*Mitigation*
1"-3"	107	4	428	141	2	282	6	1	6
>3" to <5"	80	6	480	40	3	120	3	2	6
5" and greater	40	8	320	5	4	20	0	3	0
Totals			1228			422			12
								Total Elderberry Mitigation Stems	1662
								Native Plants	2890
								Total Plants	4552
								Total Elderberry Mitigation Units (1999 Conservation Guidelines)	455
								Total Elderberry Mitigation Acres (1999 Conservation Guidelines)	18.8
								15-Percent Contingency for Non-transplanted Shrubs	2.8
								Acres to Compensate for Additional Take and Trimming	5.0
								Total Elderberry Mitigation Acres	26.6

[a] During the surveys, counts of exit holes were based on plant groupings, which could include multiple plants; if exit holes were noted in one stem, the entire group of plants was counted as having exit holes. As the conservation guidelines specify exit hole counts based on individual plants, actual mitigation required may be less than shown in the table if not all plants within a group contain exit holes. Exit hole determination would be made at the time of plant removal.

- Because the VELB is a poor colonist (limited dispersal characteristics), the location of the compensation area adjacent to riparian habitat with demonstrated VELB presence will increase the prospects for VELB migration to the compensation area;
- Because the site is demonstrably suitable for elderberry, a low mortality rate for elderberry plants is expected; and
- The compensation area itself is a contiguous area providing better opportunity for the VELB to colonize.

More information on VELB mitigation is contained within the accompanying Mitigation Action Plan.

Routine ROW Maintenance Activities within VELB Habitat

For other ROW maintenance activities in areas of VELB habitat, Western would

- Fence and flag all areas to be avoided during maintenance activities;
- Brief contractors on the need to avoid damaging the elderberry plants and the possible penalties for not complying with these requirements;

- Erect signs every 50 ft along the edge of the avoidance area with the following information: "This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment." The signs should be clearly readable from a distance of 20 ft, and must be maintained for the duration of construction;

- Instruct work crews about the status of the beetle and the need to protect its elderberry host plant; and

- Avoid the use of insecticides, herbicides, fertilizers, or hazardous chemicals within established buffer zones.

3.5.2.6 Birds

Three threatened or endangered bird species may nest within the study area: the State-listed threatened Swainson's hawk (*Buteo swainsoni*) and Bank swallow (*Riparia riparia*), and the State-listed endangered Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*). Swainson's hawks and the Western yellow-billed cuckoos nest in trees; the Bank swallow nests on riverbanks.

No-Action Alternative

Vegetation Maintenance. The Swainson's hawk and the Western yellow-billed cuckoo could be affected by manual tree removal or manual/mechanical trimming activities under the no-action alternative. Maintenance activity could destroy active Swainson's hawk nests or could disturb nesting pairs during the breeding season (March through July). However, Western's maintenance employees are trained to recognize raptor nests, and the hawk's tendency to nest in isolated trees or small groves of oaks would reduce the likelihood that vegetation maintenance would involve significant topping of trees. The biological survey performed for the project did not identify suitable cuckoo habitat within the study area, although a sighting in the Nicklaus Quadrangle (O'Banion-Elverta transmission line) is recorded in the CNDDB. Mechanical methods of vegetation control could damage riverbank-nesting areas of the Bank swallow.

Access Road Maintenance. Access road maintenance would not affect bird habitat, although associated vegetation removal activities could have effects as listed above.

Transmission Line Maintenance. Transmission line maintenance would have no effect on bird habitat. Replacing defective bird diverters would provide a net benefit.

Proposed Action

Vegetation Maintenance. The Swainson's hawk and the Western yellow-billed cuckoo could be affected by manual tree removal or manual-/mechanical-trimming activities as described

under the no-action alternative, above. Mechanical methods of vegetation control could damage riverbank-nesting areas of the Bank swallow, as discussed above.

Although herbicides selected for use by Western would have low toxicity to animals, direct spraying of birds or hatchlings could result in impaired health.

Access Road Maintenance. Access road maintenance and reconstruction would not affect bird habitat, although associated vegetation removal activities could have effects as listed above.

Transmission Line Maintenance. Transmission line maintenance would have no effect on bird habitat. Replacing defective bird diverters would provide a net benefit.

Avoidance Measures

To avoid adverse effects to the Swainson's hawk, Western would

- Perform preconstruction surveys for Swainson's hawk within the ROW prior to conducting maintenance activities;
- Defer routine maintenance in the vicinity of an active nest until after the nesting season;
- Avoid removal of nest trees (unless necessary for transmission line safety and to prevent fire) and monitor nest sites; and
- Establish and maintain a 200-ft buffer for maintenance activities during the breeding season (March through July). This buffer could be adjusted, based on changes in sensitivity exhibited by birds over the course of the nesting season and the type of maintenance performed (high noise or human activity such as mechanical vegetation maintenance methods versus low noise or human activity such as semi-annual patrols).

For the Bank swallow, Western would

- Avoid conducting ROW maintenance activities that could cause ground disturbance where suitable habitat exists at ROW crossings on the American River, Feather River, and Cosumnes River;
- Conduct pre-maintenance surveys by a qualified biologist to identify any habitat; and
- Define a 100-ft buffer on each side of all perennial watercourses. In this buffer, no chemicals would be mixed, no open petroleum products would be allowed and only hand clearing of vegetation would be permitted (no foliar application of herbicides). This buffer would not apply to cut-stump treatments using herbicides approved for aquatic use by the EPA, subject to any additional restrictions imposed by the State of California.

For the Western yellow-billed cuckoo, no avoidance measures are necessary because no suitable habitat was identified in the study area. Western would develop avoidance measures if

suitable habitat is identified or if Western yellow-billed cuckoos are sighted near the study area.

3.5.2.7 Amphibians

Sightings of the California tiger salamander have not been recorded in the study area, though it has been documented in the Lodi North and Galt quadrangles through which the Hurley-Tracy transmission line passes. The USFWS has proposed critical habitat in areas of the Central Valley, including parts of Sacramento County. Western's transmission lines or ROWs do not cross any of these areas. However, there is suitable habitat in the ROW.

No-Action Alternative

Vegetation Maintenance. Under the no-action alternative, vehicles accessing the ROW for manual vegetation maintenance could cause damage to ponds or vernal pools, if present, adversely affecting the species by increasing turbidity, destroying plant and animal species, or altering topography. Mechanical methods could be similarly destructive to vernal pools and ponds.

Access Road Maintenance. The biological survey did not identify suitable California tiger salamander habitat along access roads in the study area.

Transmission Line Maintenance. Transmission line patrols and repairs could cause damage to ponds or vernal pools by increasing turbidity, destroying plant and animal species within tire tracks, or altering topography.

Proposed Action

Vegetation Maintenance. Under the proposed action, the short-term (1- to 2-year) effects of establishing low-growth species in the ROW, possibly including removal of particular plant species, could affect ponds or vernal pools by vehicle traffic as described under the no-action alternative. Over the long term (greater than 2 years), the proposed action would require less active management, therefore, less vehicle traffic and potential for vehicle damage. In addition, the vegetation would be more stable, reducing the sudden effects that could damage habitat. However, additional effects from the proposed action could be caused by herbicides affecting pond or vernal pool vegetation (with likely effects to amphibians) through overspray or runoff.

Access Road Maintenance. The biological survey did not identify suitable California tiger salamander habitat along access roads in the study area.

Transmission Line Maintenance. Transmission line patrols and repairs could cause damage to ponds or vernal pools by increasing turbidity, destroying plant and animal species within tire tracks, or altering topography.

Avoidance Measures

To avoid adverse effects to the California tiger salamander, Western would

- Use the results of the biological survey to determine the location of vernal pools and ponds and avoid them during routine maintenance activities;
- Identify areas where vernal pools and ponds are concentrated and establish avoidance buffers or prohibit routine maintenance activity in those areas during wet seasons; and
- Locate wire pulling, wire splicing, and maintenance materials outside of vernal pool and pond habitats or on existing roads.

3.5.2.8 Reptiles

One threatened reptile species, the giant garter snake (*Thamnophis gigas*), may occur within the study area. Giant garter snakes could be affected by maintenance activity associated with any disturbance of its habitat of levees or ditches.

No-Action Alternative

Vegetation Maintenance. Because suitable giant garter snake habitat is limited to ditches and small tributaries in open agricultural areas, little vegetation management activity is likely to take place in these areas under the no-action alternative.

Access Road Maintenance. No access roads cross, or are adjacent to, suitable giant garter snake habitat within the study area.

Transmission Line Maintenance. Routine patrols and repairs of transmission lines could occur in areas of giant garter snake habitat. The greatest possibility of affecting the snake would be from running over a snake with a vehicle. Transmission line repairs would be localized, and the noise and activity would likely cause the giant garter snake to relocate.

Proposed Action

Vegetation Maintenance. Because suitable giant garter snake habitat is limited to ditches and small tributaries in open agricultural areas, little vegetation management activity is likely to take place in these areas under the proposed action. These are already low-growth, low-maintenance vegetation communities that the proposed action encourages.

Access Road Maintenance. No access roads cross, or are adjacent to, suitable giant garter snake habitat within the study area.

Transmission Line Maintenance. Routine patrols and repairs of transmission lines could occur in areas of giant garter snake habitat. The greatest possibility of affecting the snake would be from running over a snake with a vehicle. Transmission line repairs would be localized, and the noise and activity would likely cause the giant garter snake to relocate.

Avoidance Measures

To avoid adverse effects to the giant garter snake, Western would

- Avoid routine maintenance activities within 200 ft from the banks of giant garter snake aquatic habitat and confine movement of equipment to existing roadways to minimize habitat disturbance to the maximum extent feasible. If clearing or grading activities were required within giant garter snake habitat, a qualified biologist would be present during all operations. Vehicle speeds would not exceed 15 mph on unimproved access routes;
- Schedule ground-disturbing maintenance activities within habitat so that they occur between May 1 and October 1. This is the active period for giant garter snakes and direct mortality is lessened as snakes are expected to actively move to avoid danger;
- Educate maintenance personnel to recognize giant garter snakes and their habitat. Specific information regarding giant garter snake avoidance measures would be provided to all Western maintenance employees and contractors prior to work in areas containing giant garter snake habitat;
- Avoid the use of herbicides in and around giant garter snake habitat; and
- Halt construction in the immediate area of an observed giant garter snake until it is determined that the snake will not be harmed. If necessary, the biological monitor would move the snake, by hand, from the maintenance or construction area to a safe location.

3.5.2.9 Mammals

Two endangered mammals, the riparian (San Joaquin Valley) woodrat (*Neotoma fuscipes riparia*) and the riparian brush rabbit (*Sylvilagus bacimani riparius*) have suitable habitat within the study area. Both mammals are confined to riparian habitats where trees and brush are available for cover and nesting. However, the riparian woodrat is known only to occur in Stanislaus and San Joaquin Counties along the San Joaquin, Stanislaus, and Tuolumne Rivers, as well as at Caswell State Park in San Joaquin County near the confluence of the Stanislaus and San Joaquin Rivers (USFWS 2000). The largest remaining fragment of habitat and only extant population of the riparian brush rabbit are found along the Stanislaus River in Caswell Memorial State Park, San Joaquin County, California. No other sightings of riparian brush rabbits outside the Park have been reported in over 40 years (California State University, Stanislaus 2002).

No-Action Alternative

Vegetation Maintenance. Under the no-action alternative, vegetation removal, through either manual or mechanical methods, could be destructive to vegetation used for cover and nesting.

Access Road Maintenance. Access road maintenance activities would be localized and of short duration and have little effect on riparian woodrat and riparian brush rabbit habitat. Some

habitat fragmentation could occur, but access roads are generally short (less than 1 mi) and the ROW width is only 30 ft.

Transmission Line Maintenance. Routine patrols by rubber-tired vehicles would have no impact on riparian woodrat and riparian brush rabbit habitat. Transmission line repairs by heavy equipment could have a short-term effect from trampling of vegetation, but such repair activities would be extremely localized (for example, at the base of a tower).

Proposed Action

Vegetation Maintenance. Under the proposed action, establishing low-growth vegetation could provide a long-term beneficial effect. The proposed action would require less active management and, therefore, less vehicle traffic and potential for vehicle damage.

Access Road Maintenance. Access road maintenance activities would be localized and of short duration and have little effect on riparian woodrat or riparian brush rabbit habitat. Some habitat fragmentation could occur, but access roads are generally short (less than 1 mi) and the ROW width is only 30 ft.

Transmission Line Maintenance. Routine patrols by rubber-tired vehicles would have no impact on riparian woodrat and riparian brush rabbit habitat. Transmission line repairs by heavy equipment could have a short-term effect from trampling of vegetation, but such repair activities would be extremely localized (for example, at the base of a tower).

Avoidance Measures

To avoid adverse effects to the riparian woodrat and the riparian brush rabbit, Western would maintain, where appropriate, the low-growth elements (brush and shrubs) of suitable riparian habitat within the species range. Where conductor clearance permits, some trees native to the riparian habitat could also be allowed to grow at the ROW vegetation edges to minimize habitat fragmentation. Overall, establishment of this modified riparian habitat would lead to fewer disturbances for ROW maintenance, and would be consistent with the goals of the proposed action.

3.6 FISHERIES

3.6.1 AFFECTED ENVIRONMENT

The O'Banion-Elverta transmission line crosses the Feather River and tributaries; the Cottonwood-Roseville transmission line crosses Feather River tributaries. The Folsom-Nimbus transmission line crosses the American River above the Nimbus Dam. The Elverta- Hurley transmission line crosses the Natomas Ditch, which connects with the Sacramento River. The Hurley-Tracy transmission line crosses the American River (below Nimbus Dam), the Cosumnes River, and various tributaries. The Folsom-Roseville and Roseville-Elverta lines both cross several creeks in the American River watershed. All perennial water bodies crossed by transmission line ROWs in the study area are shown in Table 3-6.

Table 3-6. Perennial Water Bodies Crossed by Transmission Line Rights-of-Way in the Study Area

Transmission Line	Water Body	Tower Mile	USGS Quadrangle
Cottonwood-Roseville	Bear River	130	Sheridan
	Yankee Slough	131	Sheridan
	Coon Creek	135	Pleasant Grove
	Markham Ravine	137	Pleasant Grove
	Auburn Ravine	139	Pleasant Grove
	King Slough	140	Pleasant Grove
	Pleasant Grove Creek	142	Pleasant Grove
	Curry Creek	143	Pleasant Grove
Cottonwood-Roseville/Roseville Elverta	Curry Creek	152/7	Rio Linda
	Kaseberg Creek	159/4	Roseville
Elverta-Hurley	Natomas East (Main Drainage Canal)	1	Rio Linda
Folsom-Nimbus	American River	2	Folsom
	American River	4	Folsom
Hurley-Tracy	American River	13	Sacramento East
	Morrison Creek	17	Carmichael
	Laguna Creek	24	Elk Grove
	Grove Creek	26	Elk Grove
	Cosumnes River	30	Galt
	Badger Creek	30	Galt
	Laguna Creek	31	Galt
	Dry Creek	37	Lodi North
O'Banion-Elverta	Gilsizer Slough	137	Sutter Causeway
	Feather River	147	Nicolaus
	Coon Creek	148	Nicolaus
	Bunkham Creek	150	Verona
	Bunkham Creek	151	Verona
	Cross Canal	152	Verona
	Pleasant Grove Creek	155	Pleasant Grove
	Curry Creek	156	Pleasant Grove

The CDFG regulates sport fisheries on the American River, Feather River, Cosumnes River, and associated tributaries. The CDFG also operates salmon and steelhead hatcheries on the American River at Nimbus Dam (includes trout hatchery) and on the Feather River. In the study area, all of these fisheries are for trout, steelhead, and Chinook salmon (CDFG 2001a). In some areas, fisheries are year-round. A limited commercial fishery for salmon returning to the Sacramento River and tributaries (including the American and Feather rivers) is conducted in the Sacramento Delta (downstream from the study area). Year 2000 landings for this fishery were 118,211 pounds (CDFG 2001b).

3.6.2 ENVIRONMENTAL CONSEQUENCES

3.6.2.1 Basis of Significance

An action would be considered to have a significant adverse effect on fisheries resources if it would reduce fish populations or substantially degrade the water quality of fish habitat by increasing the concentrations and total amounts of suspended solids or toxic substances.

3.6.2.2 General Discussion

This section evaluates the potential effects of ROW maintenance activities on fisheries in the study area under the proposed action or the no-action alternative. Adverse effects to fisheries are not expected to be significant due to measures that are incorporated to reduce or avoid impacts.

Potential effects on fisheries are closely related to water quality; whenever the water quality of a fish-bearing stream is affected, so are fish. Specifically, turbidity, sedimentation, loss of large organic debris, loss of shading (and associated temperature increases), and exposure to hazardous substances affect fish. A significant mitigating factor in any of these potential effects on fisheries is that transmission line ROWs in the study area are only 100 ft to 250 ft wide. Where the ROWs cross water bodies, even obliquely, the length of the ROW where maintenance activities could affect the water body is a small fraction of the water body length. The only part of the study area where a ROW parallels a water body for a significant distance is where the Folsom-Nimbus transmission line parallels the American River (Lake Natoma). The American River is also the largest water body in the study area and, therefore, the least likely to be affected by maintenance activities.

General vegetation control could cause loss of tree shading (shaded riverine aquatic [SRA] habitat) and some erosion, regardless of the method used. Erosion could increase turbidity and sedimentation that could reduce fish feeding success. In severe cases, sedimentation could keep fish eggs from hatching or fill in or reduce the deeper pools preferred by some fish.

If large trees are cut down and removed within riparian zones, stream shading could be lost immediately, and the large woody debris that would later fall into streams and provide shelter for fish (an important component of SRA) would be removed. Areas of shaded water bodies within the study area are found along the following transmission line ROWs: O'Banion-Elverta (Feather River, Coon Creek, and Pleasant Grove Creek), Cottonwood-Roseville (Pleasant

Grove Creek), Hurley-Tracy (Cosumnes River, Dry Creek), and Folsom-Roseville (Antelope Creek). Reduced shading could increase stream temperatures. However, because ROWs are linear, and most streams are not, shading or lack of shading at ROW crossings tends to have little effect on stream temperatures. In the study area, less than 150 ft of any stream would be typically affected. Loss of shading would become important only if it were to occur where other activities are also causing losses in riparian shading at a watershed level. A study of ROW crossings in forested areas in New York found that water temperatures were not significantly greater in ROW reaches than in forested reaches (Peterson 1993).

3.6.2.3 No-Action Alternative

Vegetation Maintenance. With manual methods, power-tool use near water could cause water contamination with minor amounts of chainsaw oil or minor fuel spills. An oil skim on water, while highly unlikely, could deplete oxygen levels and cause fish kills. This effect is more likely for fish living in ponds than for fish living in rivers or streams, since the flow of water in streams would move and disperse small amounts of oil.

Because some mechanical methods of clearing or cutting vegetation could disturb or compact soils, these methods would be most likely to cause erosion-related fish impacts (in addition to the potential erosion caused by general tree removal). However, any area of erosion would be small because of the narrow width of ROWs. Fish could temporarily be affected by turbidity, sedimentation, and local increases in surface-water runoff from mechanical methods. No additional impacts would result from this method.

Access Road Maintenance. No access roads cross perennial waterways in the study area.

Transmission Line Maintenance. Routine transmission line patrols would not affect waterways. Ground-disturbing repairs near waterways could lead to increased turbidity, but such activities would be extremely localized (for example, at the base of a single tower) and of short duration.

3.6.2.4 Proposed Action

Vegetation Maintenance. Effects from manual and mechanical vegetation control methods would be identical to those described for the no-action alternative (Section 3.6.2.3). Under the proposed action, the duration and intensity of manual and mechanical vegetation maintenance would be less in the long term (greater than 5 years) than under the no-action alternative.

If herbicides were to reach water bodies, fish and other aquatic species could be affected (see Section 3.8 for the potential for herbicides to reach water bodies). The effect of an herbicide on fish would depend on the toxicity of the herbicide and the sensitivity of the species, the amount of herbicide present, and how much the fish is exposed (how quickly the herbicide dissipates or is broken down). The herbicides proposed for Western use near water bodies are low in toxicity to fish.

Fish could be exposed to herbicides; however, that risk would be limited because of avoidance measures. These measures (buffer zones and label instructions) would help keep herbicides

out of water. Exposure risk would also be limited because only a relatively small amount of area would be treated within a landscape (a linear ROW strip of land). Not all herbicides are detrimental to wildlife, nor do herbicide residues necessarily lead to serious consequences for fish. Western would use only those herbicides that are practically non-toxic to slightly toxic near water environments where fish may reside. In the rare event that herbicides accidentally enter water through either drift or misapplication, the impact would be mitigated by the low toxicity of the chemical, coupled with natural degradation and dilution. Natural degradation is the ability of the chemical to be broken down by its natural half-life, exposure to sunlight and microbial action, as well as aeration and dilution through moving and standing water. In addition, Western has selected herbicides for use near water bodies that represent slight to no bioaccumulation factors for fish.

Access Road Maintenance. No access roads cross perennial waterways in the study area.

Transmission Line Maintenance. Routine transmission line patrols would not affect waterways. Ground-disturbing repairs near waterways could lead to increased turbidity, but such activities would be extremely localized (for example, at the base of a single tower) and of short duration.

3.6.3 AVOIDANCE MEASURES

To avoid adverse effects to fisheries, Western would define a 100-ft buffer on each side of all perennial watercourses. In this buffer, no chemicals would be mixed, no open petroleum products would be allowed and only hand clearing of vegetation would be permitted (no foliar application of herbicides). This buffer would not apply to cut-stump treatments using herbicides approved for aquatic use by the EPA and subject to any additional restrictions imposed by the State of California.

3.7 SOILS

3.7.1 AFFECTED ENVIRONMENT

Soils present in the gently sloping and flat portions of the study area are generally deep and poorly drained. These portions include nearly all of the transmission line ROWs with the exception of the Folsom-Nimbus and Folsom-Roseville ROWs. Clays and clay loams are the predominant surface textures (Soil Conservation Service 1980, 1988, 1993). In general, runoff from these unmodified soils is slow and, therefore, they have only slight water erosion potential. Due to fine surface textures, wind erosion is also slight. Most of these soils, however, have been modified through cultivation practices.

Large portions of the Folsom-Nimbus and the eastern portion of the Folsom-Roseville transmission line ROWs are also underlain by clays and clay loams; however, many places have been disturbed by mining activities resulting in exposed tailing piles of rounded to sub-rounded cobble-sized rocks.

3.7.2 ENVIRONMENTAL CONSEQUENCES

3.7.2.1 Basis of Significance

An action would be considered to have a significant adverse effect on soils if it would cause erosion or change nutrient composition leading to a reduction in the ability of the soil to support vegetation growth.

3.7.2.2 General Discussion

This section evaluates the effects of ROW maintenance activities on soils in the study area under the no-action alternative and proposed action. The removal of vegetation, regardless of the method used, would affect soil through erosion and by altering soil nutrients. Adverse effects to soils are not expected to be significant due to measures that are incorporated to reduce or avoid impacts.

Erosion

The degree of soil erosion varies throughout the study area with differences in vegetation, soil properties, and land use. The moist and relatively warm climate of the study area fosters the development of deep soils, while rainfall rates are generally slow enough to allow water to soak into the soil. However, slopes cleared of vegetation are susceptible to erosion by water; mass movement is also a dominant erosion process.

Erosion is a natural ongoing process. However, erosion rates can markedly increase when vegetation is cleared, regardless of the clearing method used. Vegetation cover is important in controlling erosion. The vegetative canopy and the organic layers covering the soil dissipate the erosive energy of raindrops and reduce runoff. Plant roots also strengthen and bind the soil together. Erosion from physical disturbance during vegetation clearing would depend on the vegetation control method used.

Slopes are typically 2 percent or less within the study area, with vast areas of the ROWs covering virtually flat areas of the Sacramento Valley. The only exceptions are greater slopes found along portions of the Folsom-Nimbus transmission line ROW and its associated access roads, the Folsom-Roseville transmission line ROW, and at stream crossings throughout the area as listed in Table 3-5.

Nutrients

Vegetation management can alter the chemistry of the soil. For example, removing brush cover can eventually reduce the quantity of carbon in the soil if revegetation does not occur. Removing plant material would deprive soils of the nutrients and structural components provided by decaying organic material. Removing vegetation would also reduce evapotranspiration (if revegetation does not occur), which allows more water to leach soluble nutrients and decomposing organic matter from the soil, thereby reducing productivity. In

addition, soil erosion could increase after removing vegetation. Erosion could transport organic matter and nutrients off-site.

3.7.2.3 No-Action Alternative

Vegetation Maintenance. Effects of manual methods on soil would include disturbance of the duff layer in only a very small area, not enough to cause substantial adverse effects to the soil as a resource. There would be some potential for soil contamination from chainsaw oil, although best management practices would require cleanup of any spills.

Mechanical methods, especially blading or using soil-disturbing type equipment, would have the greatest impacts on soils. Ground-disturbing heavy equipment could expose soils, compact soils, and disturb the physical arrangement of soils.

Exposing soils would make them vulnerable to erosion and/or drying out. Soil compaction would increase soil density by compressing soil particles together, reducing the volume of unoccupied air spaces. Compaction would reduce the soil's ability to take in water, thus increasing surface runoff and potentially increasing erosion. However, areas of the ROW with sufficient slope to cause increased erosion are found only in limited portions of the ROW, as described above. Stream crossings would be subject to the 100-ft buffer zone described in Section 3.6.2.5. Compaction could also inhibit growth of beneficial fungi (known as mycorrhizal fungi) that provide nutrients to plant roots. Plant development would also be restricted in compacted soils; aeration is poor and root growth is impeded. As a result, soil productivity could be adversely affected. Disturbing the physical arrangement of soils (for example, displacing topsoil or removing the organics-rich duff layer) could both increase erosion and slow plant growth and regeneration potentials.

Adding large amounts of organic debris from chipping could reduce the availability of soil nitrogen to plants and inhibit plant growth until decomposition of organic debris is almost complete.

Access Road Maintenance. Access road maintenance would have a beneficial effect on soils as problem areas with high erosion rates would have water diversions cleaned and replaced, thereby reducing erosion.

Transmission Line Maintenance. Routine patrols and repairs would not affect soils. Routine patrols in rubber-tired vehicles could cause limited soil compaction, but are not frequent enough for long-term effects. Repairs with heavy equipment could also cause soil compaction and disturbance, but in an extremely small area (for example, at the base of a tower).

3.7.2.4 Proposed Action

Vegetation Maintenance. Effects from manual and mechanical vegetation control methods would be identical to those described for the no-action alternative (Section 3.7.2.3). Under the proposed action, the duration and intensity of manual and mechanical vegetation maintenance would be less in the long term (greater than 5 years) than under the no-action alternative.

When herbicides are used, some of the chemicals could end up in the soil. Once in the soil, herbicides could reduce soil microbes' numbers and/or change species composition. This reduction and change could affect soil productivity, including the ability of soils to support certain vegetation. Herbicides approved for use by Western, such as 2,4-D, glyphosate, and mefluidide, break down quickly and would have very temporary effects on soil microbes.

The effects on soil microbes can also depend on the application technique. Because broadcast application typically covers a much broader treatment area, affected microbe populations might take longer to recover because there would be fewer adjacent populations to recolonize. Conversely, spot and localized applications would affect much smaller areas, and microbes might quickly recolonize affected soils from adjacent, unaffected areas.

The effects on soil microbes would also depend on the existing vegetation, climatic factors, and soil properties. ROWs would be treated with relatively small amounts of herbicide with long time spans between treatments, so there would be little potential for impacts on soil microbes.

Access Road Maintenance. Access road maintenance would have a beneficial effect on soils as problem areas with high erosion rates would have water diversions cleaned and replaced, thereby reducing erosion.

Transmission Line Maintenance. Routine patrols and repairs would not affect soils. Routine patrols in rubber-tired vehicles could cause limited soil compaction, but are not frequent enough for long-term effects. Repairs with heavy equipment could also cause soil compaction and disturbance, but in an extremely small area (for example, at the base of a tower).

3.7.3 AVOIDANCE MEASURES

To avoid adverse effects to soils, Western would

- Avoid using ground-disturbing mechanical equipment to remove vegetation from slopes over 40 percent, unless the threat of erosion is minimal because of bedrock or reseeding will be performed;
- Use mechanical clearing or heavy equipment when the ground is dry to sustain the equipment and avoid severe rutting; and
- Reseed or plant seedlings on slopes with erosion problems and/or take other erosion control measures as necessary. If reseeding or planting seedlings, Western would observe the following measures:
    - Use seeds, seedlings, or plants that are consistent with management objectives and adapted to climatic conditions, soils, landscape position, and the site itself. Coordinate with landowners to ensure consistency with their vegetation/landscaping strategies, if applicable;
    - Use native seed/plants if the species meet the objectives of the revegetation project;

- Use high-purity seed and take actions to prevent purchase of seed contaminated with noxious weeds;
- Prepare seedbed properly;
- Use proper planting time and dates to ensure enough moisture for germination and growth before frosts;
- Use effective planting methods; drill seeding is most effective and broadcast methods are appropriate when the drill method is impractical; and
- Consider increasing seeding rates for critical erosion areas by 150 percent of recommended drill seeding rates.

3.8 AIR QUALITY

3.8.1 AFFECTED ENVIRONMENT

The transmission line ROWs studied for this EA traverse portions of Sacramento, Sutter, and Placer counties. All portions of these lines fall within the Sacramento Valley Air Basin (SVAB). The SVAB consists of the northern half of the Central Valley and approximates the drainage basin for the Sacramento River and its tributaries. The SVAB is bounded on the west by the Coast Range, on the north by the Cascade Range, on the east by the Sierra Nevada, and on the south by the San Joaquin Valley Air Basin. The SVAB includes Butte, Colusa, Glenn, Sacramento, Shasta, Sutter, Tehama, Yolo, and Yuba counties; the western urbanized portion of Placer County; and the eastern portion of Solano County. The SVAB occupies 15,040 square miles (mi^2) and has a population of more than two million people.

Attainment statuses for Federal and State ambient air quality standards are shown below in Table 3-7 for Sutter, Placer, and Sacramento counties. All of these counties are non-attainment under Federal and State ambient air quality standards for ozone. Sacramento County is also nonattainment for Federal and State ambient air quality standards for particulate matter equal to or less than 10 microns in diameter (PM_{10}). Sutter, Placer, and Sacramento counties are nonattainment for State ambient air quality standards for PM_{10}.

3.8.2 ENVIRONMENTAL CONSEQUENCES

3.8.2.1 Basis of Significance

An action would be considered to have a significant effect on air quality if it would violate any ambient air quality standard, contribute on a long-term basis to an existing or projected air quality violation, expose sensitive receptors to substantial pollution concentrations, or not conform to applicable Federal standards.

Table 3-7. SVAB Area Designations for Ambient Air Quality Standards

Pollutant	Federal Designation[a]						State Designation[b]								
	Sutter County		Sacramento County		Placer County		Sutter County			Sacramento County			Placer County		
	U/A	N	U/A	N	U/A	N	A	N	U	A	N	U	A	N	U
Carbon monoxide	X		X		X		X			X			X		
Ozone		X[c]		X		X		X			X			X	
Particulate matter (PM_{10})	X			X	X[d]			X			X			X	
Nitrogen dioxide	X		X		X		X			X			X		
Sulfur dioxide	X		X		X		X			X			X		

Source: California Environmental Protection Agency, Air Resources Board.1999. Proposed Amendment to the Area Designations for State Ambient Air Quality Standards.

[a] Federal Designations: U/A = unclassified/attainment, N = nonattainment

[b] State Designations: A = attainment, N = nonattainment, U = unclassified

[c] Only the southern portion of Sutter County is designated as nonattainment.

[d] The western portion of Placer County falls within the Federal Mountain Counties Air Basin area designation for PM_{10}.

3.8.2.2 General Discussion

The air quality evaluation determines whether vegetation management practices under the proposed action or the no-action alternative comply with applicable laws, particularly the *Federal Clean Air Act* (42 U.S.C. §7401) and the *California Clean Air Act*.

Exhaust fumes and dust from vehicles and equipment used in performing ROW maintenance would result in the primary effect on air quality. Western does not burn debris from ROW maintenance activities in the study area. The level of emission-generating activity is low as Western has only one full-time crew (six employees) maintaining vegetation in the study area, although contractors are employed for some activities. Adverse effects to air quality are not expected to be significant due to measures that are incorporated to reduce or avoid impacts.

3.8.2.3 No-Action Alternative

Vegetation Maintenance. Chainsaws used in manual vegetation maintenance generally have two-cycle engines that produce pollutants, including carbon monoxide, hydrocarbons, and oxides of nitrogen, at rates greater than equivalent-power four-cycle engines. The California Air Resources Board has enacted regulations to lower emissions from small, off-road engines (Title 13, California Code of Regulations, sections 2400 through 2409, as amended), including chainsaws. These regulations apply to new equipment sold beginning in 1995. Standards will be fully phased in by 2006. Chainsaw exhaust generated during manual clearing activities would be localized and short term (several days) in nature. The portions of ROWs requiring extensive chainsaw work are along the Folsom-Nimbus, Folsom-Roseville, and portions of the

Elverta-Hurley and Hurley-Tracy transmission line ROWs. The other transmission lines are in land dominated by crops; chainsaws would be used only on isolated trees or small groves.

Dust and offroad-vehicle exhaust generated during mechanical cutting would be localized and short term in nature. Emissions are expected to be higher than those from manual clearing, as the equipment is larger, requiring greater horsepower engines; however, the impacts on air quality due to mechanical equipment emissions remain less-than-significant. Mechanical equipment could be used along any of the transmission line ROWs for control of a variety of vegetation, including noxious weeds and invasive species.

Access Road Maintenance. Dust and vehicle exhaust generated during access road maintenance would be localized and short term in nature. Emissions are expected to be similar to those from manual clearing; however, the frequency of activity would be low as access roads cover less than 10 mi in the study area. The impacts on air quality due to access road maintenance equipment emissions would be less than significant.

Transmission Line Maintenance. Vehicles and equipment used in transmission line maintenance activities would produce emissions; however, these activities are extremely localized, infrequent, or of short duration. Helicopters used for quarterly air patrols would be likely to produce the greatest emissions. Vehicles used for routine ground patrols comply with California motor vehicle emissions requirements. Carbon dioxide emissions from transmission line maintenance activities would be partially offset by the regrowth of low-growing vegetation.

3.8.2.4 Proposed Action

Vegetation Maintenance. Effects from manual and mechanical vegetation control methods would be identical to those described for the no-action alternative (Section 3.8.2.3). Under the proposed action, the duration and intensity of manual and mechanical vegetation maintenance would be less in the long term (greater than 5 years) than under the no-action alternative.

Herbicide use does not affect overall air quality. Section 3.10 addresses impacts of herbicide vapors on the public. The implementation of best management practices described in Section 2.2.1.3, would mitigate any impact to air quality. The use of mechanical means to apply herbicide would have similar effects on air quality as exhaust from mechanical methods discussed above.

Access Road Maintenance. Dust and vehicle exhaust generated during access road maintenance/reconstruction would initially be greater than those described for the no-action alternative. Access roads would be reconstructed, where necessary, to minimize future maintenance. Over the long term, emissions would be expected to be lower because of a reduction in repair activity. Emissions would still be localized and short term in nature, as access roads cover less than 10 mi in the study area. The impacts on air quality due to access road maintenance equipment emissions would be less-than-significant.

Transmission Line Maintenance. Vehicles and equipment used in transmission line maintenance activities would produce emissions; however, these activities are extremely localized, infrequent, or of short duration. Helicopters used for quarterly air patrols would be

likely to produce the greatest emissions. Vehicles used for routine ground patrols comply with California motor vehicle emissions requirements. Carbon dioxide emissions from transmission line maintenance activities would be partially offset by the regrowth of low-growing vegetation.

3.8.3 AVOIDANCE MEASURES

To avoid adverse effects to air quality, Western would

- Keep the equipment in good operating condition to reduce exhaust emissions for all methods using machinery or vehicles (such as chainsaws, trucks, and graders);
- Keep equipment logs and set schedules for preventative maintenance;
- Periodically replace older equipment with equipment meeting more recent stringent California emission standards;
- Shut down rather than idle equipment not in active use; and
- Avoid major operations on days when the local Air Quality Index is expected to exceed 150.

3.9 WATER QUALITY

3.9.1 AFFECTED ENVIRONMENT

3.9.1.1 Groundwater

Groundwater is used throughout the study area for a portion of drinking water supplies. The Sacramento metropolitan area, by far the largest water consumer in the study area, gets only 10 to 20 percent of its water supply from groundwater (California Department of Water Resources 1998). However, smaller communities and rural water users obtain a majority of their water from groundwater. Groundwater in the study area is drawn from the Sacramento Groundwater Basin.

The depths of these aquifers vary within the study area, although most production wells are 100 ft or greater in depth. Groundwater quality at this depth is generally good, with no treatment required for potable use. However, water from some municipal supply wells in southern Sacramento County, including wells that supply the City of Sacramento, have concentrations of naturally-occurring arsenic that exceed the new Federal 10 parts per billion standard announced by the EPA on October 31, 2001.

3.9.1.2 Surface Water

The transmission lines in the study area cross several counties, irrigation districts, and boundaries established by the California Department of Water Resources (DWR). The Central Valley Project (CVP) shapes much of the surface water regime in the study area. The CVP was authorized by Congress in 1937 to serve water supply, hydropower generation, flood

control, navigation, fish and wildlife, recreation, and water quality control purposes. The CVP is now operated by the U.S. Bureau of Reclamation to store and transfer water from the Sacramento, San Joaquin, and Trinity river basins to the Sacramento and San Joaquin valleys.

Section 303(d) of the *Clean Water Act* requires each state to maintain a list of streams in which physical and/or chemical aspects of water quality are limited or impaired by the presence of pollutants. Section 303(d) requires preparation of a total maximum daily load (TMDL) program for waters identified by the state as impaired. The TMDL process consists of quantitatively assessing pollutant loading of the water body and establishing the allowable load of pollutants from individual sources to ensure compliance with water quality standards.

Only two water bodies crossed by transmission line ROWs in the study area are listed under Section 303(d):

- Lower American River. Pesticides (Group A), mercury, and contaminants of unknown toxicity impair the water quality in the Lower American River, crossed by the Hurley-Tracy transmission line. None of these contaminants is a high priority for reduction.

- Lower Feather River. Pesticides (the insecticide Diazinon and Group A), mercury, and contaminants of unknown toxicity impair the water quality in the Lower Feather River, crossed by the O'Banion-Elverta transmission line. Only Diazinon (which is being phased out by the EPA) has a high priority for reduction.

3.9.2 ENVIRONMENTAL CONSEQUENCES

3.9.2.1 Basis of Significance

An action would be considered to have a significant effect on water quality if it would substantially degrade water quality, contaminate a public water supply, substantially degrade or deplete groundwater resources or interfere with groundwater recharge, or expose sensitive species or humans to substantial pollutant concentrations.

3.9.2.2 General Discussion

This section evaluates the potential effects of ROW maintenance activities on water quality in the study area under the no-action alternative and proposed action. Adverse effects to surface and groundwater are not expected to be significant due to measures that are incorporated to reduce or avoid impacts.

Controlling the growth of vegetation can affect surface water (such as streams, rivers, ponds, lakes, and wetlands) and can affect groundwater (aquifers and wells).

Removal of streamside (or riparian) vegetation, regardless of the method used, would affect surface water by the following:

- Increasing surface runoff,

- Promoting erosion and sedimentation that reduce water quality,
- Reducing shading and increasing water temperatures, and
- Limiting organic plant debris and thus the amount of nutrients entering the water.

Any impacts on water could, in turn, affect fish and other aquatic species as well as people (drinking water, swimming, fishing, etc.). Groundwater impacts would be herbicide-specific.

3.9.2.3 No-Action Alternative

Vegetation Maintenance. Manual methods, especially those using hand tools, are selective and would have low potential to affect aquatic resources. The greatest impacts would come from minor fuel or oil spills from power tools and the release of bar oil during operation of the equipment. No refueling would take place with 200 ft of a perennial or intermittent water body. Because some large machinery used to control vegetation disturbs the soil (either by scraping it or by compaction or rutting from the wheels of the tractors), this method would be the most likely to cause erosion, which could affect water quality. Erosion can affect water quality by causing increased turbidity (sediments suspended in water), sedimentation (sediments that settle to the bottom), and/or surface-water runoff. However, areas of ROW with sufficient slope to cause increased erosion are found only in limited portions of the ROW: the Folsom-Nimbus transmission line and its associated access road ROW, the Folsom-Roseville transmission line, and at stream crossings throughout the area as listed in Table 3-5. Stream crossings would be subject to the 100-ft buffer zone described in Section 3.6.2.5.

Wetlands could be affected by heavy equipment compacting the typically soft, saturated soils. These wetlands, which occur throughout the study area, would be identified and marked prior to the start of ground-disturbing activities.

As with manual methods (chainsaws), mechanical methods would have the potential for oil leaks and spills that could contaminate water.

Access Road Maintenance. Surface water quality would improve as water diversions are repaired or constructed, thereby reducing erosion and associated turbidity in nearby water bodies. Groundwater contamination could result from major accidental spills of oil or fuel during access road maintenance activities; however, these would be cleaned up in accordance with Western's guidelines (Western 2003).

Transmission Line Maintenance. Routine transmission line patrols would not affect water quality. Ground-disturbing repairs near waterways could lead to increased turbidity, but such activities would be extremely localized (for example, at the base of a single tower) and of short duration.

3.9.2.4 Proposed Action

Vegetation Maintenance. Effects from manual and mechanical vegetation control methods would be identical to those described for the no-action alternative (Section 3.9.2.3). Under the

proposed action, the duration and intensity of manual and mechanical vegetation maintenance would be less in the long term (greater than 5 years) than under the no-action alternative.

Herbicides could affect water resources if they were to reach those resources. The herbicides approved for use by Western are limited to terrestrial use and would not be applied within 100 ft of a perennial water body. The potential for a land-applied herbicide to reach water depends on the herbicide's physical properties and the site conditions. Using herbicide-free buffer zones around water sources is an effective means of keeping herbicides out of water bodies. The four most significant means of offsite movement would be runoff, leaching, drift, and misapplication/spills. Runoff is the surface or lateral migration through rainfall or erosion. Leaching is the downward (or vertical) migration through the soil. Drift is the airborne movement of herbicides through wind or evaporation. Misapplications and spills are caused by not following the label instructions/restrictions or by the accidental spilling of an herbicide during mixing, application, or equipment cleaning. Surface water could be affected by any of these means of herbicide movement, whereas groundwater would be affected only by leaching.

Herbicides selected for use by Western near water bodies would have minimal runoff and leaching potential. Only herbicides with low to moderate water solubility, moderate to high soil adsorption, and low persistence in water, would be selected. Choosing application techniques suitable for the vegetation being managed and the prevailing weather conditions would minimize drift. Because of the minimal leaching of herbicides proposed for use by Western, the likelihood of groundwater contamination is low.

Site conditions also would determine the likelihood of herbicide reaching water resources. How close herbicides are applied to water resources would determine the potential for herbicides to reach water. The 100-ft buffer would be the most common avoidance measure used to protect such environments. Western must use prescribed no-spray or limited-herbicide-use buffers. Because of this, herbicide use generally would not occur near water systems, thereby reducing greatly the potential for contamination.

Access Road Maintenance. Surface water quality would improve as water diversions are repaired or new diversions are constructed in high-erosion areas, thereby reducing erosion and associated turbidity in nearby water bodies. Groundwater contamination could result from major accidental spills of oil or fuel during access road maintenance activities; however, these would be cleaned up in accordance with Western's guidelines (Western 2003).

Transmission Line Maintenance. Routine transmission line patrols would not affect water quality. Ground-disturbing repairs near waterways could lead to increased turbidity, but such activities would be extremely localized (for example, at the base of a single tower) and of short duration.

3.9.3 AVOIDANCE MEASURES

To avoid adverse effects to water quality, Western would

- Use selective control methods in riparian areas and take care not to affect non-target vegetation; read and follow label directions;
- Leave vegetation intact in riparian areas, where feasible;
- Recognize that any discharge of material (displaced soils and, in certain circumstances, vegetation debris) within waters of the United States may be subject to U.S. Army Corps of Engineers regulations under the *Clean Water Act*;
- Keep the equipment in good operating condition to eliminate oil or fuel spills for all methods using machinery or vehicles (such as chainsaws, trucks, and graders);
- Do not wash equipment or vehicles at a stream;
- Follow herbicide product label directions for appropriate uses, restrictions etc.;
- Use herbicide thickening agents (as appropriate), label instructions, and weather restrictions to reduce the drift hazard to water resources;
- Ensure that there is no danger of granular herbicides being washed from the areas of application;
- Always use siphon prevention devices/methods when filling herbicide tanks from domestic water supplies;
- Consider climate, geology, and soil types (including rainfall, wind, depth of aquifer, and soil permeability) in selecting the herbicide with lowest relative risk of migrating to water resources;
- Thoroughly review the ROW to identify and mark, if necessary, the buffer requirements before herbicide application; and
- Monitor to determine whether desired results for water resources were achieved or whether follow-up avoidance measures are necessary (such as erosion control measures).

3.10 PUBLIC HEALTH

3.10.1 AFFECTED ENVIRONMENT

Transmission facilities provide electricity for heating, lighting, and other services essential for public health and safety. Contact with the electric equipment can injure people and cause property damage. Managing vegetation around electric transmission facilities keeps the electricity from flashing to grounded objects. This same vegetation management can harm humans. Exposure to herbicides, use of sharp tools, and machinery and heavy equipment can injure people.

Western's vegetation management program is based on portions of the NESC 1997 Edition. In general, the NESC requires tree trimming and removal to prevent "…grounding of the circuit

through the tree." Electric contact between a tree and an energized conductor can occur even though the two do not actually touch. In the case of high-voltage lines, electricity will arc across an air gap. The distance varies with the voltage at which the transmission line is operated. Western has established minimum distances that a tree can be to a transmission line (Figure 3-3). As recently as 1996, vegetation growing too close to a transmission line in Oregon left more than 2,000,000 customers in 11 states without electricity (BPA 1996).

The NESC specifies factors that should be considered if a tree is to be removed or trimmed: tree growth, movement of the tree and conductors in wind, voltage, and sagging of the conductor at high temperatures.

The public is at risk of physical harm resulting from tree felling and trimming and work conducted near high-voltage lines and transformers.

The EPA must register all herbicides sold or distributed in the United States. This means that the EPA must conclude that the particular agent in question can be used without posing unreasonable risks to people or the environment, based on scientific evidence. Current law also mandates that older registered herbicides be reregistered based on advances in scientific knowledge. The EPA lists recently reregistered herbicides in a Reregistration Eligibility Decision (RED). The EPA also imposes these regulations by including them on container labels to direct the proper use of an herbicide. It is illegal *not* to follow label instructions and restrictions.

3.10.2 ENVIRONMENTAL CONSEQUENCES

3.10.2.1 Basis of Significance

An action would be considered to have a significant effect on public health if it would affect the health of *any* individual through physical injury or exposure risk.

3.10.2.2 General Discussion

This section discusses the health impacts on the general public from managing vegetation on Western's ROWs. The impacts can be divided into two categories: physical injury risks and exposure risks. In general, all techniques would carry some degree of physical injury risks. Risks of exposure include chemicals from herbicide methods. Adverse effects to public health are not expected to be significant due to measures incorporated to reduce or avoid impacts.

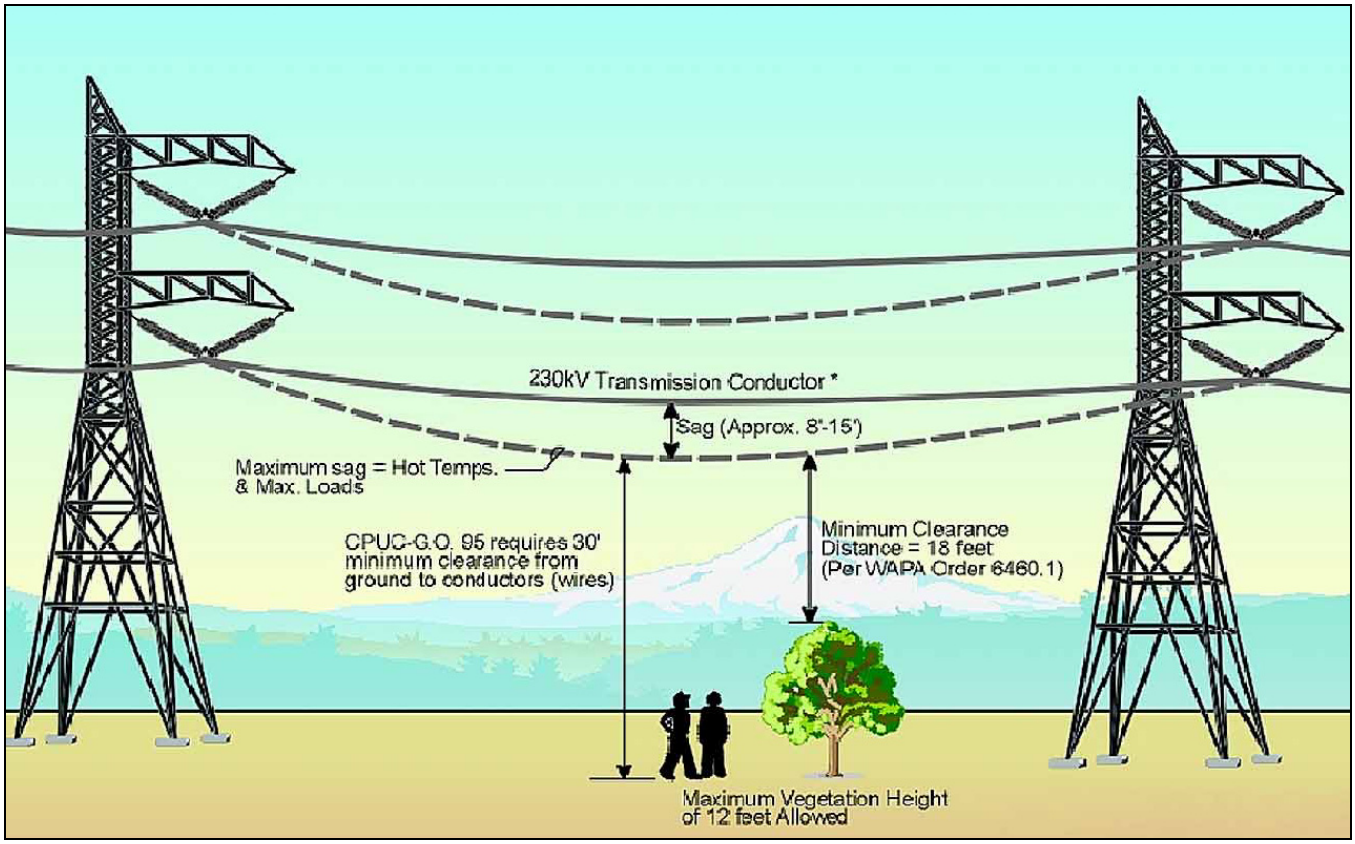

Figure 3-3. Illustration of Minimum Conductor Clearance

3.10.2.3 No-Action Alternative

Vegetation Maintenance. People who come near workers clearing a ROW using manual methods could be exposed to exhaust gases and fuel vapors, flying debris, and falling trees. Impacts on public health and safety would be negligible because manual clearing is closely supervised, which would prevent exposure to the public. These activities are highly visible: signs and/or flags are used in areas of public access to indicate work activities are taking place; workers are conspicuous by wearing orange vests and hardhats.

As with manual methods, people near the ROW during clearing operations using mechanical equipment could be exposed to exhaust gases and fuel vapors, flying debris, and falling trees. Heavy equipment could also run over people if the operator does not see them. Proper supervision would prevent exposure to the public. These activities are also highly visible, as described under manual methods.

Vegetation maintenance reduces the risk to public health by eliminating vegetation that could contact conductors or cause arcing.

Access Road Maintenance. Potential effects on public health and safety would be similar to those described for vegetation maintenance: exposure to exhaust gases and fuel vapors, flying debris, and hazards of heavy equipment. These activities are highly visible: signs and/or flags

are used in areas of public access to indicate work activities are taking place and workers are conspicuous by wearing orange vests and hardhats.

Transmission Line Maintenance. Routine patrols would pose little or no threat to public health and safety. Repair activities are highly visible: signs and/or flags are used in areas of public access to indicate work activities are taking place and workers are conspicuous by wearing orange vests and hardhats.

3.10.2.4 Proposed Action

Vegetation Maintenance. Effects from manual and mechanical vegetation control methods would be identical to those described for the no-action alternative (Section 3.10.2.3): exposure to exhaust gases and fuel vapors, flying debris, and falling trees. Impacts on public health and safety would be negligible because manual clearing is closely supervised, which would prevent exposure to the public. Under the proposed action, the duration and intensity of manual and mechanical vegetation maintenance would be less in the long-term (greater than 5 years) than the no-action alternative. Further, it would be less likely that vegetation could grow to the necessary height to contact conductors or cause arcing.

While most chemical methods require use of heavy machinery and thus incur similar basic risks, the major concern with herbicide application is accidental exposure to the chemicals. Exposure could occur from being accidentally sprayed, from entering areas soon after treatment (eating berries or other foods collected from the ROW or touching sprayed vegetation), or from accidental exposure to downwind drift. Because portions of the ROWs in the study area are located in heavily used recreation areas, there is a potential for the public to be exposed repeatedly to herbicides. Because broadcast applications have a higher potential for drift, these application techniques could also create a higher potential for public exposure. However, broadcast herbicide spraying would not be done in highly populated areas or suburbs. The likelihood of public exposure from spot or localized drift would be low because the application usually takes place close to the target plant, so the herbicide would be airborne for only a very short time. Best management practices described for the proposed action in Section 2.2.1.3 minimize the potential for public exposure to herbicides.

Regardless of application method, the general public could also be exposed through contacting recently sprayed vegetation, consuming recently sprayed plant materials, drinking contaminated water, or consuming contaminated fish. The application guidelines are designed to prevent such accidental exposures to water and fish. In heavy public use areas, such as the American River Parkway along the Folsom-Nimbus, Elverta-Hurley, and Hurley-Tracy transmission lines, only herbicides that are virtually non-toxic to animals would be used. Treated areas would be posted, with any restrictions on contact with treated vegetation clearly listed.

Access Road Maintenance. Potential effects on public health and safety would be similar to those described for access road maintenance under the no-action alternative: exposure to exhaust gases and fuel vapors, flying debris, and hazards of heavy equipment. These activities are highly visible: signs and/or flags are used in areas of public access to indicate work activities are taking place; workers are conspicuous by wearing orange vests and hardhats.

Transmission Line Maintenance. Routine patrols would pose little or no threat to public health and safety. Repair activities are highly visible: signs and/or flags are used in areas of public access to indicate work activities are taking place and workers are conspicuous by wearing orange vests and hardhats.

3.10.3 AVOIDANCE MEASURES

To avoid adverse effects to public health and safety, Western would

- Evaluate existing land uses (for example, agricultural and residential) along a ROW or surrounding a facility needing vegetation control to determine any constraints on vegetation control methods;
- Determine whether there are any existing landowner agreements with provisions that need to be followed regarding the vegetation maintenance of a specific portion of transmission line;
- Use an appropriate method (such as a doorhanger, letter, phone call, e-mail, and/or meeting) during planning for vegetation control activities to notify landowners where Western has a ROW easement to inform them of upcoming activities and request any information that needs to be considered;
- Determine whether there are other affected people or agencies that need to be notified or coordinated with and determine appropriate method(s) of notification and coordination;
- Erect signs and/or flags in areas of public access to indicate work activities are taking place;
- Make sure workers are conspicuous by wearing orange vests and hardhats;
- Protect drinking water sources by following all buffer zone restrictions;
- Ensure that treated areas are posted and re-entry intervals are specified and enforced in accordance with label instructions if using herbicides;
- Use only herbicides that are virtually non-toxic to animals in heavy public use areas;
- Post treated areas with any restrictions on contact with treated vegetation clearly listed;
- Ensure that all herbicide applicators have received training and are licensed in appropriate application categories;
- Follow all herbicide label and material safety data sheet (MSDS) instructions regarding mixing and application standards to reduce potential exposure to the public through drift and misapplication;
- Comply with herbicide-free buffer zones, if any, as per label instructions if using herbicides near crops for consumption;

- Never leave herbicides or equipment unattended in unrestricted access areas;
- Closely follow all equipment-cleaning standards required by the herbicide label; and
- In the event of a spill, immediately notify potentially affected parties.

3.11 RECREATION

3.11.1 AFFECTED ENVIRONMENT

Transmission line ROWs in the study area pass through two major recreational areas:

Folsom Lake State Recreation Area. The Folsom-Nimbus transmission line lies almost entirely within the Folsom Lake State Recreation Area, along Lake Natoma. Lake Natoma is used for crew races, sailing, kayaking, fishing, and other aquatic sports (California State Parks Department [CSPD] 2001). In addition, there are paved biking trails and unpaved multi-use trails near and within the transmission line ROW.

American River Parkway. Approximately 6 mi of the Elverta-Hurley and Hurley-Tracy ROWs extend through the American River Parkway, a 23-mi stretch of parks, trails, and open space extending from the Nimbus fish hatchery to the confluence of the American and Sacramento rivers. The American River Parkway attracts 5 million visitors per year for canoeing, kayaking, rafting, picnicking, horseback riding, bicycling, hiking, walking/jogging, and wildlife viewing. The County of Sacramento administers the Parkway (County of Sacramento 2001).

Trails through both of these areas are part of the American Discovery Trail, which connects national scenic, national historic, national recreational, and local and regional trails into a coast-to-coast trail system (ADTS 2001).

3.11.2 ENVIRONMENTAL CONSEQUENCES

3.11.2.1 Basis of Significance

An action would be considered to have a significant effect on recreation if it would substantially affect the quality, usability, or access to the recreational area.

3.11.2.2 General Discussion

Some portions of transmission lines in the study area cross rivers or are within developed recreational sites. Even ROWs and access roads that are not near developed parks may be used for recreational activities such as hiking and all-terrain vehicle use. Most vegetation management activities would take place during the growing season, conflicting with summer recreationists, who might be displaced or excluded from active or recent work sites, might be annoyed by noise and disturbance associated with vegetation management, or might encounter hazards or nuisances resulting from vegetation management. Adverse effects to

recreation are not expected to be significant due to measures that are incorporated to reduce or avoid impacts.

3.11.2.3 No-Action Alternative

Vegetation Maintenance. Manual methods are often the technique of choice within or near developed recreation sites. The use of power tools, such as chainsaws, can be noisy and annoying to recreationists and can detract from outdoor experiences. Manual methods would be generally less intrusive and less intensive than mechanical methods. Heavy equipment also can disturb recreationists through noise and exhaust fumes. Within the American River Parkway, trails could be temporarily blocked by machinery used during maintenance, or as a safety buffer for maintenance activities. Such blockages would be extremely localized, of short duration (1 day or less), and rare (an interval typically greater than 2 years).

Access Road Maintenance. Access roads maintenance activities can disturb recreationists through noise and exhaust fumes produced by heavy equipment. Recreationists would need to avoid maintenance activities.

Transmission Line Maintenance. Routine patrols would have no effect on recreation activities. Recreationists would need to avoid repair activities. These activities are highly visible: signs and/or flags are used in areas of public access to indicate work activities are taking place; workers are conspicuous by wearing orange vests and hardhats.

3.11.2.4 Proposed Action

Vegetation Maintenance. Effects from manual and mechanical vegetation control methods would be identical to those described for the no-action alternative (Section 3.11.2.3). Under the proposed action, the duration and intensity of manual and mechanical vegetation maintenance would be less in the long term (greater than 5 years) than under the no-action alternative.

The recreational experience of a site could be diminished because the landscape becomes less attractive as the vegetation turns brown after being treated with herbicides. These impacts would be generally temporary, as desirable vegetation replaces undesirable vegetation that has been killed. Section 3.10.2.4 discusses impacts on people from exposure to herbicides.

Access Road Maintenance. Access road maintenance activities can disturb recreationists through noise and exhaust fumes produced by heavy equipment. These potential effects would not differ from the no-action alternative.

Transmission Line Maintenance. Routine patrols would have no effect on recreation activities. Recreationists would need to avoid repair activities. These activities are highly visible: signs and/or flags are used in areas of public access to indicate work activities are taking place; workers are conspicuous by wearing orange vests and hardhats.

3.11.3 AVOIDANCE MEASURES

To avoid adverse effects to recreation, Western would, where feasible, direct recreationists to alternate trails if blocked by machinery or for safety purposes.

3.12 CULTURAL RESOURCES

3.12.1 AFFECTED ENVIRONMENT

3.12.1.1 Cultural Resource Types

Cultural resources can be categorized into four groups: prehistoric archaeological sites; historic sites, including architectural, engineering, and archaeological sites; traditional cultural properties (TCPs); and Native American sacred and religious sites. A cultural resource can fall into more than one of these types due to use through a long period of time or for multiple functions.

Prehistoric archaeological sites refer to any material remains, structures, and items used or modified by people before the establishment of a European presence in the Sacramento Valley. Examples of such resources in the general project vicinity include village sites, rock shelters, rock art, water control features, game drives or traps, bedrock mortars, aboriginal trails, and campsites. Historic sites include the material remains and landscape alterations that have occurred since the arrival of Europeans in the area. Examples of historic sites in the general project vicinity include the following: homestead, ranching, and agricultural features; water control features; mining features; trails; roads; railroad features; buildings and structures in cities; and Native American sites.

TCPs are places associated with the cultural practices or beliefs of a living community. These sites are rooted in the community's history or are important in maintaining cultural identity. Examples of TCPs for Native American communities can include natural landscape features, places used for ceremonies, places where plants or animals are gathered for use in traditional medicines or ceremonies, places where artisan materials are found, or places and features of traditional subsistence systems such as community-maintained irrigation/drainage systems or traditionally used fields. Native American sacred and religious sites also include sacred areas and places required for the practice of traditional religion.

3.12.1.2 Identification of Cultural Resources

Cultural resources located within the ROWs of the subject transmission lines and access roads were identified from August 2001 through February 2002. Methodology for identification of cultural resources within the project area involved archival research and reconnaissance (pedestrian) surveys of the ROWs and access roads. Consultation with potentially interested Native American tribes was conducted to identify TCPs and sacred and religious sites. Detailed results of the cultural resource investigations are included in a separate report (Nelson, et al. 2002). Table 3-8 provides information regarding the type of sites identified within the APE of this undertaking.

Table 3-8. Thirty-Two Cultural Resources Identified within the Transmission Line and Access ROWs

Resource Number	Description	Age	Eligibility Status	Transmission Line	Land Ownership
Nine Resources of Concern					
FW-WAPA-2	Bedrock Mortar	Prehistoric	Unknown	Folsom-Roseville	U.S. Bureau of Reclamation
FW-WAPA-3	Campsite	Historic	Unknown	Folsom-Nimbus	U.S. Bureau of Reclamation
CA-SAC-39	Midden	Prehistoric	Listed on NRHP	Elverta-Hurley	Unknown
CA-SAC-94	Village site	Prehistoric	Unknown	Hurley-Tracy access road	Unknown
CA-SAC-308H FW-WAPA-5	Mining District	Historic	Unknown	Folsom-Nimbus	U.S. Bureau of Reclamation [c]
Not Assigned	Rainbow Bridge	Historic	Eligible [b]	Folsom-Nimbus	U.S. Bureau of Reclamation (land only) [a]
WAPA-11	RD 1000, Levee on Natomas East Main Drain	Historic	Eligible [b]	Elverta-Hurley	Reclamation District 1000
WAPA-14	RD 1000, Levee on American River	Historic	Eligible [b]	Elverta-Hurley	Reclamation District 1000
WAPA-20	Sacramento Valley Railroad	Historic	Eligible [b]	Hurley-Tracy	Sacramento Regional Transit
Twenty-three Resources Not of Concern					
FW-WAPA-1	Can scatter	Historic	Not Eligible	Folsom-Nimbus	State of CA, Prisons
FW-WAPA-4	City dump	Historic	Not Eligible	Elverta-Hurley	Private
CA-SAC-414	Bedrock Mortar	Prehistoric	Not Eligible	Folsom-Nimbus	U.S. Bureau of Reclamation [c]
WAPA-1	Feather River Bypass Levee of RD 813	Historic	Not Eligible	O'Banion-Elverta	U.S. Bureau of Reclamation
WAPA-2	Feather River Levee of RD 1001	Historic	Not Eligible	O'Banion-Elverta	Reclamation District 1000
WAPA-3	Cottonwood-Roseville Transmission Line	1947	Not Eligible	Cottonwood-Roseville	Owned by Western
Not Assigned	Folsom-Roseville Transmission Line	1952	Not Eligible	Folsom-Roseville	Owned by Western

Table 3-8. Thirty-Two Cultural Resources Identified within the Transmission Line and Access Road ROWs (continued)

Resource Number	Description	Age	Eligibility Status	Transmission Line	Land Ownership
WAPA-4	Bear River Levee of RD 1001	Historic	Not Eligible	Cottonwood-Roseville	Reclamation District 1000
WAPA-5	Yankee Slough Levees of RD 1001	Historic	Not Eligible	Cottonwood-Roseville	Reclamation District 1000
WAPA-6	Cross Canal Levee of RD 1001	Historic	Not Eligible	O'Banion-Elverta	Reclamation District 1000
WAPA-7	Sacramento Northern Electric Railroad	Historic	Not Eligible	O'Banion-Elverta	Unknown
WAPA-8	Western Pacific Railroad	Historic	Not Eligible	O'Banion-Elverta	Union Pacific Railroad Co.
WAPA-9	Sacramento Northern Electric Railroad	Historic	Not Eligible	Roseville-Elverta and O'Banion-Elverta	Unknown
WAPA-10	Western Pacific Railroad	Historic	Not Eligible	Elverta-Hurley	Union Pacific Railroad Co.
WAPA-12	Southern Pacific Railroad to Lincoln	Historic	Not Eligible	Cottonwood-Roseville	Union Pacific Railroad Co.
WAPA-13 CA-PLA-841H	Union (Southern) Pacific Railroad, Mainline at Roseville	Historic	Not Eligible	Cottonwood-Roseville	Southern Pacific Railroad
WAPA-15	Sacramento Northern Electric Railroad	Historic	Not Eligible	Elverta-Hurley	Unknown
WAPA-16	Western Pacific Railroad	Historic	Not Eligible	Elverta-Hurley	Union Pacific Railroad Co.
WAPA-17	Union (Southern) Pacific Railroad (Mainline)	Historic	Not Eligible	Elverta-Hurley	Southern Pacific Railroad
WAPA-18	American River Levees	Historic	Not Eligible	Hurley-Tracy	American River Flood Control District
WAPA-19 CA-SAC-481H	American River Levees	Historic	Not Eligible	Elverta-Hurley and Hurley-Tracy access road	American River Flood Control District
WAPA-21	CA Central Traction Co. railway	1905	Not Eligible	Hurley-Tracy	Western Pacific Railroad Co.

Table 3-8. Thirty-Two Cultural Resources Identified within the Transmission Line and Access Road ROWs (concluded)

Resource Number	Description	Age	Eligibility Status	Transmission Line	Land Ownership
WAPA-22	Southern Pacific Railroad	1869	Not Eligible	Hurley-Tracy	Union Pacific Railroad Co.

[a] Administered by Sacramento County Department of Regional Parks, Recreation, and Open Space
[b] California State Historic Preservation Officer (SHPO) determination
[c] Administered by California Department of Parks and Recreation
NRHP = National Register of Historic Places
WAPA = Western Area Power Administration

During the pedestrian survey, some prehistoric sites that were recorded by previous surveys of the area were not re-located. This could be due to sheet wash moving surface artifacts or alluvial deposition burying the sites. In addition, the site locations could have been recorded incorrectly on archival maps, meaning that the sites actually are not located in the ROWs.

There is always the potential for undetected resources to be buried below the surface, particularly in geological areas consisting of deep alluvial deposition.

3.12.2 ENVIRONMENTAL CONSEQUENCES

3.12.2.1 Basis of Significance

The *National Historic Preservation Act* (NHPA) of 1966 requires Federal agencies to consider the potential effects an undertaking may have on significant cultural resources, which are resources that qualify for listing in the National Register of Historic Places (NRHP), or properties of traditional religious and cultural importance to Native Americans. To determine whether an undertaking could affect NRHP properties, cultural resources must be inventoried and evaluated against NRHP criteria.

An action would be considered to have a significant effect on cultural resources if it would cause alterations in the character or use to the historic property. Such an adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the NRHP. Effects to cultural resources are determined under the "criteria of effect", as defined in 36 CFR 800.5(1), "Protection of Historic Properties." These are regulations implementing Section 106 of the NHPA. An "adverse effect" diminishes the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Adverse effects include:

- Physical destruction, damage, or alteration of all or part of the property;
- Isolation of the property from the character of the property's setting when that character contributes to the property's qualifications for NRHP;

- Introduction of visual, audible, or atmospheric elements that are out of character with the property or its setting;
- Neglect of a property, resulting in its deterioration or destruction; or
- Transfer, lease, or sale of the property.

Of the 32 cultural resources identified in the ROWs and access roads, one prehistoric site is listed on the NRHP, four have been determined eligible for listing, and four have not yet been evaluated (Table 3-8). For the purposes of this EA, the four unevaluated sites can be considered potentially eligible. The remaining sites do not meet eligibility criteria for NRHP. All eligibility determinations and site avoidance measures have been made in consultation with the California SHPO (Appendix E). Western's responsibilities under Section 106 have been fulfilled pursuant to 36 CFR §800.4(d)1 with a determination that no historic properties will be affected.

3.12.2.2 General Discussion

The following discussions address the type of impacts resulting from the no-action alternative and proposed action that have the potential to adversely affect significant cultural resources. Significant cultural resources that could be affected by the no-action alternative and proposed action are those resources eligible for listing in the NRHP and that have been identified within the APE for this project. Information on cultural resources was derived from systematic reconnaissance surveys, archival research, and consultation with Native American tribes. The SHPO has concurred with Western's eligibility determinations and Western's level of effort to avoid adverse effects to NRHP eligible sites (Appendix E). Consultation with interested Native American groups revealed no TCP or religious or sacred sites within the area.

For physical effects to cultural resources, the analysis is directed at nine resources within the ROW that have been determined eligible or may be potentially eligible for listing in the NRHP. These resources include three prehistoric archeological sites, two historic archeological sites, two historic levees, one bridge, and one railroad.

All of the methods in the no-action alternative and proposed action would require access to the APE by crews in standard-sized, rubber-tired vehicles. These vehicles are used during monitoring of the ROWs and for conducting maintenance activities. Driving in the ROW with these vehicles could affect these resources. In addition, the presence of crews in these areas could increase the potential for inadvertent damage to the resources. In general, removal of vegetation from the ROW could result in an increase in soil erosion, which in turn could impact cultural resources. Impacts to cultural resources are not expected to be significant due to measures that are incorporated to avoid effects.

One prehistoric archaeological site, CA-SAC-94, was previously recorded as located within an access road ROW, between a levee and a ditch. During the field surveys, the site was not located; however, the site could be buried under alluvial fill. Because the access road is located on the levee, maintenance of the road is restricted to the levee, with no maintenance occurring between the levee and the ditch. With this restriction, no impacts would occur to CA-SAC-94 as a result of either the proposed action or the no action alternative.

No TCPs, Native American sacred or religious sites, or traditional-use plants have been identified in or near the ROWs; thus, there are currently no concerns for physical, visual, auditory, or health effects to these types of resources or to the traditional practitioners. There are also no concerns for selectivity of plant removal to preserve traditional plant communities.

3.12.2.3 No Action Alternative

Vegetation Maintenance. Many manual methods would not disturb the soil; however, pulling vegetation or hoeing would disturb the soil and, thereby, negatively affect the resources at the campsite (FW-WAPA-3) and midden (CA-SAC-39). In addition, with the disturbance of the soil along with removing the vegetation, the opportunity for soil erosion would be increased. Use of small, hand-held, motorized equipment could result in gas or oil spills, which would require cleanup and removal of contaminated soils, which in turn could physically affect the campsite, midden, and mining district (CA-SAC-308H).

Mechanical methods use heavy equipment that would disturb the soil and could affect surface and subsurface resources. This is especially true when using blading or grubbing methods, which could affect the campsite, midden, and mining district. Driving heavy equipment over the resources could affect the campsite, midden, and mining district. This is especially true of tracked vehicles. The nonselective nature of mechanical methods also could lead to increased soil erosion or compaction, which in turn could affect all four archaeological sites. Use of heavy equipment would risk harming the bedrock mortar site (FW-WAPA-2) through direct contact or gas or oil spills, which would require cleanup and removal of contaminated soils, which, in turn, could physically affect the campsite, midden, and mining district.

Spot application of herbicides could affect organic components (such as carbon, pollen, phytolith, and blood residue) at the two prehistoric archaeological sites through chemical reactions, affecting the information potential of these components. At the midden site, the concern would be if the herbicide came into contact with the ground and subsequently with organic components in the archaeological deposits. At the bedrock mortar site, the concern would be if the herbicide contacted the rock. This method would not disturb or compact the soil. The use of herbicides would reduce the need for other methods that could disturb or compact the soil.

Access Road Maintenance. No cultural resources of concern were located within the 30-ft-wide access road ROWs. However, there are restrictions for activities occurring in the recorded vicinity of CA-SAC-94 (see above). With these restrictions, the proposed maintenance methods for the roads would have no physical impacts on important cultural resources.

Transmission Line Maintenance. Changes made to the transmission lines for maintenance would have no impact on the lines themselves. However, the maintenance activities could require the use of heavy equipment (such as bucket trucks, backhoes, and bulldozers), which would disturb the soil. This, in turn, could affect the campsite, midden, and mining district. This is especially true for tracked vehicles. In addition, by increasing soil erosion or compaction, the impact would continue to affect resources both on the surface and below. Use of heavy equipment could result in gas or oil spills, which would require cleanup and removal of

contaminated soils, which, in turn, could physically affect the campsite, midden, and mining district.

3.12.2.4 Proposed Action

Vegetation Maintenance. Effects from manual and mechanical vegetation control methods would be identical to those described for the no-action alternative (Section 3.12.2.3). Under the proposed action, the duration and intensity of manual and mechanical vegetation maintenance would be less in the long term (greater than 5 years) than under the no-action alternative.

Use of herbicides would not disturb the soil and require less use of soil-disturbing methods. However, depending on the type of herbicide used, there could be negative impacts to the four archaeological sites. Nonselective herbicides could kill all the plants in an area, and soil active herbicides would prevent any kind of plant growth. In both of these instances, the complete removal of vegetation in an area would likely increase the amount of soil erosion, thereby affecting the archaeological sites. In addition, use of herbicides could affect organic components of the midden and bedrock mortar site through chemical reactions, affecting the information potential of these components. Because of the method used to deliver broadcast herbicides, it is more likely that the chemicals would come into contact with the midden soil and with the bedrock that contains the mortars.

The proposed action would promote low-growth vegetation in the ROWs, with the aim of requiring less active maintenance in the long term. The greater use of herbicides in the proposed action, when used in the appropriate situations and in accordance with best management practices described in Chapter 2, would reduce the need for other methods that could disturb the environment. This approach also would eventually reduce the amount of work needed in the ROWs, require less surveillance in the ROWs, and reduce the number of emergencies. By reducing the amount of activity within the ROW, the chance for inadvertent damage to resources is also reduced.

Access Road Maintenance. The proposed action would use the same methods for access road maintenance as the no-action alternative; thus, the types of impacts would be the same as those listed under the no-action alternative.

Transmission Line Maintenance. The proposed action would use the same methods for transmission line maintenance as the no-action alternative; thus, the type and magnitude of impacts would be the same as those listed under the no-action alternative.

3.12.3 AVOIDANCE MEASURES

To avoid adverse effects to cultural resources, Western would

- Educate the monitoring crews and the vegetation, access road, and transmission line maintenance crews on where the cultural resource sites are located; what maintenance methods are to be used in those areas; what restrictions are required in those areas; and the importance of cultural resources and the legislation that protects them.

- Instruct crews to pay particular attention for the presence or discovery of cultural materials in areas where previously recorded archaeological sites were not re-located during the field surveys. If cultural resources were discovered, the crews would be trained to stop work near the discovery and notify an appropriate Western official, who would ensure that the resource is recorded and evaluated by a professional archaeologist. Western would consult with the California SHPO to determine measures to avoid the resource or mitigate during maintenance activities.

- Maintain all hand-held motorized equipment and mechanical equipment in proper working condition to avoid gas or oil spills, thus eliminating the need for cleanup and decontamination of affected soils, especially within or near the four archaeological sites.

- Avoid driving any vehicles over the archaeological sites, though this would not be a concern for the bedrock mortar site.

- Conduct maintenance activities near site CA-SAC-94 only on the levee, with no work conducted between the levee and the ditch.

- Avoid operating vehicles away from the transmission line and access road ROWs or other established transportation routes during maintenance activities to minimize the possibility of disturbing unmapped cultural resources.

- Avoid use of vegetation maintenance methods that disturb the soil, cause erosion, or alter organic components. These methods could physically affect the four archaeological sites identified in the ROWs. To avoid any physical impacts to the four archaeological sites when conducting vegetation maintenance, Western would follow the restrictions in Table 3-9 within 15 ft of the sites.

3.13 ESTHETICS

3.13.1 AFFECTED ENVIRONMENT

Esthetics, or visual quality, varies throughout the study area, from woodland to open fields, to urban settings. ROWs have been part of the visual landscape for decades. Western's vegetation maintenance affects esthetics where vegetation within maintained ROWs contrasts with surrounding vegetation, primarily woodlands. Transmission lines that cross woodlands are the Folsom-Nimbus, Folsom-Roseville, Elverta-Hurley, and Hurley-Tracy. In these areas, maintained ROWs can create a visibly sharp, linear edge between woodland and ROWs. Towers are also typically visible within woodlands, although trees can often block or soften the views of most towers, leaving those exposed on hilltops or within valley gaps as the most visible. In non-wooded areas, the towers exert much more visual presence than the maintained vegetation beneath them.

Table 3-9. Restrictions to be Followed at the Four Archaeological Sites During Maintenance Activities

Resource Number & Description	Maintenance Restrictions (within 15 ft of resource)
FW-WAPA-2 Bedrock Mortar	No heavy equipment No mechanical methods Herbicide use limited to stump treatments
FW-WAPA-3 Campsite	No pulling or hoeing No heavy equipment No mechanical methods No nonselective broadcast herbicides
CA-SAC-39 Midden	No pulling or hoeing No heavy equipment No mechanical methods Herbicide use limited to stump treatments
CA-SAC-308H Mining District	No heavy equipment, except along the existing asphalt bike path No mechanical methods No nonselective broadcast herbicides

Major factors that determine corridor visibility include existing soils, vegetation, views from viewpoints, adjacent settings, and contrasts between surfaces (vegetation and exposed soils) inside and outside the corridor. In residential neighborhoods, visual screening becomes an important management consideration. Viewsheds within public recreational areas are also important.

3.13.1.1 Placer County

All of the east-west portion of the Cottonwood-Roseville transmission line and nearly all of the Roseville-Elverta transmission line are located in Placer County. With the exception of a small suburban and business area at the east end of these lines, the area is dominated by agricultural fields and scattered houses. Depending on the season, the fields are brown to yellow to green and very flat. There are typically several trees located around each house in the agricultural area. The majority of the Folsom-Roseville transmission line is also located in Placer County, primarily in wooded residential areas.

3.13.1.2 Sutter County

The north-south portion of the Cottonwood-Roseville transmission line and all but the southern 2 mi of the O'Banion-Elverta transmission line are located in Sutter County. The rural setting of Sutter County is comprised of geographic features including the Sutter Buttes; the Feather, Sacramento, and Bear rivers; and the associated levee system. Additional features include localized drainage courses, oxbow lakes, the Butte Sink, and the expansive valley floor, which give shape and profile to the natural environment. Climate, vegetation, and geography interact to differentiate sub-regional landscape units within the larger environmental context. The

county can be divided into two major geographic units: the valley and uplands. Six major categories of natural features, which are based upon soil types, vegetation, and topography, contribute to the overall visual and scenic quality of Sutter County: Uplands, Dissected Uplands, Valley Orchards, Valley Floors, Butte Sink, and Riparian (County of Sutter 1996).

These transmission lines are located within two natural areas identified by Sutter County: valley orchards and valley floor. The northern 1 mi of the Cottonwood-Roseville transmission line passes through orchard land; the remaining portions of the Cottonwood-Roseville and O'Banion-Elverta transmission lines pass through the valley floor. The Sutter Buttes, Coast Range, and Sierra Nevada mountains are visible from the study area. The predominant visual feature is the Sutter Buttes. These areas contribute to the overall visual quality of Sutter County.

3.13.1.3 Sacramento County

The entire Folsom-Nimbus, Elverta-Hurley, and Hurley-Tracy (that portion that lies within the study area) transmission lines and small portions of the Folsom-Roseville, Roseville-Elverta, and O'Banion-Elverta transmission lines are located in Sacramento County. These lines pass through rural, agricultural, industrial, residential, and recreational areas.

In Sacramento County, the freeways are heavily traveled commuter routes but, for the most part, are not particularly scenic. These routes are used mostly for necessary travel rather than for pleasure driving. As such, they have a low esthetic value. The Elverta-Hurley line crosses Interstate 80 and Business Route 80, and the Hurley-Tracy line crosses U.S. 50 and State Route 99.

The Sacramento and American rivers are protected within Sacramento County by scenic corridors extending 500 ft to each side of the rivers (County of Sacramento 1974). The Folsom-Nimbus line and portions of the Elverta-Hurley and Hurley-Tracy lines lie within this corridor.

The Sacramento County General Plan addresses esthetic resources in two of its elements. The Scenic Highways Element (Sacramento County 1974) includes the Gold Rush Parkway Plan that identifies a series of roads leading from downtown Sacramento to the Gold Rush Country in Placer and El Dorado counties. The major streets of this parkway in Sacramento County are H Street and Fair Oaks Boulevard, which intersect and pass under the Hurley-Tracy transmission line near tower 12/2.

The Electric Distribution Policy in Section VIII, Energy Facilities, in the Public Facilities Element of the General Plan (County of Sacramento 1998) addresses transmission facilities in regard to esthetics as well as other resources. Most of the esthetic-related guidelines in the Electric Distribution Policy address siting of new transmission lines and substations.

3.13.2 ENVIRONMENTAL CONSEQUENCES

3.13.2.1 Basis of Significance

An action would be considered to have a significant effect on esthetics if it would conflict with stated visual resource goals in the Placer and Sacramento County general plans or substantially alter the viewshed at cultural resource locations. Sutter County does not have stated visual resource goals.

3.13.2.2 General Discussion

The alternatives are evaluated based on visual resource goals specified in Placer and Sacramento County general plans. Impacts to esthetics are not expected to be significant due to measures that are incorporated to reduce or avoid impacts.

Vegetation management activities can change the appearance of the landscape and introduce visual contrasts, such as contrasts in color and/or vegetation height. Several factors influence the effect of vegetation management on visual resources, including the setting (for example, rural, urban, and agricultural), season, type of vegetation present, landscape color (soils, vegetation, surface geology), and type and amount of public use. In addition, the method employed and scope of the vegetation management performed would greatly influence the level of potential impact. The setting can include land-use patterns as well as vegetation structure present (that is, wooded or not). In some urban settings, ROWs provide green belts appreciated by residents of the area. Visual impacts could be great in wooded areas that are within view of major highways or residential areas. Changes to historic mining features in recreation areas because of maintenance activities would affect the esthetic value of the areas.

A loss of tall vegetation could have a sudden temporary visual impact on those who are accustomed to the view. Impacts could occur if the vegetation formerly screened either esthetic or unpleasant views. The scope of the clearing necessary could also affect the visual impact. If a ROW has not been cleared for some time and a number of small trees and brush needs cutting, the change—and therefore the visual impact and contrast—would be great.

The season, or time of year, that vegetation management activities take place can also determine potential impact on visual resources. During late fall and winter, brown colors of treated vegetation might blend naturally with the surrounding colors, while in spring or summer, the same colors might contrast.

Impacts on visual resources would also depend on the colors of the existing landscape, where areas dominated by green vegetation might show signs of vegetation management more than those areas where browns, grays, and other earth tones dominate.

3.13.2.3 No-Action Alternative

Vegetation Maintenance. Manual methods would not create any visual impacts particularly unique to the method. However, the control allowed by manual methods could minimize

incidental disturbances to non-target vegetation and associated impacts on visual quality. Visual impacts of crews working in a particular area would last only for a few days and not be significant. Vegetation disturbance (such as stumps) could cause impacts on visual resources until revegetation occurs.

Some mechanical methods, such as tilling and mowing, could scarify the landscape, leaving swaths of bare soil or dead vegetation that contrast with surrounding colors (use of walking brush-cutters can reduce this soils impact). Mowing could also create an uneven, ragged appearance along roadsides. Because of these effects, some mechanical methods might be considered inappropriate for some sensitive visual quality areas. These impacts would be temporary (one or two years) until vegetation is re-established.

Scattered cut branches would tend to look unkempt and disturbed. Spread-out wood chips could create a visually appealing park-like look.

Vegetation maintenance could also open up views, such as those to the Sierra Nevada foothills or Sutter Buttes. Some recreationists, such as bird-watchers, could also find esthetic benefit in the increased visibility afforded by vegetation removal.

Vegetation would have to be managed more frequently under the no-action alternative, and visual quality could be degraded if the management cycle is too long.

Access Road Maintenance. Access road maintenance would have no significant effect on esthetics as these roads already exist.

Transmission Line Maintenance. Routine patrols and maintenance would have no significant effect on esthetics. All activities would be short term and would not result in visual changes after activities are completed.

3.13.2.4 Proposed Action

Vegetation Maintenance. Effects from manual and mechanical vegetation control methods would be identical to those described for the no-action alternative (Section 3.13.2.3). Under the proposed action, the duration and intensity of manual and mechanical vegetation maintenance would be less in the long term (greater than 5 years) than under the no-action alternative.

The use of herbicides to control vegetation could create visually unappealing brownout areas immediately following herbicide applications. This impact could be heightened if applications prevent seasonal vegetation changes (such as spring flowers or fall colors). These impacts on visual quality would be temporary. Vegetation would reestablish itself and thus lessen the color contrast between treated areas and the adjacent landscape.

Spot treatments of stumps would have no particular visual impacts. Spot injection treatments of large trees and localized herbicide applications on clumps of vegetation could leave standing dead plants that are not visually appealing.

Impacts on esthetics would be most noticeable in forested areas. The ROWs would be changed to low-growing vegetation cover, which might or might not be more appealing looking

than an ROW with a large number of saplings growing. With fewer maintenance activities needed, the ROW would look less disturbed.

Herbicides would be an important tool against noxious weeds and invasive species, such as star thistle and Himalayan blackberry. Manual and mechanical methods would be temporary controls; these species tend to grow back rapidly. Herbicide use as part of an IVM program would allow replacement of noxious weeds and invasive species with native vegetation, thereby improving visual quality.

Access Road Maintenance. Access road maintenance would have no significant effect on esthetics as these roads already exist.

Transmission Line Maintenance. Routine patrols and maintenance would have no significant effect on esthetics. All activities would be short term and would not result in visual changes after activities are completed.

3.13.3 AVOIDANCE MEASURES

To avoid adverse effects to esthetics, Western would

- Limit the use of broadcast foliar application of herbicide in high-traffic areas to reduce the creation of large areas of browned vegetation;
- Where feasible, leave sufficient vegetation at road crossings, highways, visual overlooks, or other areas of high scenic value, to screen the view of the ROW; and
- Consider planting low-growing tree seedlings adjacent to the ROW; softening the straight line of corridor edge by cutting some additional trees outside the ROW; if feasible, leaving some low-growing trees within the ROW; and conducting vegetation maintenance activities during winter when esthetic effects would be least noticeable if the area is a sensitive visual resource (for example, the American River Parkway or Folsom Lake State Recreation Area).

3.14 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

3.14.1 NO-ACTION ALTERNATIVE EFFECTS

Vegetation Maintenance. Because this alternative relies heavily on manually keeping the ROWs cleared, the environmental effects are mostly associated with physical impacts. Generally, environmental effects from this alternative are relatively benign in the short term (2 years or less). Noise from chainsaws could disturb wildlife and residents, and chainsaw oil could get into water bodies. Overall, however, the environmental impacts from using chainsaws (other than the cutting of the vegetation) are minimal. The long-term (greater than 2 years) impacts of this alternative would occur as vegetation resprouts. Deciduous vegetation, in particular, resprouts with an increased number of stems when cut, creating more thickly vegetated ROWs that need to be managed even more intensively. More extensive clearing of the ROWs (more vegetation per acre) would be needed during each successive maintenance

cycle. When densely vegetated areas are cleared using mechanical methods, environmental impacts are more drastic compared to the selective removal of trees or brush: more habitat is affected, more soil is disturbed, non-target plants that have grown in shade-tolerant situations are suddenly exposed, human presence on the ROW is increased, and visual impacts are more sudden and more dramatic.

Noxious weed and invasive species control is also a concern with this alternative. Mechanical or manual methods are also not very effective, because noxious weeds are very resilient and capable of resprouting through roots, as well as from seed. Tangles of invasive species, such as Himalayan blackberry, can cause access problems at towers and along access roads, thereby requiring additional human traffic to control the vegetation.

Access Road Maintenance. Access road maintenance is largely aimed at grading and in-kind replacement of water diversions. Given the narrow width of access road ROWs (30 ft) and the length of the roads (less than 10 mi, spread along three transmission lines in the study area), environmental effects associated with maintenance activities would be minimal.

Transmission Line Maintenance. Transmission line maintenance, consisting of periodic air and ground patrols and preventative maintenance, would have minimal environmental effects. Repair activities, involving heavy equipment and ground disturbance, would be extremely localized and would take place over a short time period.

3.14.2 PROPOSED ACTION EFFECTS

Vegetation Maintenance. Environmental effects would differ from those for the no-action alternative, with less impacts from manual and mechanical methods and more impacts from herbicide contamination. The latter would be greater because more herbicide of a greater variety would be used and because the added broadcast application technique would be non-selective (the herbicide itself can be selective). Nonselective broadcast spraying could affect non-targeted plants and would have greater potential for drift.

Unlike the no-action alternative, this proposed action could control resprouting of deciduous plants and reduce the amount of regrowth along ROWs in the long term. Broadcast herbicide applications would be most appropriate in ROWs requiring corrective action for promoting low-growing plant communities.

Potential public health impacts under the proposed action would include those associated with manual and mechanical methods and public exposure to herbicides. The potential of public exposure to herbicides would be greater with the proposed action than with the no-action alternative, because of the potential for drift and accidentally spraying persons on the ROW with broadcast methods (compared to spot herbicide applications). These effects would be minimized because of the high visibility of maintenance activities, the low degree of public interaction, and the localized scale of activities.

Noxious weeds and invasive species, such as star thistle and Himalayan blackberry, could be controlled more easily with the proposed action than with the no-action alternative, which is limited to mechanical and manual methods with spot application of herbicides. The proposed

action would allow the flexibility to choose broadcast applications to treat a noxious weed infestation if the site and weed species would best be treated in this manner.

Access Road Maintenance. Access road maintenance and reconstruction would have minimal environmental effects. Disturbance of wildlife would be temporary. A potential benefit to soils and surface water quality would be improved water diversions leading to reduced erosion.

Transmission Line Maintenance. Transmission line maintenance, consisting of periodic air and ground patrols and preventative maintenance, would have minimal environmental effects. Repair activities, involving heavy equipment and ground disturbance, would be extremely localized and would take place over a short time period.

4.0 CUMULATIVE EFFECTS

Cumulative effects are defined as the impacts on the environment that result from the incremental impact of the proposed action, when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other actions (40 CFR § 1508.7).

Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time. In this EA, the cumulative effects are the impacts of a Western ROW maintenance program, together with impacts of other actions taking place throughout the study area.

Construction and agricultural activities can cause impacts similar to those of the no-action alternative and proposed action in this EA. Because ROWs are linear in nature and spread out over a large geographical area, a ROW maintenance program would contribute relatively minor impacts when considered together with other actions in the region. For example, soil compaction that may occur where heavy equipment is used may increase erosion and diminish soil productivity. However, compared to erosion and diminished soil productivity caused from construction and farming, impacts caused by ROW maintenance would be negligible.

The following is a description of the cumulative effects that could occur from the ROW maintenance program when added to past, future, and reasonably foreseeable actions. All ROW maintenance activities would take place within a narrow corridor spread over a three-county area. While activities at a single location could involve significant ground disturbance, noise, or alteration of vegetation or habitat, these activities would be so localized, of such short duration, and mitigated for their environmental effect, that the cumulative effects would not be significant.

Land Use. Potential cumulative effects on city, county, and State lands would involve conflicts with land-use plans. Because proposed ROW maintenance activities would not change land use along or adjacent to ROWs, there would be no conflict with these plans.

Habitats and Vegetation. Potential cumulative effects on habitats and vegetation would include decreased plant diversity, colonization of noxious weeds in disturbed sites, an increase of trees prone to windfall along forest edges, and potential herbicide damage to non-targeted plants.

Wildlife. Potential cumulative effects on wildlife would include harassment and degraded or modified habitat (most affected in wooded areas where habitat could be fragmented and thermal cover lost).

Special Status Species. Potential cumulative effects would involve the additive effect of habitat loss or herbicide poisoning.

Fisheries. Fish and other aquatic species could be affected through cumulative habitat degradation from decreased water quality (although usually less than 150 ft of any stream would be typically affected).

Soils. Soils effects would include increased erosion and reduced soil productivity from compaction.

Air Quality. Short-term and localized dust and exhaust emissions would temporarily increase particulate emissions, reducing air quality in a non-attainment area.

Water Quality. Water quality could be affected cumulatively through increased surface water runoff and water temperatures, reduced nutrients in water, and groundwater and surface water contamination.

Public Health. Additional public health effects could be due to physical injury, and health risks could occur from exposure to exhaust gases and herbicides.

Recreation. Recreationists could be temporarily disturbed and displaced, diminishing recreational experiences.

Cultural Resources. Potential cumulative effects on cultural and historic resources could include damage to or exposure of archaeological sites, temporary noise impacts, and potential visual impacts to resources.

Esthetics. Esthetic impacts would arise from additional changes in visual contrasts and landscape appearance (most notable in wooded areas).

None of these effects would be significant. No substantive activities were noted during the biological or cultural surveys that, in combination with the no-action alternative or the proposed action, would cause significant cumulative impacts.

5.0 COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS

Laws and regulations relevant to ROW maintenance activities are described at length in Western's IVM Environmental Guidance Manual (Western 2003). These regulations are summarized here. Note that "pesticides," as referred to in this section, include herbicides.

5.1 FEDERAL

***National Environmental Policy Act* (NEPA)**

This Act requires Federal agencies to consider the impacts to the human and natural environment of their actions. The Council on Environmental Quality has published implementing regulations (40 CFR Parts 1500-1508) and the DOE has published implementing procedures (10 CFR Part 1021) that guide Western's compliance with the Act. Actions such as ROW maintenance can normally be categorically excluded as part of the routine maintenance exclusion (see Appendix B or Subpart D of 10 CFR Part 1021) as long as the action meets the integral elements of that exclusion. However, other land-managing agencies may have other requirements when the actions are taken on their lands.

***Federal Insecticide, Fungicide and Rodenticide Act* (FIFRA)**

This Act regulates the manufacture, use, storage and disposal of chemicals used as pesticides (which includes herbicides) as described in 40 CFR Parts 150-180. The focus of FIFRA is on pesticide producers; however, this section will emphasize the parts of the regulation applicable to the use, storage, and disposal of pesticides. FIFRA

- Regulates all pesticides including herbicides, insecticides, fungicides, and plant growth regulators;
- Regulates all pesticide labels and packaging;
- Classifies pesticides as unclassified, general use, or restricted use (40 CFR Part 152, Subpart I) (Restricted use may prescribe restrictions relating to the products, composition, labeling, packaging, uses, or the status or qualifications of the user.);
- Describes the written records that need to be kept by certified applicators;
- May give fines of up to $25,000 and jail sentences of up to 1 year for misapplication of pesticides and violation of FIFRA standards;
- Provides for the registration of pesticides or the cancellation of a registration; and
- Provides work protection standards.

Users of restricted use pesticides should particularly note the following regulations:

- Disposal and Storage of Pesticides (40 CFR Part 165)—specifies the regulations and procedures for the disposal or storage of pesticides, pesticide containers, and pesticide-related wastes and for the acceptance for safe disposal by EPA of pesticides whose registration has been canceled.

- Certification of Pesticide Applicators (40 CFR Part 171)—outlines the requirements for applicators of restricted use pesticides. These requirements include categorization of commercial and private applicators, standards for certification of commercial and private applicators, and supervision of noncertified applicators.

***Comprehensive Environmental Response, Compensation and Liability Act* (CERCLA)**

- Regulates methods of cleaning up recent and past spills of hazardous substances.

- Defines periods within which the EPA and other agencies must be notified of current spills of hazardous substances.

- Uses reportable quantities of hazardous substances to decide when Federal and State agencies are notified of spills.

- CERCLA and the National Contingency Plan (NCP) specify Federal Natural Resource Trustees. The DOE is a designated trustee for natural resources that are on, over, or under land under its jurisdiction and not specifically the responsibility of some other resource management agency.

  Federal facilities that have released hazardous substances, therefore, should clearly be concerned about natural resource damage liabilities. In other words, the DOE may have a dual role; where DOE activities have resulted in hazardous substance releases. The DOE is the CERCLA Lead Response Agency and, as such, may be subject to natural resource liabilities to other trustees; but, the DOE is also the trustee for the natural resources under its own jurisdiction.

***Superfund Amendments and Reauthorization Act* of 1986 (SARA Title III), and the *Emergency Planning and Community Right-To-Know Act* (EPCRA)**

- Set up state emergency response commissions and local emergency planning committees.

- Require industrial facilities to provide written plans to describe what they would do in the event of a "chemical emergency."

- Require an annual inventory of all chemicals on-site when certain amounts are exceeded.

- Provide the state emergency response commissions, local emergency planning departments, and the local fire department with names and quantities of hazardous substances stored.

Federal Occupational Safety and Health Act (OSHA)

- Protects worker health and safety.

OSHA's Hazard Communication Standard

- Requires workers be provided with an MSDS for all hazardous materials including pesticides.
- Trains workers on the hazards of the materials handled.
- Provides information to workers on how to protect themselves and what to do during emergencies such as spills and fires.

***Hazardous Materials Transportation Act* (HMTA)**

- Requires placards and shipping papers for shipping certain quantities of hazardous materials.
- Requires reporting of transportation accidents involving hazardous chemicals.
- Requires training of commercial drivers and workers who unload hazardous chemicals.

State OSHA, EPA, agricultural agencies, and local health and weed control agencies may also have specific regulations that deal with pesticide use, spills, transportation, and disposal.

***Federal Noxious Weed Act* of 1974**

- Defines a noxious weed as any living stage of a plant that can directly or indirectly injure crops, other useful plants, livestock, or poultry or other interests of agriculture including irrigation, navigation, the fish and wildlife resources of the United States, or the public health.
- Regulates the sale, purchase, and transportation of noxious weeds into or through the United States.
- Regulates the inspection and quarantine of areas suspected of infestation and provides for the disposal or destruction of infested products, articles, means of conveyance, or noxious weeds.
- May give fines of up to $5,000 and/or imprisonment up to 1 year for violation of the regulation.
- Requires Federal agencies to work with State and local agencies to develop and implement noxious weed management programs on Federal lands.

Endangered Species Act

- Protects listed plants and animals that are threatened by habitat destruction, pollution, overharvesting, disease, predation, or other natural or man-made factors.
- Stipulates that listed species cannot be possessed, taken, or transported without special permission. All Federal agencies must ensure that their activities do not jeopardize a listed species or its critical habitat.
- Provides for review of pesticide formulations and their application methods and rates to determine if pesticide use may have potential adverse effects on listed species or their critical habitats.

***Migratory Bird Treaty Act* of 1918, as Amended**

This Act protects migratory birds by making it unlawful to pursue, take, attempt to take, capture, possess, or kill any migratory bird, or any part, nest, or egg of any such bird, unless and except as permitted by regulation. The act is intended to protect birds that have common migratory patterns within the United States, Canada, Mexico, Japan, and Russia.

- Section 704 of the Act states that the Secretary of the Interior is authorized and directed to determine if, and by what means, the take of migratory birds should be allowed and to adopt suitable regulations permitting and governing take.
- Certain exceptions apply to employees of the U.S. Department of the Interior to enforce the Act and to employees of Federal agencies, State game departments, municipal game farms or parks, public museums, public zoological parks, accredited institutional members of the American Association of Zoological Parks and Aquariums (now called the American Zoo and Aquarium Association) and public scientific or educational institutions.

***Bald and Golden Eagle Protection Act* of 1940**

This Act makes it unlawful to capture, kill, destroy, molest, or disturb bald (American) and golden eagles, their nests, or their eggs anywhere in the United States. A permit must be obtained from the U.S. Department of Interior to relocate a nest that interferes with resource development or recovery operations.

- The enacting clause of the original Act stated that the Continental Congress in 1782 adopted the bald eagle as the national symbol, that the bald eagle became the symbolic representation of a new nation and the American ideals of freedom, and that the bald eagle was threatened with extinction.
- The Act imposes criminal and civil penalties on anyone (including associations, partnerships, and corporations) in the United States or within its jurisdiction who, unless excepted, takes, possesses, sells, purchases, barters, offers to sell or purchase or barter, transports, exports or imports at any time or in any manner a bald or golden eagle, alive or

dead; or any part, nest or egg of these eagles; or violates any permit or regulations issued under the Act.

- If compatible with the preservation of bald and golden eagles, the Secretary of the Interior may issue regulations authorizing the taking, possessing, and transporting of these eagles for scientific or exhibition purposes, for religious purposes of Indian tribes, or for the protection of wildlife, agricultural, or other interests.

National Historic Preservation Act

This Act directs that government agencies must locate and inventory historic properties and cultural resources under their jurisdiction prior to taking an action that might harm them, with the intent of minimizing such harm through appropriate avoidance measures. Agencies must consider the effects of their actions on identified historic properties prior to implementing the action.

American Indian Religious Freedom Act

This Act establishes that it is the policy of the United States to protect and preserve for Native Americans their inherent right of freedom to believe, express, and exercise their traditional religions. This includes access to sites, use and possession of sacred objects, and the freedom to worship through ceremonies and traditional rites.

Executive Order 13007, Indian Sacred Sites

This Order directs Federal agencies to accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and to avoid adversely affecting the physical integrity of those sacred sites. This includes providing reasonable notice of actions or land management policies that may restrict access or affect the physical integrity of sacred sites. It also directs agencies to keep confidential information pertaining to such sites.

Clean Air Act

- Establishes air quality standards to protect public health and the environment from the harmful effects of air pollution.

- Defines National Ambient Air Quality Standards for six criteria pollutants: carbon monoxide, sulfur dioxide, nitrogen dioxide, ozone, PM_{10}, and lead.

Presidential Memorandum Dated April 26, 1994 for the Heads of Executive Departments and Agencies and Guidance for This Memorandum From the Office of the Federal Environmental Executive (60 FR 40837; August 10, 1995)

In this memo and the accompanying guidance, agencies are directed to

- Use regionally native plants for landscaping;
- Design, use, or promote construction practices that minimize adverse effects on natural habitat;
- Seek to prevent pollution by, among other things, reducing fertilizer and pesticide use, using integrated pest management techniques, recycling green waste, and minimizing runoff;
- Implement water efficient practices, such as use of mulches, efficient irrigation systems, audits to determine water-use needs, and siting of plants in a manner that conserves water and controls soil erosion;
- Plant regionally native shade trees to reduce air conditioning demands; and
- Create outdoor demonstrations incorporating native plants, as well as pollution prevention and water conservation techniques.

5.1.1 PRIME AND UNIQUE FARMLAND

The designation of prime farmland grew out of the program by the Soil Conservation Service (SCS) to map the Nation's important farmlands. In 1980, the California Department of Conservation initiated the Farmland Mapping Program to supplement the SCS program. The continuing conversion of agricultural lands led to the passage of the *Farmland Protection Act* (Public Law 97-98) in 1981. The Act expressed the need for all Federal agencies to recognize the effect of their actions and programs on the Nation's farmlands.

The U.S. Department of Agriculture (USDA) was charged with implementing a program to develop criteria for identifying the effects of Federal programs on the conversion of farmlands to nonagricultural uses. These criteria were published in 1983. The major requirements are that Federal agencies must use USDA criteria to identify and take into account the adverse effects of their programs on the preservation of farmland, and Federal agencies must consider alternative actions, as appropriate, to lessen such adverse effects and ensure that their programs, to the extent practicable, are compatible with State, local, and private programs. The Act also authorizes local governments to identify farmland of local importance and exempts land already committed to urban development.

The SCS developed the following definitions of important farmlands, as modified for California:

- **Prime Farmland** is land with the best combination of physical and chemical characteristics for the production of crops. It has the soil quality, growing season, and moisture regime needed to produce sustained high yields of crops when treated and managed, including water management, according to current farming methods. Prime farmland must have been used for the production of irrigated crops within the last 3 years. It does not include publicly owned lands for which there is an adopted policy preventing agricultural use.
- **Unique Farmland** is land that does not meet the criteria for prime farmland, but is currently used for the production of specific high economic value crops. It has the special

combination of soil quality, location, growing season, and moisture supply needed to produce sustained high quality or high yields of a specific crop when treated and managed according to current farming methods. It does not include publicly owned lands for which there is an adopted policy preventing agricultural use.

In 1998, Sutter County had 170,229 acres of prime farmland; Sacramento and Placer counties had 121,974 and 9,750, respectively (University of California 2000). Parcels of prime and/or unique farmland may be present within ROWs of all but the Folsom-Nimbus transmission line.

Environmental effects to prime and unique farmland were evaluated by examining the potential effects of ROW management methods under the no-action alternative and proposed action on agricultural land use. Any substantial long-term disruption of an existing or reasonably foreseeable agricultural land use is considered a significant impact. According to criteria set forth in the *Farmland Protection Act*, the no-action alternative and proposed action would be in compliance with the Act and would have little or no impact on prime and unique farmlands since

- No additional non-farmland would be created due to interference with existing land patterns,
- No additional farmland would be affected or converted to non-agricultural uses because of maintenance activities,
- No existing substantial and well-maintained on-farm investment would be affected, and
- The no-action alternative and proposed action would not cause the agricultural use of adjacent farmlands to change nor jeopardize the continued existence of area farm support services.

5.1.2 EXECUTIVE ORDER 12898

On February 11, 1994, President Clinton issued Executive Order 12898, entitled “Federal Actions to Address Environmental Justice in Minority and Low-income Populations.” This order requires that “each federal agency make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities, on minority populations and low-income populations” (Executive Order 12898, 59 FR 7629 [Section 1-101]). The following study has been conducted to comply with the order:

- Economic, racial, and demographic information has been gathered to identify areas of low-income and high minority populations in the counties in which the study area is located (Sutter, Placer, and Sacramento).
- The no-action alternative and proposed action have been assessed for disproportionate impacts resulting from activities associated with each.

5.1.2.1 Existing Demographics

As shown in Table 5-1, in 2000 the majority (68.1 percent) of the population within the counties in the study area was white. Populations of Hispanic origin and Asian/Pacific Island origin formed the largest ethnic minorities with 12.7 percent and 10.0 percent of the population, respectively. These two minority groups also experienced the greatest percentage growth between 1990 and 2000, with an 11.2 percent growth in the Hispanic population and 24.7 percent growth in the Asian/Pacific Island population.

In 2000, Sacramento County had the largest percentage ethnic minority populations. In Sacramento County, about 13 percent of the population was Hispanic, 11 percent was of Asian/Pacific Island origin, and 10 percent was African American. The percentage of the population considered Hispanic was highest in Sutter County (18.5 percent). Sacramento County had the highest percentage of African Americans with 10 percent. In general, the Native American population formed a small percentage of the total populations in all counties, 1.1 percent or less. Placer County had the highest percentage white population with 87.3 percent.

The U.S. Census Bureau uses a set of money income thresholds that vary by family size and composition to determine which families are poor. If a family's total income is less than that family's threshold, then that family, and every individual in it, is considered poor. The poverty thresholds do not vary geographically, but they are updated annually for inflation using the Consumer Price Index. For example, in 2000 the average estimated poverty threshold for an individual was an annual income of $8,787, and for a four-person household it was $17,601. The most recent data available for the counties in the project area was that developed for 1997. In 1997, the average percentage of the population of the study area counties below the poverty line was 15.7 percent.

5.1.2.2 Environmental Justice Effects

ROW maintenance activities analyzed in this EA would not involve establishing new ROWs or constructing new access roads, transmission lines, or towers. The necessity of ROW maintenance activities is dictated by conditions at the particular point along the ROW. Analyses have shown that effects of these ROW maintenance activities to the public would not be significant; therefore, no environmental justice-related project effects are anticipated.

5.1.3 INTERAGENCY AGREEMENTS/COORDINATION

Because Western’s ROWs are located on or near lands owned by other Federal or State land management agencies, it is important to coordinate ROW maintenance activities with these agencies and to honor any provisions in Interagency Agreements unless the provisions are renegotiated. These agreements may have specific restrictions on herbicide use and types of clearing; for example, they may call for only trimming of trees in more sensitive environmental or visual areas.

Table 5-1. Population Percentage by Race/Ethnicity

Year	Population	White (%)	Hispanic (%)	Asian/ Pacific (%)	African American (%)	Native American (%)
SUTTER						
1990	63,700	71.7	16.5	9	1.5	1.3
2000	79,700	67.7	18.5	10.8	1.8	1.1
% Change	25.1%	-5.6%	12.1%	20.0%	20.0%	-15.4%
PLACER						
1990	170,100	88.3	8.1	2.1	0.6	0.9
2000	248,700	87.3	8.6	2.6	0.7	0.8
% Change	46.2%	-1.1%	6.2%	23.8%	16.7%	-11.1%
SACRAMENTO						
1990	1,031,500	69.3	11.7	8.9	9.1	1
2000	1,230,700	64.3	13.2	11.4	10	1.1
% Change	19.3%	-7.2%	12.8%	28.1%	9.9%	10.0%
TOTAL						
1990	1,265,300	72.0%	11.5%	8.0%	7.6%	1.0%
2000	1,559,100	68.1%	12.7%	10.0%	8.1%	1.1%
% Change	23.2%	-5.3%	11.2%	24.7%	6.9%	5.0%

Source: US Census 1990, US Census 2000.

Formal Programmatic Consultation on the Operations and Maintenance Activities of the Western Area Power Administration [Biological Opinion]

This agreement with the USFWS discusses the effects of Western's operation and maintenance of transmission lines, associated access roads, substations, and communications and maintenance facilities on threatened and endangered species. The agreement also prescribes limitations on Western's operation and maintenance activities for protection of these species.

The 1998 BO (USFWS 1998) covers all threatened and endangered species likely to be encountered during Western's operation and maintenance activities in California. The 2005 BO (USFWS 2005) covers vernal pools species and the VELB within the Sacramento Valley study area described in this EA.

Programmatic Agreement Among Western Area Power Administration, the Advisory Council on Historic Preservation, and the California SHPO Concerning Emergency and Routine Maintenance Activities at Western Facilities in California

This Programmatic Agreement delineates how the maintenance program is to be administered in order to satisfy Western's Section 106 responsibility. It establishes actions for which no consultation with the SHPO is necessary and the process for consultation when it is necessary.

5.1.4 U. S. DEPARTMENT OF ENERGY POLICIES, ORDERS, AND MEMORANDUMS

- DOE Policy 141.1, “Department of Energy Management of Cultural Resources,” dated 05-02-01, establishes cultural resource management as a necessary part of DOE program implementation and establishes program responsibilities, requirements, and authorities.

- DOE Policy 450.2A, “Identifying, Implementing and Complying with Environment, Safety and Health Requirements,” dated 05-15-96, sets forth the framework for identifying, implementing, and complying with environment, safety, and health requirements so work is performed in a manner that ensures adequate protection of workers, the public, and the environment.

- DOE Policy 450.4, “Safety Management System Policy,” dated 10-15-96, provides a formal organized process whereby people plan, perform, assess, and improve environmental processes.

- DOE Order 5400.1, “General Environmental Protection Program,” dated 11-09-88, establishes environmental protection program requirements, authorities, and responsibilities for DOE operations to ensure compliance with Federal, State, and local environmental laws, regulations, Executive Orders, and internal policies.

- DOE Order 5480.4, “Environmental Protection, Safety, and Health Protection Standards,” dated 05-15-84, specifies requirements for the application of mandatory environmental protection standards.

- DOE Memorandum dated November 3, 1997, issued from the DOE Office of NEPA Policy and Assistance, emphasizes the need to consider environmentally and economically beneficial landscape practices and the above guidance when developing NEPA documents.

5.1.5 WESTERN AREA POWER ADMINISTRATION ORDERS, MANUALS, AND GUIDANCE

- Western Area Power Administration (WAPA) Order 430.1, *Right-of-Way Management Guidance for Danger Trees, Encroachments and Access Routes*, of 11-21-01, delegates and clarifies responsibilities to the maintenance managers and establishes guidance and organizational support for maintenance and safe operation of Western ROWs.

- WAPA Order 450.1A, *Environmental Considerations in the Planning, Design, Construction,*

and Maintenance of Power Facilities and Activities, dated 11-21-01, describes environmental requirements that may be necessary to support maintenance activities.

- WAPA Order 6400.1, *Establishment of Engineering Manual Series*, dated 02-05-80, describes standards for documents developed for guidance of Western's field activities.
- WAPA Power System Maintenance Manual, Chapter 11, Trimming and Felling of Trees and Brush Near Powerlines, November 2000.
- Guides, Requirements, Instruction, and Procedures (GRIP) No.16, *Transmission Line Right-of-Way Management*, February 2001.This guide sets forth the procedures and practices for management of the transmission line ROWs, which includes easements and fee land owned by Western's Sierra Nevada Region (SNR).
- GRIP No. 19, *Major Power System Component and Maintenance Program*, May 2002. This guide outlines Western SNR's maintenance program for major power system components, including both scheduled maintenance practices and trigger-based maintenance practices, to ensure power system reliability, safety of employees, and cost effectiveness. The program is designed to meet the requirements of the customers, public safety, environmental sensitivities, and various power system organizations.

5.2 STATE

The ***California Endangered Species Act*** **(CESA)** (Fish & Game Code §§ 2050, *et seq*.), generally parallels the main provisions of the *Federal Endangered Species Act* and is administered by the CDFG. Under CESA, the term "endangered species" is defined as a species of plant, fish, or wildlife that is "in serious danger of becoming extinct throughout all, or a significant portion of its range" and is limited to species or subspecies native to California. CESA establishes a petitioning process for the listing of threatened or endangered species. The California Fish and Game Commission is required to adopt regulations for this process and establish criteria for determining whether a species is endangered or threatened. The California Code of Regulations, Title 14, §670.1(a), sets forth the required contents for such a petition. CESA prohibits the "taking" of listed species except as otherwise provided in State law. Unlike its Federal counterpart, CESA applies the take prohibitions to species petitioned for listing (state candidates).

California Public Utilities Commission General Order 95, "**Rules for Overhead Electric Line Construction**," and proposed revisions dated 11-2-01, formulate uniform requirements for overhead electric and communication line construction for the State of California.

Western will comply not only with all Federal regulations regarding pesticides, but also with State regulations. These regulations are listed in the California Code of Regulations, Title 3, Division 6 (Pesticides and Pest Control Operations). These regulations include

- Pesticide applicator certification and licensing (§§ 6500-6574),
- Work Requirements (§§ 6600-6686),

- Pesticide Worker Safety (§§ 6700-6795),
- Ground Water Protection (§§ 6800-6806),
- Air Section Protection (§§ 6860-6890), and
- Aquatic and Marine Environment Protection (§§ 6900-6920).

The California Department of Pesticide Regulation evaluates and registers pesticides for use in the State and defines conditions for use (California Department of Pesticide Regulation 2001).

The Food and Agricultural Code §§ 7270-7274 provides the Department of Food and Agriculture with the authority to form weed management areas, local organizations that bring together all interested landowners, land managers (private, city, county, State, and Federal), special districts, and the public in a county or other geographical area for the purpose of coordinating and combining their action and expertise to deal with their common weed control problems. A chairperson or a steering committee may voluntarily govern a weed management area.

5.3 FEDERAL AND STATE WATER QUALITY REGULATIONS AND PROGRAMS

State and Federal laws mandate a series of programs for the management of surface water quality. In the State of California, water resources are protected under the Federal *Clean Water Act* (CWA) of 1948, as amended (33 U.S.C. §1251) and the State Porter-Cologne *Water Quality Control Act*, which created the State Water Resources Control Board (SWRCB) and nine Regional Water Quality Control Boards (RWQCBs). Each RWQCB is responsible for preparing and updating a water quality control plan (basin plan) every 3 years; the basin plan for a specific region identifies water quality protection policies and procedures for that region (California RWQCB 1998).

Other types of permitting relevant to water-quality control may apply to activities in the study area.

- **Section 401 of the *Clean Water Act*.** Activities covered by the U.S. Army Corps of Engineers' jurisdiction over wetlands (CWA Section 404 Department of Army permits) require Section 401 water quality certifications or waivers from the Central Valley RWQCB. The Water Quality Certification program requires that states certify compliance of Federal permits and licenses with State water quality standards. A Federal permit to conduct an activity that results in discharges into waters of the United States, including wetlands, is issued only after the affected state certifies that existing water quality standards would not be violated if the permit were issued. Western has applied for a programmatic certification based on the information in this EA.

- **Section 404 of the *Clean Water Act*.** Authorization from the U.S. Army Corps of Engineers is required in accordance with the provisions of Section 404 when dredged or fill material is discharged into waters of the United States, including wetlands. This includes excavation activities that result in the discharge of dredged material that could destroy or degrade waters of the United States. The repair and upgrade of access roads could impact waters of

the United States. Structures would be located outside wetland boundaries where possible. Field surveys would be conducted to identify wetlands and ensure compliance. If permits were necessary, authorization would be sought from the Corps and appropriate State agencies.

Nationwide permits (NWPs) are a type of general permit issued by the Chief of Engineers that are designed to regulate with little, if any, delay or paperwork certain activities having minimal impacts. Western would perform ROW maintenance work under the NWPs listed in Table 5-2.

The NWPs are proposed, issued, modified, reissued (extended), and revoked from time to time after an opportunity for public notice and comment. Western would comply with any changes to these permits. All actions are performed on a limited basis because of the limited resources available and because actions are intended to be performed over a period of at least 10 years. Thresholds of effect are incorporated into these NWPs; Western would adhere to the thresholds as specified.

- **Section 1601/1603 of the Fish and Game Code.** The CDFG typically specifies water quality protection measures when they issue streambed alteration agreements pursuant to Section 1601/1603 of the Fish and Game Code. However, as an agency of the Federal government, Western is exempt from these requirements (Department of Fish and Game, Sacramento Valley Region, July 2001).

Table 5-2. Summary of Applicable Nationwide Permits

Permit and Title	Description	Thresholds	Notification Requirements
Nationwide Permit 3—Maintenance	Activities related to: (i) the repair, rehabilitation, or replacement of any previously authorized, currently serviceable, structure, or fill; (ii) discharges of dredged or fill material, including excavation, into all waters of the US to remove accumulated sediments and debris in the vicinity of, and within, existing structures; and (iii) discharges of dredged or fill material, including excavation, into all waters of the US for activities associated with the restoration of upland areas damaged by a storm, flood, or other discrete event, including the construction, placement, or installation of upland protection structures and minor dredging to remove obstructions in a water of the US.	Under (ii), the removal of sediment is limited to the minimum necessary to restore the waterway in the immediate vicinity of the structure to the approximate dimensions that existed when the structure was built, but cannot extend further than 200 ft in any direction from the structure. Under (iii), minor dredging to remove obstructions from the adjacent waterbody is limited to 50 cubic yards below the plane of the ordinary high water mark	Under (iii), the permittee must notify the District Engineer within 12-months of the date of the damage.

Table 5-2. Summary of Applicable Nationwide Permits (continued)

Permit and Title	Description	Thresholds	Notification Requirements
Nationwide Permit 12—Utility Line Activities	Activities required for the construction, maintenance and repair of utility lines and associated facilities in waters of the US as follows: (i) Utility lines: The construction, maintenance, or repair of utility lines, including outfall and intake structures and the associated excavation, backfill, or bedding for the utility lines, in all waters of the US, provided there is no change in preconstruction contours. (ii) Utility line substations: The construction, maintenance, or expansion of a substation facility associated with a power line or utility line in non-tidal waters of the US, excluding non-tidal wetlands adjacent to tidal waters. (iii) Foundations for overhead utility line towers, poles, and anchors: The construction or maintenance of foundations for overhead utility line towers, poles, and anchors in all waters of the US. (iv) Access roads: The construction of access roads for the construction and maintenance of utility lines, including overhead power lines and utility line substations, in non-tidal waters of the US, excluding non-tidal wetlands adjacent to tidal waters.	Activities may not exceed a total of 1/ 2-acre loss of waters of the US.	The permittee must notify the District Engineer if any of the following criteria are met: (a) Mechanized land clearing in a forested wetland for the utility line ROW; (b) A Section 10 permit is required; (c) The utility line in waters of the US, excluding overhead lines, exceeds 500 ft; (d) The utility line is placed within a jurisdictional area (i.e., water of the US), and it runs parallel to a stream bed that is within that jurisdictional area; (e) Discharges associated with the construction of utility line substations that result in the loss of greater than 1/10-acre of waters of the US; or (f) Permanent access roads constructed above grade in waters of the US for a distance of more than 500 ft. (g) Permanent access roads constructed in waters of the US with impervious materials. (Sections 10 and 404).
Nationwide Permit 13—Bank Stabilization	Bank stabilization activities necessary for erosion prevention.	The bank stabilization activity must be less than 500 ft in length.	Bank stabilization activities in excess of 500 ft in length or greater than an average of one cubic yard per running foot may be authorized if the permittee notifies the District Engineer

Table 5-2. Summary of Applicable Nationwide Permits (concluded)

Permit and Title	Description	Thresholds	Notification Requirements
Nationwide Permit 14—Linear Transportation Projects	Activities required for the construction, expansion, modification, or improvement of linear transportation crossings (e.g., highways, railways, trails, airport runways, and taxiways) in waters of the US, including wetlands.	For linear transportation projects in non-tidal waters, the discharge cannot cause the loss of greater than 1/2-acre of waters of the US; for linear transportation projects in tidal waters, the discharge cannot cause the loss of greater than 1/3-acre of waters of the US.	The permittee must notify the District Engineer if any of the following criteria are met: (1) the discharge causes the loss of greater than 1/10-acre of waters of the US; or (2) there is a discharge in a special aquatic site, including wetlands
Nationwide Permit 41—Reshaping Existing Drainage Ditches	Discharges of dredged or fill material into non-tidal waters of the US, excluding non-tidal wetlands adjacent to tidal waters, to modify the cross-sectional configuration of currently serviceable drainage ditches constructed in waters of the US.	The reshaping of the ditch cannot increase drainage capacity beyond the original design capacity, nor can it expand the area drained by the ditch as originally designed.	The permittee must notify the District Engineer if greater than 500 linear ft of drainage ditch will be reshaped.

Source: 67 FR 2019

6.0 COORDINATION AND REVIEW OF THE ENVIRONMENTAL ASSESSMENT

This EA was prepared by Tetra Tech NUS, Inc., under the direction of, and with input and consultation from, Western. Mr. Steve Tuggle of Western's Sierra Nevada Region office was the project manager.

Reviews of the EA were conducted by resource area specialists in Western's SNR Office in Folsom, California, and in Western's Corporate Services Office in Lakewood, Colorado.

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7.0 MONITORING AND ADAPTIVE MANAGEMENT

Monitoring and adaptive management methods are described in Western's IVM Environmental Guidance Manual (Western 2003). These methods are also described here.

Monitoring is necessary to identify situations where management actions are needed, to evaluate the effectiveness of vegetation control methods used, and to monitor the effectiveness of new herbicides or new treatment methods. Regardless of the method used, whether it is manual, mechanical, herbicidal, or biological, monitoring should be performed to verify that Western's IVM Program is producing the desired results to ensure the reliable operation of Western's electric transmission system. An effective monitoring program will include

- Clear delegation of responsibility for monitoring reports (reports would be prepared by Western on a regular basis, with monitoring period depending on vegetation growth in the area);
- Delineation of clear vegetation growth management objectives;
- Maintenance schedules that are consistent with vegetation growth cycles and vegetation control management activities;
- Provisions for groundwater and surface water monitoring; and
- Guidelines for processing information and feedback. Feedback would be reported through maintenance supervisors to managers. Based on feedback, effective maintenance procedures would be continued or expanded; non-effective maintenance procedures would be discontinued or modified.

In evaluating the performance of any vegetation control method, it should be noted whether or not the method helped to achieve each of the following basic objectives of Western's IVM Program:

- Protect public and worker safety;
- Prevent operational hazards, such as tall-growing trees on transmission line ROWs;
- Maintain unimpaired access to transmission facilities and ROWs;
- Protect substations, switchyards, and microwave stations from fire hazards;
- Control the spread of noxious weeds in compliance with State and county regulations;
- Manage vegetation growth in a technical and efficient manner;
- Protect environmental quality of water, wildlife, and esthetic resources;

- Establish stable, low-growing plant communities on transmission line ROWs; and
- Use integrated vegetation management methods to meet objectives.

Regarding water quality monitoring, a Groundwater Management Program is being implemented and a Groundwater Monitoring Plan has been completed (Western 2003).

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B.S., Plant Sciences
13 years experience

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Tetra Tech NUS
Field Surveys, Land Use
M.A., Industrial/Organizational Psychology
B.A., Psychology
20 years experience

Gaylor, Robert

Tetra Tech NUS
Geology, Floodplains and Wetlands, Reviewer
M.S., Geology
A.B., Geology
15 years experience

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Gary Huxel Consulting
Special Status Species
Ph.D., Ecology
B.S.; Biology
7 years experience

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Tetra Tech NUS
Biology
B.S., Biological Conservation
3 years experience

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Huffman & Carpenter
Biological Field Survey, Biology
B.S., Biology
6 years experience

Roxlau, Katherine

Tetra Tech NUS
Cultural Resources, Reviewer
M.A., Anthropology
B.A., Anthropology
14 years experience

Taber, William

Tetra Tech NUS
Contractor Project Manager, Reviewer
B.A., Biology
25 years experience

Tuggle, Steve

Western Area Power Administration
Project Manager
B.S., Natural Resources Management
10 years experience

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