FINAL

Parker-Davis Transmission System Routine Operation and Maintenance Project and Proposed Integrated Vegetation Management Program

Programmatic Environmental Assessment

DOE/EA-1982




Prepared by

U.S. Department of Energy
Western Area Power Administration,
Desert Southwest Region
Phoenix, Arizona

August 2015

FINDING OF NO SIGNIFICANT IMPACT

Parker-Davis Transmission System Routine Operation and Maintenance Project and Proposed Integrated Vegetation Management Plan
Arizona, California, Nevada
DOE/EA-1982

AGENCY: **U.S. Department of Energy, Western Area Power Administration**

ACTION: **Finding of No Significant Impact and Floodplain Statement of Findings**

BACKGROUND: U.S. Department of Energy (DOE), Western Area Power Administration (Western) proposes to implement a programmatic operations and maintenance (O&M) process, which includes an Integrated Vegetation Management program, along the Parker-Davis Transmission System. The Proposed Action would streamline the regulatory process for O&M activities along the Parker-Davis Transmission System and balance environmental protection with system reliability and compliance with the National Electric Safety Code, Western Electricity Coordinating Council requirements, North American Electric Reliability Council reliability standards, Institute of Electrical and Electronics Engineers standards, and Western directives for maintaining system reliability and protection of human safety. The Proposed Action also includes the implementation of an Integrated Vegetation Management program along the Parker-Davis Transmission System to ensure the following: (1) reliable, uninterrupted service to customers; (2) safe transmission and distribution of power along existing transmission lines; and (3) protection against wildfires that could result from vegetation and trees coming into contact with or arcing to the transmission lines.

Western prepared an Environmental Assessment (EA) analyzing the Proposed Action and a No Action Alternative. The Parker-Davis Transmission System passes through three states and lands managed by the U.S. Department of Interior [i.e., Bureau of Land Management, Bureau of Indian Affairs, Bureau of Reclamation, and National Park Service], U.S. Department of Agriculture [i.e., Forest Service], U.S. Department of Defense, seven Indian reservations, and Arizona State Trust lands. Under National Environmental Policy Act (NEPA) regulations, the Bureau of Land Management, Bureau of Reclamation, and the Coronado National Forest were cooperating agencies in preparing the EA. The EA is titled "Parker-Davis Transmission System Routine Operation and Maintenance Project and Proposed Integrated Vegetation Management Program Programmatic Environmental Assessment (DOE/EA-1982)" and dated August 2015. Western incorporates this EA by reference.

Western determined that the Proposed Action would have minor effects to species listed under the Endangered Species Act. Consultation was completed with the U.S. Fish and Wildlife Service on September 21, 2015. Western consulted with the Arizona State Historic Preservation Officer (SHPO) and respective Tribal Historic Preservation Officers (THPOs) under Section 106 of the National Historic Preservation Act. On July 10, 2013, the Arizona SHPO and THPOs entered into a programmatic agreement with Western to ensure maintenance activities result in no adverse effect to cultural resources.

Western also holds similar programmatic agreements with the Nevada SHPO (dated July 29, 2014) and the California SHPO (dated January 20, 2010). These agreements identify which activities require cultural resources studies and which activities are exempt.

FLOODPLAIN STATEMENT OF FINDINGS: This is a Floodplain Statement of Findings prepared in accordance with 10 CFR part 1022 and provides a summary and the results of the Floodplain and Wetland Assessment, which is incorporated into the EA.

Western proposes to implement an O&M process as well as an Integrated Vegetation Management Program for its existing Parker-Davis Transmission System, including transmission line infrastructure, rights-of-way, communication facilities, and access roads. The project area crosses several major rivers, including the Colorado, San Pedro, Gila, Salt, Agua Fria, and the Santa Cruz Rivers, and their associated floodplains. Because the proposed action involves existing infrastructure, Western did not consider locations outside of floodplains. The proposed action would not result in substantive modifications to the floodplain that would alter the capacity of the floodplain to convey and dissipate the volume and energy of peak flows. The proposed action has no adverse effects on floodplains, flood hazards, or floodplain management, because of the incorporation of Project Conservation Measures and Standard Operating Procedures that reduce risk factors including, but not limited to the following: erosion control; buffer distances for work outside of wetlands, streams, and riparian areas; and minimization of disturbance to riparian and wetland vegetation. The proposed action conforms to all applicable state and local floodplain and wetland protection standards to the extent applicable to Federal projects.

DETERMINATION: Based on the analysis contained in DOE/EA-1982, Western determined that the Proposed Action to implement a programmatic O&M process, including implementation of an Integrated Vegetation Management Program along the Parker-Davis Transmission System does not constitute a major Federal action significantly affecting the quality of the human environment within the meaning of NEPA. Therefore, preparation of an environmental impact statement is not required.

FOR FURTHER INFORMATION, CONTACT: Additional information and copies of the EA and FONSI are available to all interested parties and the public from the following contact:

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Western Area Power Administration
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The EA and FONSI can be downloaded from Western's website or the U.S. Department of Energy's website at:

https://www.wapa.gov/regions/DSW/Environment/Pages/parker-davis-vegetation-management.aspx

http://energy.gov/nepa/ea-1982-parker-davis-transmission-system-routine-operation-and-maintenance-project-and-proposed

For further information on the DOE NEPA process, contact:

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Issued at Phoenix, Arizona on September 30, 2015.

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Desert Southwest Regional Manager

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1.0 Introduction

The Western Area Power Administration, Desert Southwest Region (Western) markets and delivers federal hydroelectric power to nearly 70 municipalities, cooperatives, federal and state agencies, and irrigation districts. Most power sold by Western is generated from power plants operated at Hoover, Parker, and Davis Dams; from hydroelectric projects in the Bureau of Reclamation's (Reclamation) Lower Colorado Region, and the federal portion of power generated at the Navajo Generating Station near Page, Arizona. Western's Desert Southwest Region (DSW) operates and maintains more than 80 substations and 3,500 miles (5,633 kilometers) of transmission line to market and deliver power to its customers. Within this region, Western owns, operates, and maintains 69-kilovolt (kV), 115-kV, 230-kV, 345-kV, and 500-kV, transmission lines in 11 counties in Arizona; San Bernardino, Riverside, and Imperial counties in California; San Juan County in New Mexico; and Clark County in Nevada.

Western is proposing to implement a programmatic operations and maintenance (O&M) process and an Integrated Vegetation Management (IVM) program on the Parker-Davis Transmission System, in the DSW. Western refers to this as the Parker-Davis Transmission System Programmatic Operation and Maintenance and Integrated Vegetation Management Project (Proposed Action). Western's Transmission Vegetation Management Program (Western 2011) uses an adaptive management approach that incorporates environmentally protective practices to control potentially hazardous vegetation. These include physical and mechanical control. Chapter 2 – Proposed Action and Alternatives, provides additional details on these vegetation control methods.

1.1 Purpose and Need for Action

On August 10, 1996, during a period of high temperatures and high electricity demand, a transmission line sagged into filbert trees near Portland, Oregon, leading to a cascade of power outages as far away as southern California. Executive Order (EO) 13212, *Actions To Expedite Energy-Related Projects* (May 18, 2001), declared the safe and environmentally sound increased production and transmission of energy to be essential to the well-being of the American people, and called for the improvement and streamlining of cooperation among federal agencies to expedite projects that will increase the production, transmission, or conservation of energy. In August 2003, high temperatures resulting in high electricity demand caused a widespread power outage in the Northeast and Midwest, affecting approximately 45 million people in the United States and 10 million people in Ontario, Canada. The U.S.-Canada Power System Outage Task Force found that, again, transmission line sag into overgrown trees in rural Ohio caused the outage.

In response to these widespread outages, Congress enacted the Energy Policy Act of 2005 (Public Law 109-58), which authorized the Federal Energy Regulatory Commission (FERC) to certify an "Electric Reliability Organization" (ERO) to create mandatory and enforceable reliability standards, subject to FERC review and approval. FERC certified the North American Electric Reliability Corporation (NERC) as the ERO. The Energy Policy Act of 2005 also requires federal agencies to expedite approvals to allow owners or operators of transmission facilities access to the facilities to comply with applicable standards, including vegetation management standards.

NERC began enforcing its Reliability Standard, FAC-003-1, "Transmission Vegetation Management Program" (NERC Standard) on June 18, 2007. The NERC Standard was revised as FAC-003-2, "Transmission Vegetation Management" and was approved on May 28, 2013. To enhance Western's compliance with NERC's Transmission Vegetation Management Reliability Standard, industry standards, and

Western's policy and guidance, Western proposes to improve the way it manages vegetation along its rights-of-way (ROWs) on the Parker-Davis Transmission System.

Western's policy on its Transmission Vegetation Management Program (Western Order 450.3A) specifies that:

> *Western's desired condition beneath and adjacent to its transmission line facilities is characterized by stable, low growth plant communities free from noxious or invasive plants. These communities will typically be comprised of herbaceous plants and low growing shrubs which ideally are native to the local area. Vegetation on the bordering areas of transmission line rights-of-way can be managed so that increased tree height is allowed in relation to an increasing distance from the transmission line.*

Western is developing its IVM program to ensure: (1) reliable, uninterrupted service to customers; (2) safe transmission and distribution of power along existing transmission lines; and (3) protection against wildfires that could result from vegetation coming into contact with or arcing to the transmission lines. Western's proposed vegetation management project includes routine vegetation management and danger tree removal. Failure to address vegetation clearance and fuels hazards could result in wildfires from transmission line flashovers, arcing, major power outages, or injury to life or property. Proper management of vegetation within the Project ROWs can minimize the chance of fire ignition by reducing available wildfire fuel sources.

The goal of Western's Parker-Davis Transmission System maintenance program is to streamline the regulatory process for ROW maintenance and balance environmental protection with system reliability and compliance with the National Electric Safety Code, Western Systems Coordinating Council requirements, North American Electric Reliability Council reliability standards, Institute of Electrical and Electronics Engineers standards, and Western directives for maintaining system reliability and protection of human safety.

Western's objectives are to maintain its transmission system to:

- Protect against operational hazards;
- Provide access for maintenance;
- Protect facilities from fire;
- Control the spread of noxious weeds and protect environmental quality;
- Adhere to principles of Western's Integrated Vegetation Management Program (including WAPA Order 430.1A Right-of-Way Management Guidance for Vegetation, Encroachments, and Access Routes, WAPA Order 450.3A Transmission Vegetation Management Program, and Western's Integrated Vegetation Management Guidance Manual);
- Establish and maintain stable, low-growing plant communities under the ROW;
- Develop a technically and economically efficient program;
- Protect public and worker safety;
- Maintain sound relationships with landowners and managers; and
- Streamline regulatory permitting activities.

The need for the Proposed Action is to:

- Eliminate the threat for vegetation to interfere with the lines and towers;
- Control vegetation cost effectively to benefit the public and natural ecosystems;
- Maintain the transmission lines, access roads, and other legal ROWs to facilitate safe and year-round access to transmission-line structures and associated facilities; and
- Comply with FERC Order 785 and NERC Electric Reliability Standards FAC-003 (Vegetation Management) and PRC-005-1 (Protection System Maintenance).

1.2 Parker-Davis Transmission System Location and Description

The Parker-Davis Transmission System includes 53 substations and 1,534 miles of transmission line, containing 9,993 transmission structures. Table 1-1 provides transmission line voltages for segments of the system, as shown in Figure 1-1. Table 1-1 also includes the number of substations in each state.

Table 1-1. Parker-Davis Transmission System Components by Geography

Nevada	
▪ Henderson-Mead #1 (230-kV)	▪ 5 substations
▪ Henderson-Mead #2 (230-kV)	▪ 3 communication sites
▪ Davis-Mead (230-kV)	
North/Central Arizona	
▪ Davis-Prescott (230-kV)	▪ Liberty-Parker #1 (230-kV)
▪ Griffith-Peacock (230-kV)	▪ Liberty-Parker #2 (230-kV)
▪ Davis-Prescott (230-kV)	▪ Parker-Kofa (161-kV)
▪ Davis-Mohave Electric Kingman Tap (69-kV)	▪ Parker-Planet Tap (69-kV)
▪ Davis-Parker #1 (230-kV)	▪ Parker-Havasu Pump (230-kV)
▪ Peacock-Prescott (230-kV)	▪ Lone Butte–Phoenix (230-kV)
▪ Griffith-McConnico (230-kV)	▪ Liberty-Phoenix (230-kV)
▪ South Point–Topock (230-kV)	▪ Agua Fria–White Tanks–Orme (230-kV)
▪ Pinnacle Peak–Prescott (230-kV)	▪ Liberty-Sundance (230-kV)
▪ Parker-Kofa (161-kV)	▪ Liberty–Lone Butte (230-kV)
▪ Parker-Planet Tap (69-kV)	▪ 25 substations
▪ Parker-Havasu Pump (230-kV)	▪ 5 communication sites
South Arizona	
▪ Rogers-Coolidge (230-kV)	▪ Electric District 5–Test Track (230-kV)
▪ Phoenix-Test Track (230-kV)	▪ Electric District 4–Saguaro (115-kV)
▪ Coolidge-Sundance #1 (230-kV)	▪ Electric District 5–Saguaro #1 (115-kV)
▪ Coolidge-Sundance #2 (230-kV)	▪ Saguaro-Oracle (115-kV)
▪ Coolidge–Electric District 2 (115-kV)	▪ Saguaro-Tucson (115-kV)
▪ Coolidge-Oracle (115-kV)	▪ Tucson-Apache (115-kV)
▪ Santa Rosa–Pinal Central (230-kV)	▪ Gila-Yuma Tap (34.5-kV)
▪ Kofa-Gila-Welton (161-kV)	▪ Gila-Welton Mohawk (161-kV)
▪ Gila-Knob (161-kV)	▪ Welton Mohawk-Welton Mohawk #3 (34.5-kV)
▪ Dome Tap-Welton Mohawk Ligurta (161-kV)	▪ Test Track-Saguaro (230-kV)
▪ Welton Mohawk-Welton Mohawk #1 (34.5-kV)	▪ 19 substations
▪ Maricopa–Test Track (69-kV)	▪ 4 communication sites
▪ Electric District 2–Electric District 4 (115-kV)	

Table 1-1. Parker-Davis Transmission System Components by Geography

California	
▪ Parker-Headgate (161-kV)	▪ GenTie-Parker (230-kV)
▪ Parker-Blythe #2 (161-kV)	▪ 4 substations
▪ Blythe-Knob (161-kV)	▪ 3 communication sites
▪ Headgate Rock–Blythe (161-kV)	

1.3 Scope of this Environmental Assessment

This environmental assessment (EA) evaluates and presents the potential environmental consequences from implementing the Proposed Action and the No Action Alternative. The Proposed Action and the No Action Alternative include methods and management approaches and are described in Chapter 2. Chapter 3 presents a detailed description of the affected environment and a comprehensive analysis of environmental consequences for the Proposed Action and No Action Alternative for 14 resource areas (e.g., air quality, cultural resources). Chapter 4 includes a discussion of the cumulative impacts for the Proposed Action and No Action Alternative.

1.4 Scoping

Western conducted a comprehensive scoping process for the Proposed Action to solicit input on the scope of the EA and to identify issues, concerns, and suggestions that should be considered in the environmental assessment. A Scoping Letter was issued on February 28, 2014, which started a 30-day scoping period for the Proposed Action (February 28 through April 4, 2014), and included information about the Proposed Action as well as the date, location, and time of scoping meetings. The letter was filed with the Nevada State Clearinghouse and was distributed to more than 1,100 entities including federal, state, and local agencies, property owners, libraries, and non-governmental organizations. Scoping also included the following:

- **Public Scoping Meetings.** Three public scoping meetings were held as part of scoping. The meetings all included meeting handouts, factsheets, comment forms, and poster boards to provide information on the location and scope of the Proposed Action. The meetings were held as noted below:
  - Tuesday, March 18, 2014, 6:00-8:00 pm; Suddenlink Community Center, Bullhead City, AZ
  - Wednesday, March 19, 2014, 6:00-8:00 pm; The Lounge, Yuma Civic Center, Yuma, AZ
  - Thursday, March 20, 2014, 6:00-8:00 pm; DoubleTree Suites, Tucson, AZ
- **Newspaper Advertisements.** Western published newspaper ads with information about the Proposed Action and the scoping meetings in three newspapers. The newspapers included the Arizona Daily Star (March 3), the Yuma Daily Sun (March 3), and the Mohave Daily News (March 4).
- **Agency and Tribal Consultation.** Western sent 61 letters to 36 Indian Tribes with information regarding the Proposed Action and sent cooperating agency invitation letters to nine Indian tribes, six federal agencies, and one county.

As a result of scoping, Western received nine written comment letters by mail/email and oral comments at one of the public scoping meetings regarding the Proposed Action. Resource agencies requested that Western address direct and indirect impacts on wildlife species and provided recommendations on migratory birds, raptors, herbicide use, and federally threatened and endangered species. There was also a concern about visual impacts and a request to identify mitigation measures that address "Dark

Sky" lighting practices, screening of all lights, avoiding light pollution, and a lighting plan. A few property owners have asked that Western address overgrown vegetation, requested a 48-hour advance notice from Western for gate access, and requested safe access and protection of surrounding vegetation during ROW maintenance activities.

1.4.1 Cooperating Agencies

The Parker-Davis Transmission System passes through three states and lands managed by the U.S. Department of Interior [i.e., Bureau of Land Management, Bureau of Indian Affairs, Reclamation, and National Park Service], U.S. Department of Agriculture [i.e., U.S. Forest Service], U.S. Department of Defense, seven Indian reservations, and Arizona State Trust lands. Under National Environmental Policy Act (NEPA) regulations, Reclamation and the Coronado National Forest are cooperating agencies in preparing this EA.

1.5 Decisions Needed

This EA is intended to be a concise public document that:

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

Based on the analysis in this EA, Western will determine whether the Proposed Action requires an EIS or if a FONSI can be prepared.

Legend

- Substation
- Pumping Plant *
- Maintenance Facility
- Transmission Line

* Not considered property types.

Label	Transmission Line Name	Label	Transmission Line Name
1	Henderson-Mead #1	26	Liberty-Sundance
2	Henderson-Mead #2	27	Liberty-Lone Butte
3	Davis Mead	28	Phoenix-Test Track
4	Davis-Prescott	29	Coolidge-Sundance #1
5	Griffth-Peacock	30	Coolidge-Sundance #2
6	Davis-Prescott	31	Coolidge-Electrical District 2
7	Davis-Mohave Electric Kingman Tap	32	Coolidge-Oracle
8	Davis-Parker #1	33	Santa Rosa-Pinal Central
9	Peacock-Prescott	34	Test Track-Saguaro
10	Griffith-Mcconnico	35	Maricopa-Test Track
11	South Point-Topock	36	Kofa-Gila-Welton
12	Pinnacle Peak-Prescott	37	Electrical District 2-Electrical District 4
13	Parker-Headgate	38	Electrical District 5-Test Track
14	Parker-Kofa	39	Gila-Knob
15	Parker-Blythe #2	40	Dome Tap-Wellton Mohawk Ligurta
16	Parker-Planet Tap	41	Welton Mohawk-Welton Mohawk #1
17	Gene Tie-Parker	42	Gila-Yuma Tap
18	Parker-Havasu Pump	43	Electrical District 4-Saguaro
19	Liberty-Parker #1	44	Gila-Welton Mohawk
20	Liberty-Parker #2	45	Welton Mohawk-Welton Mohawk #3
21	Blythe-Knob	46	Electrical District 5-Saguaro #1
22	Lone Butte-Phoenix	47	Saguaro-Oracle
23	Rogers-Coolidge	48	Saguaro-Tucson
24	Liberty-Phoenix	49	Tucson-Apache
25	Agua Fria-White Tanks-Orme	50	Headgate Rock-Blythe

Parker-Davis Transmission System
Programmatic Operation and Maintenance and Integrated Vegetation Management Project

Figure 1-1 Parker-Davis System Overview Map

0 20 40 Miles

1:2,000,000

2.0 Proposed Action and Alternatives

2.1 Introduction

Western's O&M program has been developed to safely and reliably operate and maintain the electric transmission systems, including the existing Parker-Davis Transmission System transmission lines. The Proposed Action would occur on an existing transmission line and access road (ROWs), and at substations and maintenance facilities. O&M activities would include aerial and ground patrols to locate and correct problems, regular and preventive maintenance, inspections and repairs to protect against operational hazards, and road repair to provide access for maintenance and emergencies. The IVM program would manage vegetation to protect facilities from fire, control the spread of noxious weeds to protect environmental quality, establish and maintain stable, low-growing plant communities in the ROW for fault protection, and protect public and worker safety around transmission lines and other facilities.

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

2.2 Proposed Action Description

The Proposed Action would include O&M activities (Tables 2-1 through 2-3), inspections, and access road maintenance. The proposed Integrated Vegetation Management Program is described in Section 2.2.2.

2.2.1 Operations and Maintenance Activities

The need for repairs, replacement, and other preventative maintenance procedures to the Parker-Davis Transmission System transmission infrastructure would be based on the results of inspections or other reports. Examples of transmission system repairs, replacement, and preventative maintenance could include: replacing insulators; tightening, replacing, or repairing towers/poles or hardware; and replacing existing conductors. These activities would be performed wherever damage, deterioration, or insufficiency of transmission lines or facilities poses a threat to safety or reliability. The type of equipment needed for these activities could include a light-duty helicopter, pickup truck, bulldozer, backhoe, bucket truck, and hand tools, and would depend on the required repair or maintenance. Some activities may require work outside of the ROW (e.g., hazard tree removal, conductor pulling and tensioning sites, washout repair, installation of culverts, etc.). Western would coordinate with the applicable land management agency or landowner for work outside of the ROW.

Operation and Maintenance Activity Categories

The following is a list of the Transmission System O&M activities according to their associated activity category. Activities were grouped by categories based on potential impacts. Category A and B actions are minor or routine maintenance activities with little to no potential for impacts, while Category C actions typically involve ground disturbance and heavy equipment.

Tables 2-1 through 2-3 provide details of activities conducted within each of the O&M Categories identified below:

- **Category A – Inspection and Minor Maintenance Activities**. Category A maintenance activities are primarily inspection-type actions, with some minor repairs that would not cause substantial soil or other disturbance. Substation and facility maintenance activities included in Category A are restricted to the existing fenced substation or facility perimeter.
- **Category B – Routine Maintenance Activities**. Category B maintenance activities include some of the typical repair tasks that occur along transmission lines. Category B maintenance equipment may include rubber-tired vehicles such as bucket trucks, backhoes, front-end loaders, cranes, auger trucks, bobcats, and pole trucks.
- **Category C – Minor Additions or Modifications to Existing Infrastructure**. Category C tasks are generally activities that would disturb large areas and would use heavy equipment to complete particular tasks. Category C maintenance equipment may include the use of light-duty helicopters, steel-tracked and/or rubber-tired bulldozers, graders, backhoes, and front-end loaders.

Table 2-1. Category A – Inspection and Minor Maintenance Activities

Substation and Facilities Maintenance	
▪ Building maintenance and upgrades including interior and exterior painting; and roof, ceiling, floor, window, and door maintenance ▪ Substation inspections ▪ Maintenance and replacement of transformers and breakers and related electrical equipment ▪ Servicing and testing of equipment at existing substations, including oil change-outs ▪ Installation or replacement of bushings ▪ Cleaning or replacement of capacitor banks ▪ Maintenance or installation of switches (manual and motor-operated), interrupters, voltage regulators, reactors, reclosers, and valves ▪ Replacement of wiring in substations and switch yards ▪ Replacement of existing substation equipment including regulators, capacitors, switches, wave traps, radiators, instrument transformers, and lightning arresters ▪ Adjustments and cleaning disconnect switches ▪ Installation of cut-out fuses	▪ Placement of temporary transformer ▪ Maintenance, installation, and removal of solar power array and controller ▪ Installation of foundation for storage buildings above ground mat within existing substation yard ▪ Maintenance or installation of propane tanks within a substation yard ▪ New footings ▪ Ground mat repairs ▪ Clearing vegetation by hand within the property boundary of a substation ▪ Relocation of nests, transfer of birds to certified rehabilitators, and salvage of dead birds in accordance with Western's USFWS issued Special Purpose Utility Permit ▪ Application of herbicides (including pesticides) within the property boundary of a substation ▪ Main station battery bank maintenance and installation ▪ Remediation of small spill of oil (less than 1 gallon)
Transmission Line Maintenance	
▪ Ground and aerial patrols ▪ Climbing inspection and tightening hardware on wood and steel transmission line structures ▪ Ground wire maintenance ▪ Aircraft warning device maintenance (e.g., light beacons, aerial marker balls, etc.) ▪ Insulator maintenance ▪ Bird guard maintenance ▪ Cross arm maintenance on wood pole transmission line structures ▪ Emergency hand removal and/or pruning of danger trees or vegetation ▪ Maintenance or replacement of hardware on wood and steel transmission line structures	▪ Maintenance or replacement of steel members of steel transmission line structures ▪ X brace and knee brace maintenance ▪ Wood pole testing ▪ Ground rod maintenance ▪ Armor rod maintenance and clipping-in structures ▪ Conductor maintenance ▪ Wood preservative maintenance on wooden pole structures ▪ Emergency placement of rocks at bases of poles or structures to stabilize small eroded areas ▪ Antenna maintenance ▪ Structure mile-marker maintenance ▪ Remediation of small spill of oil (less than 1 gallon)
Protection and Communication System Maintenance	
▪ Generator maintenance ▪ Maintenance and inspection of microwave radio towers and dishes ▪ Maintenance and inspection of communication towers, antennae, and appurtenant equipment ▪ Panel additions and removals, wiring changes, and controls modifications	▪ Maintenance and inspection of parabolic dishes ▪ Light beacon maintenance ▪ Refilling of propane tanks, and maintenance of associated gauges and switches ▪ Above-ground foundation and footings maintenance ▪ Application of herbicides (including pesticides) within the property boundary of a communications site

Table 2-2. Category B – Routine Maintenance Activities

Transmission Line Maintenance	
▪ Maintenance and repair of existing culverts ▪ Installation of new culverts (for areas outside of jurisdictional waters) ▪ Installation of new foundation for storage building at existing facilities ▪ Cross arms replacements on wood pole structures ▪ Remove soil deposition around tower legs ▪ Ground anchors maintenance ▪ Wood pole maintenance and replacement ▪ Fill in erosional features on access roads ▪ Remediation of small spill of oil and hazardous materials (up to 10 gallons)	▪ Grading existing access roads (within existing road footprint) ▪ Installation of minor rip-rap on washes, creeks, and rivers ▪ Place fill or rock(s) around existing culverts ▪ Place fill or rock(s) around existing towers or structures ▪ Vehicle and equipment staging ▪ Installation and repair of fences and gates ▪ Installation of underground and overhead power, communication, or ground electrical line (less than 100 feet) ▪ Hand removal and/or pruning of danger trees or vegetation ▪ Mechanical vegetation management by means of bulldozers, masticators, or other mechanical equipment ▪ Spacer/damper replacement and maintenances
Substations, Facilities, and Protection and Communication System Maintenance	
▪ Foundations or footings maintenance ▪ Installation of underground and overhead water, power, communication, or ground electrical line (less than 100 feet) ▪ Installation or replacement of antennas to existing structures	▪ Maintenance and repair of existing culverts ▪ Remediation of small spill of oil and hazardous materials (up to 10 gallons) ▪ Access road repair (within existing footprint) ▪ Installation and repair of fences and gates

Table 2-3. Category C – Minor Additions or Modifications to Existing Infrastructure

▪ Adding access roads to structures (approximately 300 feet or less in length) ▪ Relocation of existing access roads within the ROW ▪ Installation of new culverts (for areas within jurisdictional waters) ▪ Erosion control projects at existing facilities ▪ Replacing existing conductor ▪ Installation of rip-rap to recontour washes, creeks, or rivers	▪ Tower/pole relocation/realignment/replacement ▪ Installation of inset structures and shoo-flys ▪ Installation of underground and overhead water, power, or communication line (greater than 100 feet) ▪ Remediation of small spill of oil and hazardous materials (greater than 10 gallons) ▪ Application of approved herbicides

2.2.1.1 Inspections

Western would continue conducting aerial, ground, and climbing inspections of its existing transmission infrastructure under this O&M program.

Aerial Inspections

Aerial inspections would be conducted at least twice a year by helicopter or small plane over the entire transmission system to check for hazard trees[1] or encroaching vegetation, as well as to locate damaged or malfunctioning transmission equipment. Typically, aerial patrols occur between 50 and 300 feet above, and adjacent to the transmission line, depending on the land use, topography, and infrastructure requirements. In general, the aerial inspections would pass over each segment of the transmission line (span between each structure) within a one to two minute period.

Ground Inspections

Annual ground inspections would check access to the ROW, transmission structures and hardware, tree clearances, fences, gates, locks, and would ensure that each structure would be readily accessible in the event of an emergency. Ground inspections would allow for closer assessment of infrastructure not possible by air, and identify redundant or overgrown access roads that should be permanently closed and/or returned to their natural state. Ground inspections would typically be conducted by driving a pickup truck or all-terrain vehicle (ATV) within the ROW and on access roads. Detailed ground inspections would be performed on 50 percent of all lines with wood pole structures annually, and 33 percent of all lines with steel structures annually, for 100 percent inspection every 2 or 3 years, respectively.

Climbing Inspections

Western uses climbing inspections on transmission line structures if aerial or ground inspections find problems. Typically, such activities would involve the use of a pickup truck, ATV, or bucket truck to access the inspection site. Access is via designated routes and along the transmission ROW.

2.2.1.2 Emergency Repairs

Existing aerial and ground inspections often identify problems that may require immediate repair or replacement of transmission line hardware or vegetation management. Transmission infrastructure failure can also require immediate repairs. Furthermore, storms and other natural events may result in necessary emergency repairs of the Parker-Davis Transmission System. Typically, emergency repairs would follow Western Best Management Practices (BMP), Standard Operating Procedures (SOP), and Project Conservation Measures (PCM) when possible. These standard Western practices are discussed in Section 2.2.4 (Standard Western O&M and IVM Protocols) and listed in detail within Appendix A. However, if compliance with a standard Western protocol would require delayed repair of a transmission line, pole, etc., and it is an emergency situation (possibility of people without power or safety issues), then these measures may not be implemented. Safety related BMPs, SOPs, and PCMs would always be instituted.

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

2.2.1.3 Access and ROW Road Maintenance

As part of the O&M program (Proposed Action), Western would maintain safe and reliable access and ROW roads to the existing Parker-Davis Transmission System infrastructure. Western would notify land managers before work begins and would comply with applicable specifications. Western would also take into account land-manager guidelines.

When necessary, ditches, existing culverts, and inlet assemblies will be cleared of debris. Slash and debris may be scattered, but will not be placed near or in stream channels, culvert inlets, or ditches.

The following paragraphs describe Western's general approach to maintaining its existing access roads, road structures (gates, etc.), and roadway drainage systems.

Repairing Access and ROW Roads

To maintain safe access, associated road structures would be routinely inspected and maintained. Road structures in need of repair could include bridges, culverts, cattle guards, and fences. If a structure needs to be modified, maintenance activities would be designed to reduce erosion and sedimentation in streams and washes.

While repairing access and ROW roads, it would be Western's goal to adhere to the following BMPs (refer to Appendix A):

- To the maximum extent practicable, be consistent with applicable specifications of the land manager;
- Minimize the amount of disturbance to plants and soils by equipment;
- Work diligently to minimize the time disturbed soils are exposed;
- Divert run-off away from exposed soils and into vegetated areas;
- Provide adequate run-off channels;
- Trim slopes to stable configurations;
- Annual road inspections, if resources are available; and
- Mitigate damage created by emergency repairs as soon as possible to prevent further damage and erosion.

If an existing ROW or access road has become unusable (erosion, protected species, protected cultural site, etc.), then a new road or at least a road detour would need to be constructed or used.

New or Upgraded Culvert and Ditch Design

In the event new or upgraded access roadway drainage facilities are necessary, the following identifies typical plans of culverts, water bars, and rolling drain dips to prevent erosion of access roads and maintain adequate stormwater flows.

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

- When appropriate, low-water crossings would be installed instead of a culvert;

- Applicable permits (including national regulatory permits for wetlands and state water-quality certification) would be obtained;
- Biological and cultural surveys would be completed as required before installing or replacing culverts; and
- If needed, erosion and sediment controls would be installed on disturbed soils as soon as possible (i.e., before site work was finished) consistent with the terms and conditions of all applicable permits.

Culvert diameters would be appropriately sized to handle the normal high water or bankfull condition in accordance with established engineering practices. The angle or slope of the culvert would be equal to the stream grade to maintain an acceptable water velocity for fish passage.

Water Bars. A water bar is a ridge that directs water off the road. Water bars would be spaced approximately 200 feet apart for roads with a grade under 6 percent, approximately 125 feet apart for grades between 6 and 10 percent, and approximately 50 feet apart for grades between 10 and 13 percent.

Rolling Drain Dips. A rolling drain dip allows for cross-drainage. It consists of a shallow dip followed by a hump, along with an earth berm at the edge of one side of the road.

2.2.2 Integrated Vegetation Management

Western's IVM program identifies the appropriate vegetation maintenance approach (also referred to as prescription) to meet the desired condition stated in Section 1.1. IVM is a practice of managing undesirable vegetation (i.e., those that have the potential of growing to a height that is not compatible with safe ROW maintenance) in which clearance thresholds are established and proactively monitored. For those areas that are in violation of the threshold, possible control options are evaluated, selected, and implemented. Control options are based on worker and public safety, environmental impact, effectiveness, site characteristics, and economics. If the ROW is not in an acceptable condition, the Proposed Action includes an initial treatment to establish a desired ROW condition. If the ROW is in an acceptable condition, Western would maintain it at that state as discussed under the Vegetation Maintenance section below.

The IVM program includes hazard tree removal to prevent power outages. Through the IVM program, Western works with the land managers (owner or appropriate agency) to follow additional requirements.

For the Parker-Davis Transmission System, Western would adopt a two-step approach of initial treatment and maintenance to ROW vegetation management. Figure 2-1 shows typical vegetation along existing DSW transmission lines. Figure 2-2 shows a typical Western ROW after vegetation clearance. A majority of the Parker-Davis Transmission System is within the Sonoran Desert, the hottest of all of the deserts in North America (Bowers 1993).

Western's intent is to establish and maintain ROWs that minimize vegetative threats to the safe and reliable operation of the transmission system, and ultimately require infrequent (i.e., about once every 5 years) treatments for vegetation management. Achieving Western's desired ROW condition (see Section 1.1) is a process that may take several iterations of vegetation treatment over an extended period. Once achieved, the desired condition will be proactively maintained through ongoing corridor vegetation management.

Initial Vegetation Removal

Western has not completed any substantial removal of vegetation from the ROWs (except for individual hazard trees) since construction (approximately 50+ years). Trees and taller shrubs are incompatible

with Western's desired condition, as described above and in WAPA Order 450.3A and Western's IVM Guidance Manual (2011). Therefore, Western would remove nearly all vegetation (except grasses, forbs, and some small shrubs) within the ROWs to safely and reliably operate the transmission facilities. Figure 2-2 is an illustration of the desired appearance of a ROW after initial treatment.

Figure 2-1. Typical vegetation along the Pinnacle Peak-Prescott transmission line

Figure 2-2. Typical ROW after vegetation clearance

In addition to vegetation removal within the limits of the ROWs, danger trees outside of the ROW would also be removed. Removal of danger trees outside of the ROW may require modification to the existing ROW agreement or authorization from the land owner or land managing agency. Danger trees are defined as trees located within or adjacent to the right-of-way that present a hazard to employees, the public, or power system facilities.

Characteristics used in identifying a danger tree include but are not limited to the following:

- Encroachment within the safe distance to the conductor as a result of the tree bending, growing, swinging, or falling toward the conductor (Figures 2-4 through 2-7);
- Deterioration or physical damage to the root system, trunk, stem or limbs, and/or the direction and lean of the tree;
- Vertical or horizontal conductor movement and increased sag as a result of thermal, wind, and ice loading;
- Exceeding facility design specifications;
- Potential for arcing with Project facilities in the event of wildfire, or providing wildfire fuel within the ROW; and
- Other threats to the electric power system facilities or worker/public safety.

Vegetation Maintenance

Once the ROWs have been cleared of undesirable vegetation, the IVM program would maintain the desired condition within the ROW (Section 1.1). Federal energy standards require vegetation inspections and treatment to maintain transmission lines in safe and reliable operating conditions (NERC Reliability Standard FAC-003. Vegetation clearance distances required by NERC FAC-003 are provided in Western Order 430.1B, Right-of-Way Management Guidance for Vegetation, Encroachments, and Access Routes. The required clearances vary by line voltage and are presented in Table 2-4.

Table 2-4. Transmission Line ROW Minimum Clearance Requirements for Vegetation After Treatment

Line Voltage	Minimum Clearance Between Conductor and Vegetation
69 kV	20 feet
115 kV	21 feet
138 kV	22 feet
161 kV	22 feet
230 kV	23 feet
345 kV	26 feet
500 kV	29 feet

Note: The minimum clearance is based on the OSHA 29 CFR §1910.333 minimum approach distance for non-electrical workers (rounded up to the nearest foot) plus 5 feet to account for conductor and tree movement due to wind and ice loading or increased conductor sag as a result of thermal loading. In addition, another 5 feet is added to allow for an average tree growth of 12 inches per year and a re-treatment interval of not less than 5 years. In situations where more rapid tree growth can be expected because of species or better than average growing conditions, a distance (either horizontal or vertical) greater than 5 feet is required.

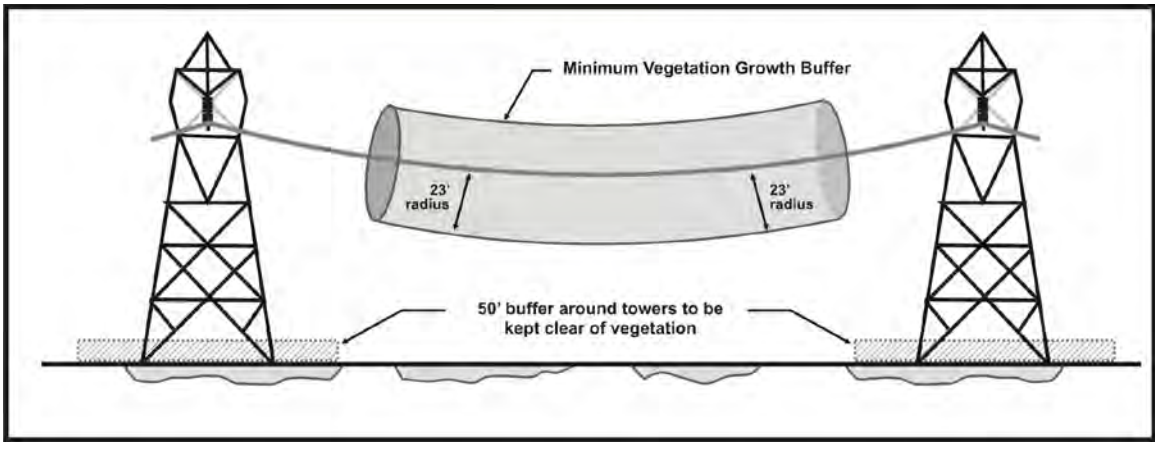
Vegetation maintenance includes the removal of danger trees as described in the sections below. As the ROWs are managed to achieve Western's desired condition and clearance standards, it is anticipated that low-growing vegetation (e.g., grasses and forbs, some small shrubs) would become the predominant condition within the ROWs and the occurrence of danger trees and other tall-growing vegetation within and adjacent to the ROWs would decline over time, thus reducing the need for additional vegetation removal.

Western would conduct routine vegetation maintenance for the Project ROW according to an approximately 5-year vegetation maintenance cycle. Routine vegetation maintenance would include identification and removal of vegetation within the ROWs that are incompatible with Western's desired condition. Western would use aerial patrols, ground patrols, or light detection and ranging surveys (LiDAR) to identify routine vegetation maintenance needs. Routine vegetation management activities would be conducted in accordance with seasonal restriction PCMs identified in Appendix A. Growth cycles specific to target species for the Project would be considered according to the 5-year maintenance cycle. Vegetation that would conflict with Western's desired condition within the 5-year routine maintenance cycle would be removed.

Western's vegetation management manual (Western 2011) requires that a minimum of 50 feet around concrete footers of transmission structures be maintained free of shrubs, trees, or other such vegetation (grasses and/or forbs in this area would be acceptable) that could pose a potential fire threat to transmission structures or associated hardware. This 50-foot clearance area is intended to provide a fire break to minimize arcing of electricity or burning of structures during a fire under or near the transmission lines. Clearing around the footers of the Project transmission structures may also be necessary to provide access for Project maintenance vehicles. This clearance area would also maintain the integrity of the transmission structures by minimizing the potential for trees or vegetation falling on the structures. This work would occur within the permitted ROWs. Figure 2-3 shows the approach for vegetation management for a 230 kV line.

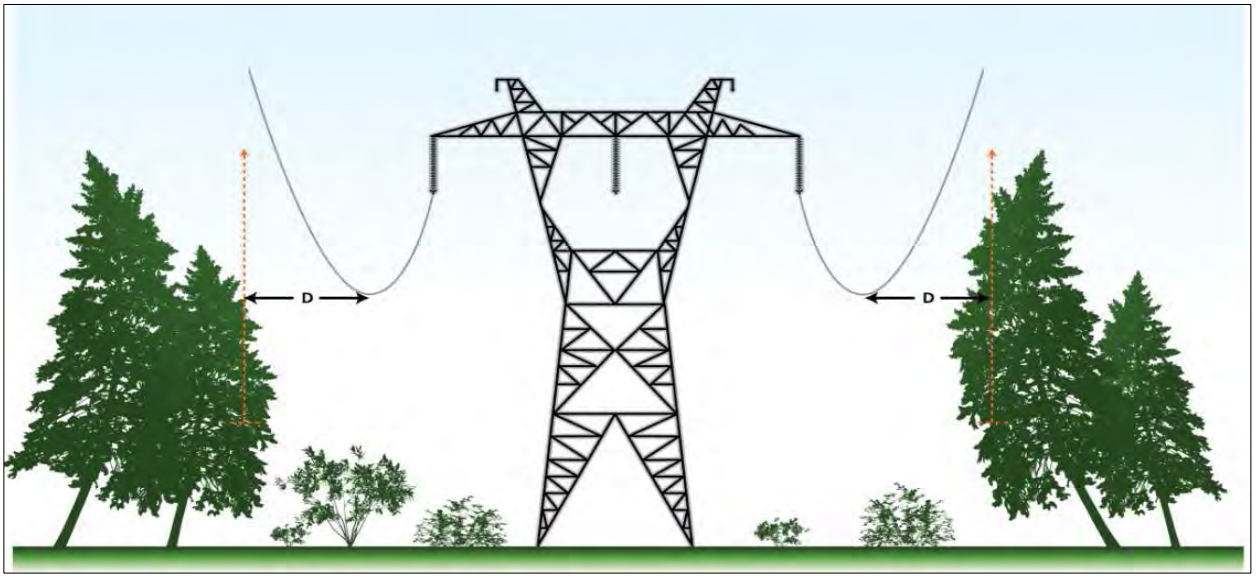
All vegetation removal during routine vegetation maintenance activities would be done using either mechanical or manual removal methods, as described below. As with initial vegetation removal, where routine vegetation maintenance identifies areas of the Project requiring vegetation treatment, mechanical methods would be the preferred and predominant method to be used within the ROWs.

Figure 2-3. Buffered Vegetation Management Approach for 230-kV Line



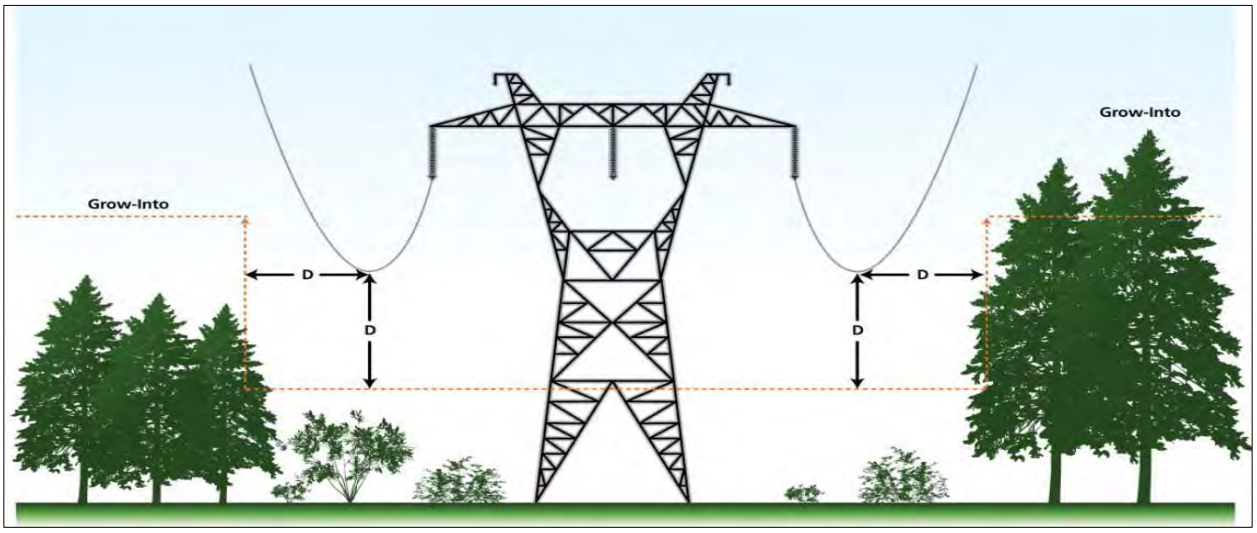
Bend-in trees (Figure 2-4) are located along the right-of-way; they have tops or branches that bend down or could bend down into the minimum clearance distance to the transmission line conductor.

Figure 2-4. Bend-In Trees



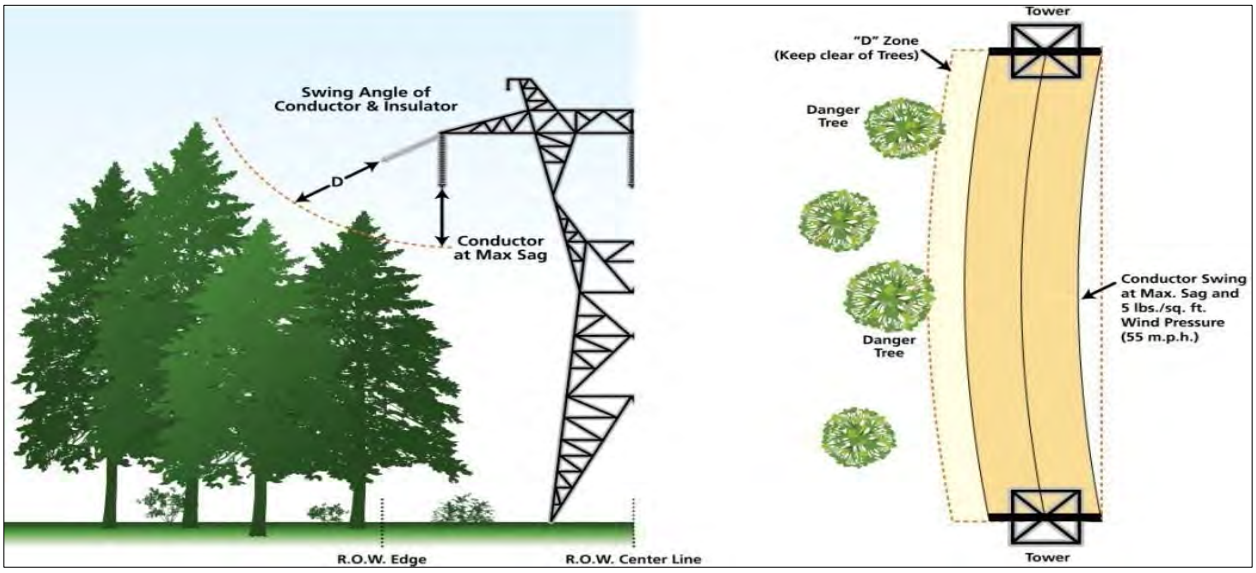
Grow-in trees (Figure 2-5) are located within and/or adjacent to the right-of-way; they have grown, or will grow, horizontally and vertically into the minimum clearance distance to the conductor.

Figure 2-5. Grow-In Trees



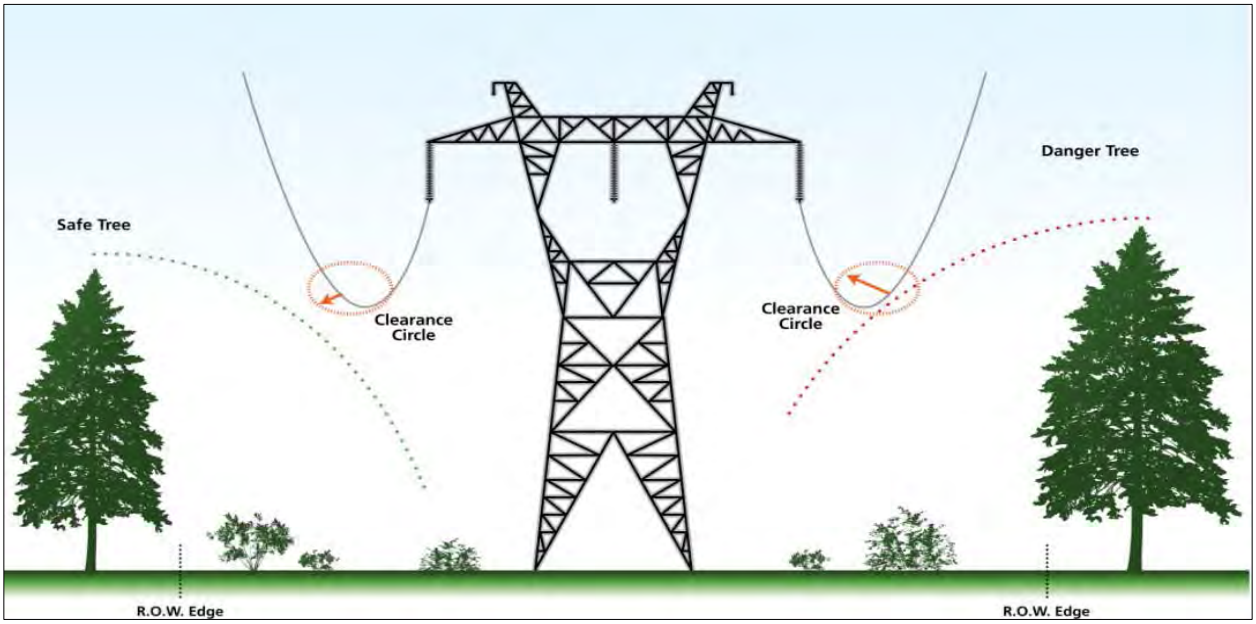
Swing-in trees (Figure 2-6) are located off and adjacent to the right-of-way; their branches would, or could, violate the minimum clearance distance to the conductor because of the conductor being blown toward the tree.

Figure 2-6. Conductor Swing



Fall-in trees (Figure 2-7) are any trees that, if they were to fall toward the transmission line, would extend into the minimum clearance distance to the conductor.

Figure 2-7. Fall-In Trees



The Proposed Action includes use of a combination of vegetation management practices that are consistent with the principles of IVM and land manager goals and policies (WAPA 2011). Depending on the area and the requirements, Western would develop specific prescriptions to manage vegetation along the ROWs. The following paragraphs describe the general vegetation control methods.

Manual Vegetation Control Methods

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

Cutting. The most common manual method is cutting with power saws. Western uses this technique when access is limited, or when only a few trees need to be cut, or in sensitive areas where cutting is selective. Cutting would be used as appropriate based on species and site. For species that do resprout, which includes most deciduous trees such as quaking aspen (*Populus tremuloides*), sprouts can rapidly resurge to original height within a growing season in some cases, to several years and at much greater density in other cases. Access for subsequent manual treatments is thereby hindered, and concerns about fire survivability of the facilities increase.

Western follows its manual cutting operations with slash disposal techniques designed to hasten natural decomposition and improve aesthetic appeal. The slash is typically lopped and scattered uniformly across the treated area. Alternatively, branches and small trees might be mechanically chipped and the chips spread over the ROW or deposited in piles. Stems too large for chipping are lopped and scattered in the ROW, as the situation requires.

Trimming. Trimming or pruning is the removal of selected branches from tree trunks to prevent them from growing into transmission lines. Western uses this labor-intensive technique in special situations where it is desirable to leave trees in place where easement contracts and land and resource management plans dictate trimming criteria. To protect the transmission line, trimmed trees must be cut to the applicable standards. Because of the extreme hazards associated with trimming trees near energized power lines, and Western's experience from several accidents and fatalities, this technique has limited applicability. Selective thinning or removal of excessively tall trees to achieve or retain vegetation screening is often another acceptable approach in sensitive areas.

Slash Disposal/Fuels Reduction. Manual cutting operations by Western are sometimes followed by slash disposal techniques designed to reduce fire hazards or to improve aesthetic appeal. Slash refers to the debris left within the vegetation treatment area. Depending on land manager preference, access limitations, and fire safety, the slash can be treated by one of the following methods: it can be chipped and left on site; removed from the site; or lopped and scattered.

Mechanical Vegetation Control Methods

Mechanical vegetation control typically uses self-propelled machine platforms with various interchangeable treatment-head attachments to remove or control target vegetation along transmission line and access route ROWs. Depending on the particular equipment attachment and skill of the operator, these methods are selective or nonselective (all plants in the path of the machine are affected). Rubber-tired mechanical equipment platforms are generally limited to operating on slopes

less than 30 to 35 percent. Specialized tracked equipment platforms, with articulating control cabins, are typically used on slopes up to 60 percent. Both types of specialized equipment platforms can operate with very low ground pressures. However, site-specific obstacles such as rocks or other extreme terrain can reduce their efficiency.

Mowing/Grinding. Western uses mechanized heavy equipment with high-speed rotary blades to cut, chop, or shred woody vegetation in ROWs. Target vegetation is typically cut off at ground level, encouraging the selection and recovery of low-growing plant communities consisting of grasses, forbs, and other herbaceous plants. Examples of this type of mowing equipment are Fecon, brush-hog, Track-Mack, and Hydro-Ax. Western rarely uses mowing, but the technique has been used where appropriate.

Chipping. Chipping is the process of feeding limbs and other woody debris through a mechanical chipper. The chipper can be used to spread the material back onto the ROW. When strategically placed in the ROW, chipped material keeps nutrients in the ecosystem, helps retain soil moisture, can help control erosion, and can help retard the regrowth of undesirable plant species. This method can be used effectively to control vegetation, improve the aesthetics of the treated area, reduce undesirable fuel loads, and protect soil and water resources. Chipped vegetation will be spread to a depth of no greater than 4 inches.

Herbicide Control Methods

Under the Proposed Action, Western may also employ the use of herbicides for vegetation management. Western would coordinate with land managers and local agencies to ensure that its use of herbicides would be consistent with approved herbicides (i.e., BLM or USFS approved). 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 noxious weed control and how they work. Accordingly, herbicides are classified into two major types:

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

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

Western proposes using only herbicides that have been approved for use (by applicable land management agencies such as BLM or USFS) in ROW maintenance (including access roads) based on evaluations of toxicity, solubility, soil absorption potential, and persistence in water and soil. These herbicides must be registered for use by the U.S. Environmental Protection Agency. Western would use only employees or contractors with required applicator licenses/certificates. Further, Western would coordinate with land managers and local agencies to ensure that its use of herbicides would be consistent with the agencies' approved herbicides and recommended application procedures. For example, Appendix B includes the reference table *Herbicides Approved for Use on BLM Lands* in Accordance with the 17 Western States Programmatic EIS Record of Decision (ROD) and Oregon EIS ROD. This table provides a comprehensive list of herbicides approved for use on land managed by the BLM within all states included in the Action area. In addition, a detailed memorandum, Recommended Protection Measures for Pesticide Applications in Region 2 of the U.S. Fish and Wildlife Service (USFWS 2007), was prepared by the USFWS to provide recommended pesticide protection measures used to protect federally listed species, species proposed for listing, and critical habitat designated under the Endangered Species Act.

The full text of this memorandum can be accessed through the USFWS website at the following web address:

http://www.fws.gov/southwest/es/arizona/documents/ecreports/rpmpa_2007.pdf

Western would follow strict safety procedures and applicable BMPs, SOPs, and PCMs while applying herbicides. These standard Western practices are discussed in Section 2.2.4 (Standard Western O&M and IVM Protocols) and listed in detail within Appendix A. As part of the Proposed Action, applicable standard practices for herbicide use would include:

- Reviewing federal and applicable state pesticide regulations for restrictions on use of particular herbicides;
- Reviewing interagency agreements for herbicide type or application method restrictions;
- Using herbicides approved by the respective land management agency or owner;
- Observing site conditions to match specific herbicides and application methods to those conditions, including the plants that are to be controlled, seasonal limitations, presence of sensitive environmental areas (such as listed and/or sensitive species, habitat, and wetlands), presence/proximity of non-target vegetation, presence/proximity of crops, and vegetation conditions (such as height and amount of tall-growing brush);
- Reviewing and implementing Western's environmental protection requirements and the individual risk assessment for each proposed herbicide;
- Following all restrictions and guidance listed on the herbicide label;
- Calibrating equipment to ensure proper mixture and volume of herbicide;
- Selecting the proper nozzle tip to avoid overspray;
- Handling herbicides carefully to avoid accidental spills and ensure worker and public safety;
- Adjusting herbicide application methods and equipment based on wind speed and direction, which could include avoiding application on windy days when drift potential exceeds that which is recommended on the label; and
- Providing the land manager with the following information after completion of a particular activity: herbicide used, amount (including concentration), location of application, and method and date of application.

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

Stump Treatment. This type of treatment is used when vegetation is cut to the ground. This method is primarily used after initial clearing and during maintenance clearing to prevent regrowth by sprouting.

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

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

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

Documentation and Reporting. Per federal regulations (refer to Appendix A for details), Western would document and report information pertaining to herbicide application within the ROW and associated facilities. This information could include herbicide type, quantity, application method, and application area. Reporting format and frequency would be decided in coordination with the land manager.

2.2.3 Projected O&M and IVM Frequency

Aerial inspections would be performed a minimum of every 6 months by flying a helicopter at 50 to 300 feet above the conductors. Ground patrols would be conducted semi-annually using a pickup truck to drive along lines. Western would also conduct periodic climbing inspections of antenna towers.

During either type of patrol, problems could be identified that may require immediate repair or replacement of transmission line hardware or vegetation management. Emergency repairs would occur as needed and determined by inspections or system disruption.

Western would prioritize areas that need maintenance according to public and worker safety, transmission reliability, environmental protection, and funding. Based on past O&M activities, Western assumes that O&M activities would occur on an annual basis as follows for the Parker-Davis Transmission System; the estimate is an average per year over the entire Action area:

- 500 to 1,000 acres of vegetation would be managed in ROW and access roads;
- 10 to 20 miles of access roads would be stabilized/graded;
- 3 to 5 culverts would be repaired or replaced;
- 10 to 20 miles of communication equipment, including fiber-optic cable, would be installed or maintained;
- 4 to 8 towers or poles would be relocated or stabilized (towers would be relocated adjacent to existing tower or poles);
- Communication sites would be inspected once a year; and
- Herbicides would be applied to approximately 150 acres per year.

2.2.4 Standard Western O&M and IVM Protocols

Western has developed BMPs, SOPs, and PCMs (see Appendix A) as part of its existing O&M activities. Western developed these protocols to proactively protect sensitive resources. Following these protocols is considered part of the Proposed Action. Western and its contractors would follow all BMPs, SOPs, and

PCMs at all times during all Proposed Action activities. Western's personnel would monitor maintenance activities to make sure that the contractor complies with the applicable BMPs, SOPs, and PCMs. Western would also conduct follow-up inspections of the ground-disturbance activity sites.

Applicable BMPs, SOPs, and PCMs are provided in Appendix A, and generally discussed below.

Best Management Practices

The use of BMPs is a standard method or technique that has consistently shown results superior to those achieved with other means, and that is used as a benchmark by Western. In addition, a BMP can evolve to become better as improvements are discovered. BMPs are used to describe Western processes of developing and following a standard way of conducting their O&M activities.

Standard Operating Procedures

SOPs would be followed for every O&M activity, regardless of the activity category, throughout the Proposed Action. All Western O&M personnel would participate in annual training that includes SOPs, environmental laws and regulations, and applicable agency requirements. SOPs would be included as part of the contract with any contractor selected to conduct O&M activities. Prior to conducting the O&M activity, Western's O&M personnel would review the SOPs with the selected contractor to make sure the intent and background of each procedure is clearly understood. In addition, Western's O&M personnel would monitor the contractor during maintenance activities, and conduct follow-up inspections of the job site at periodic intervals after the work had been completed.

Project Conservation Measures

Western has developed PCMs to protect natural resources (Appendix A). PCMs have been developed for special-status species and cultural resources. PCMs include, among other things, identification of limited operating periods, pre-construction flagging of sensitive resource areas, and equipment restrictions.

2.2.5 Regulatory Coordination

Western is proposing to streamline the regulatory process for O&M activities under the Proposed Action, by proactively identifying the sensitive resources that occur in the Parker-Davis Transmission System ROWs and access roads through this NEPA process. Western would coordinate with the resource agencies and land managers for each major maintenance project, providing a description of the maintenance task and coordinating with them regarding BMPs, SOPs, PCMs, and all mitigation measures approved as part of the Proposed Action.

2.3 No Action Alternative

Under the No Action Alternative, Western would continue to maintain its infrastructure, ROWs, and access roads, as defined under existing authorizations and other agreements. The current management approach to vegetation would be reactive and largely involve hazard tree removal.

2.3.1 Operations and Maintenance Activities

In compliance with *Western's Guidelines, Requirements, Inspections, and Procedures* (GRIP) *19*, Western has been conducting aerial, ground, and climbing inspections and maintenance of its existing transmission infrastructure since initial construction of the Parker-Davis Transmission System.

Maintenance activities have included all of the activities listed in Tables 2-1 through 2-3. Under this alternative, these actions would continue to occur at the same frequency identified in Section 2.2.3.

The BMPs, SOPs, and PCMs identified in Section 2.2.4 and Appendix A are currently used for maintenance actions and would continue under this alternative.

Western would continue to evaluate individual actions with NEPA analysis (i.e., categorical exclusion or EA), required consultation, and land owner or land managing agency (as required).

2.3.2 Vegetation Management

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.

Western uses pre-emergent, post-emergent, and UV inhibitor herbicides at substations throughout DSW. Herbicides are applied using either hand tools or vehicular mounted equipment within the substation and extending 5 feet outside the perimeter fence (where possible). Vegetation is also cut and pulled to achieve a bare earth standard in the substations. Workers applying the herbicide are licensed applicators and follow the manufacturer's instructions and all federal, state, and local codes and regulations. A biological monitor is used at some substations to ensure sensitive species are not inadvertently sprayed. A Pesticide Use Permit would be obtained for any herbicide use on BLM land.

Manual vegetation management would be the same as described under Section 2.2.2. Mechanical vegetation management (mowing) would continue to occur at substations. Recently, Western conducted hazard tree removal along the Prescott-Pinnacle Peak line with 5,800 hazard trees removed using chainsaws. This type of hazard tree removal would continue under the No Action Alternative.

2.4 Comparison of Alternatives

Table 2-5 provides a summary of the environmental effects of the Proposed Action compared to the No Action Alternative. The full analysis of the Proposed Action and the No Action Alternative are provided in Chapter 3 of this EA.

Table 2-5. Environmental Impact Summary by Alternative

Impact Topic	Proposed Action	No Action
Land Use and Aviation	Temporary and short-term disruptions to land uses; aerial inspections would not be expected to pose increased risk to aviation facilities or airspace	Same as Proposed Action, but potential disruptions to land uses associated with vegetation management would be less
Recreation	Temporary access restrictions and disruptions; temporary and permanent changes to visual quality of some recreation areas	Same as Proposed Action, but potential disruptions associated with vegetation management would be less
Human Health and Safety	SOPs and IVM program would help avoid or minimize adverse fire hazards; use of vehicles and equipment can present physical hazards	Same as Proposed Action, except that the potential for fire hazards from overgrown vegetation would be greater, but there would be less potential for physical hazards

Table 2-5. Environmental Impact Summary by Alternative

Impact Topic	Proposed Action	No Action
Visual / Aesthetics	Maintenance activities would cause visual changes, but impacts would only be considered adverse at locations with high visual quality	Same as Proposed Action, but potential visual changes associated with vegetation management would be less
Noise	Temporary noise and vibration would be minimal and localized within ROWs and access roads	Same as Proposed Action, but potential noise and vibrations associated with vegetation management activities would be less
Cultural Resources	The majority of Category A and B O&M activities are exempt from cultural resources work. Potential adverse effect of Category C and IVM activities would be avoided and minimized by the PAs, BMPs and SOPs	Potential adverse effects to cultural resources associated with vegetation management would be less, as these efforts would be less aggressive and would potentially involve less ground disturbance when compared to the Proposed Action
Wildlife	Adverse effects on wildlife would be minimal with the implementation of Western BMPs, SOPs, and PCMs	Effects would be similar to the Proposed Action
Special-Status Species	Effects on Special-Status Species would range from no impacts to short-term, adverse effects which would be minimized with the implementation of Western BMPs, SOPs, and PCMs	Impacts to special-status species associated with vegetation management would be less than the Proposed Action
Vegetation	Maintenance activities may result in temporary and permanent loss of habitat because vegetation would be removed for maintenance activities and access road maintenance. Vegetation clearing and herbicide use would typically be a short-term impact since vegetation would grow back; however, this may contribute to the introduction of noxious weeds. Western would implement SOPs and PCMs to reduce impacts to vegetation; for example, by requiring that seeds from ground-disturbing equipment be cleaned off before moving between work sites. Impacts to vegetation resulting from the Proposed Action would be minor, adverse, both short- and long-term	Effects to vegetation from vegetation management activities would be less
Water Resources / Floodplains / Waters of the U.S.	Compliance with regulatory and permit requirements, and adherence to Western SOPs, PCMs, and BMPs would ensure that effects on floodplains, drainages, water quality, waters of the U.S., and groundwater are negligible	Same as Proposed Action, but vegetation management activities would be less aggressive. The potential for soil disturbance, increased erosion and sedimentation, disturbance of jurisdictional waters, and accidental release of hazardous materials would be reduced

Table 2-5. Environmental Impact Summary by Alternative

Impact Topic	Proposed Action	No Action
Geology / Soils / Minerals	Adverse impacts associated with geology could occur if construction is performed on steeper, unstable slopes, disturbing the subsurface and causing slope failure, slumps, or landslides of rock; adverse impacts to soils could occur if the overall soil structure is affected; adverse impacts to mineral resources may occur if the loss of availability of a mineral resource is created by Project activities such as limiting access, removing a mineral site, or using the resource for the Project, making it unavailable to the area	Same as Proposed Action, but vegetation management activities would be less, resulting in less potential for adverse impacts to geological resources, soils, and mineral resources
Air Quality	Air quality impacts from the Proposed Action would be minimal, as maintenance activities would be temporary, intermittent, of short duration, and dispersed along the Project ROW	Same as Proposed Action, but vegetation management activities would be less, and therefore, would result in less potential for adverse air quality impacts
Hazardous Materials	The potential for public exposure to hazardous herbicides is considered very low; adverse impacts to surface water could occur if an accidental release of herbicides drifts or flows into surface water; with implementation of Public Health SOPs, adverse impacts from use of herbicides, or potential exposure to fuels or hazardous waste would be minimized or avoided	Same as Proposed Action, but vegetation management activities would be less, and therefore, would result in less potential for impacts associated with hazardous materials
Intentional Destructive Acts	The incidence of an intentional destructive act is speculative, and could occur at any location along the 1,534-mile ROW or at substations. Based on past occurrences, if an act were to take place, it would likely result in minor or negligible environmental impacts	Same as the Proposed Action

3.0 Affected Environment and Environmental Consequences

3.1 Introduction

3.1.1 Resources Analyzed

This chapter describes the affected environment (existing setting or baseline conditions) and analyzes the potential environmental consequences (impacts or effects) that would occur as a result of implementing the Proposed Action. Direct, indirect, and cumulative effects are analyzed for each resource topic carried forward. Potential impacts are described in terms of type, context, duration, and intensity.

The potential effects are examined as they relate to the following 14 resource areas:

3.2 Land Use and Aviation
3.3 Recreation
3.4 Human Health and Safety
3.5 Visual/Aesthetics
3.6 Noise
3.7 Cultural Resources
3.8 Wildlife
3.9 Special-Status Species
3.10 Vegetation
3.11 Water Resources/Floodplains/Waters of the U.S.
3.12 Geology/Soils/Minerals
3.13 Air Quality
3.14 Hazardous Materials
3.15 Intentional Destructive Acts

3.1.2 Resources Not Evaluated

As described in the "Environmental Consequences" chapter in this EA, Western takes a "hard look" at all potential impacts by considering the direct, indirect, and cumulative effects of the Proposed Action on the environment, along with connected and cumulative actions. In those cases where impacts are either not anticipated or are expected to be negligible, the issues and impact topics are dismissed from detailed analysis. As described in NEPA regulations, NEPA analysis should focus on issues that are truly significant to the action in question, rather than amassing needless detail (Council on Environmental Quality (CEQ) NEPA regulations, 40 CFR 1500.1 (b)). This section identifies the impact topics dismissed from detailed analysis in this EA and provides the rationale for the dismissal. Generally, issues and impact topics are dismissed from detailed analysis for one or more of the following reasons:

- The resource does not exist in the analysis area;
- The resource would not be affected by the proposal, or the likelihood of impacts are not reasonably expected (i.e., no measurable effects);
- Through the application of mitigation measures, there would be minor or less effects from the proposal, and there is little controversy on the subject or reasons to otherwise include the topic.

Because the Parker-Davis Transmission System is an existing transmission line system, the activities associated with maintaining a transmission system are limited in time and scope, and the study area is well defined and has been previously disturbed, Western has determined that the Proposed Action would have little or no adverse effect on some resources in the study area. Resource areas falling into this category include Climate Change, Environmental Justice, Prime and Unique Farmlands, Socioeconomics, and Transportation. These issue areas have not been carried forward for full analysis.

3.1.2.1 Climate Change

Although climatologists cannot be certain of the specific long-term consequences, it is clear that the planet is experiencing global climate changes that affect ocean currents, sea levels, polar sea ice, and global weather patterns. Although this is likely affecting precipitation patterns, it would be speculative to predict localized changes in temperature, precipitation, or other weather facets, in part because many of the variables are not fully understood. The actions proposed in this EA would not measurably contribute to overall greenhouse gas emissions. Therefore, the possible effects of the Proposed Action on climate change are dismissed from further analysis.

3.1.2.2 Environmental Justice

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires all federal agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high and adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. The proposed activities would not take place in areas where minorities and low-income populations and communities could realize disproportionate health or environmental effects. Therefore, this topic has been dismissed from further analysis.

3.1.2.3 Prime and Unique Farmlands

In August 1980, the Council on Environmental Quality directed federal agencies to assess the effect of their actions on farmland soils classified as prime or unique by the U.S. Department of Agriculture's Natural Resources Conservation Service. Prime or unique farmland is defined as soil that produces general crops such as common foods, forage, fiber, and soil seed; unique farmland produces specialty crops such as fruits, vegetables, and nuts. Maintenance on existing transmission lines would have little to no effect on prime and unique farmlands.

3.2.1.4 Socioeconomics

Almost all of the existing transmission lines have been in place for over 40 years and maintenance along the lines is not expected to affect social and economic values. Western would utilize existing employees and contractors already conducting maintenance activities along the Parker-Davis Transmission System. The activities described in Chapter 2 would maintain the existing transmission system and are not proposed to expand the system. Therefore, maintenance on existing transmission lines and ROWs would not stimulate new development or growth and would not change existing socioeconomic patterns of the areas proximate to activities.

3.1.2.5 Transportation

O&M activities and vegetation management along existing transmission lines and at substations is not expected to have measureable effects on transportation. While some maintenance activities identified in Chapter 2 may require temporary lane closures or disruptions (limited only to areas where lines cross public roadways), any such disruption would be short-term. Furthermore, maintenance of existing aviation safety lighting and marker balls would ensure continued air navigation safety with respect to existing transmission lines and infrastructure.

3.2 Land Use and Aviation

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

3.2.1 Affected Environment

This section describes in general terms the current conditions for land use and aviation within the Action area.

3.2.1.1 Land Use

The Project traverses lands within 11 counties in Arizona, southeastern California, and southern Nevada. Much of the Proposed Action area includes open space, which is mostly unoccupied or undeveloped land, with the exception of scattered rural homes and communities or industrial and commercial development. In general, the open space is primarily characterized by desert landscape with sparse and natural vegetation. The remaining land is located on private and agriculture lands, and in urban areas. The urban areas include a variety of residential, commercial, and industrial development.

Table 3.2-1 identifies land ownership, as well as the predominant land use types, within each region. Most of the Project is located on land under the jurisdiction of federal and state resource and land management agencies, including the BLM, NPS, USFS, Reclamation, and the Arizona State Lands Department. The federal and state land is mostly open space including designated conservation, wildlife management, and recreation areas. Major designated federal lands in the Proposed Action area include the Lake Mead National Recreation Area (NRA), the Prescott National Forest, and the Cibola, Bill Williams River, and Kofa National Wildlife Refuges. In addition, the Project crosses the Yuma Proving Ground, a military installation owned by the U.S. Army, and seven Indian reservations.

Table 3.2-1. Overview of Land Ownership, Miles of Transmission Line, and Land Use Types by Geographic Region

Jurisdiction/Land Management Agency	Miles Traversed	Predominant Land Use Types adjacent to ROWs
Nevada		
U.S. Bureau of Land Management	28.79	Open space (recreation); urban residential; rural residential; semi-rural residential
U.S. Bureau of Reclamation	1.50	
National Park Service	26.36	
North/Central Arizona		
U.S. Bureau of Land Management	314.48	Open space (recreation and conservation); urban residential; rural residential; semi-rural residential; urban industrial; commercial; agriculture; military; and tribal lands
U.S. Bureau of Reclamation	6.68	
National Park Service	13.87	
U.S. Army	17.91	
USDA Forest Service	13.21	
U.S. Fish and Wildlife Service	5.07	
Tribal Lands	47.47	
Arizona State Land Department	148.73	
La Paz County	11.79	

Table 3.2-1. Overview of Land Ownership, Miles of Transmission Line, and Land Use Types by Geographic Region

Jurisdiction/Land Management Agency	Miles Traversed	Predominant Land Use Types adjacent to ROWs
Maricopa County	99.26	
Mohave County	103.41	
Pinal County	9.90	
Yavapai County	59.90	
Southern Arizona		
U.S. Bureau of Land Management	31.63	Open space (recreation); urban residential; rural residential; semi-rural residential; urban Industrial; semi-rural industrial; commercial; military; and tribal lands
U.S. Bureau of Reclamation	1.10	
U.S. Army	5.38	
USDA Forest Service	0.50	
Tribal Lands	12.54	
Arizona State Land Department	141.83	
Cochise County	18.13	
Maricopa County	17.02	
Pima County	39.13	
Pinal County	151.17	
Yuma County	25.37	
California		
U.S. Bureau of Land Management	126.40	Open space (recreation and conservation); rural residential; semi-rural residential; rural industrial; semi-rural industrial; commercial; agriculture; and tribal lands.
Tribal Lands	32.43	
State Trust Lands	3.90	
Imperial County	3.93	
Riverside County	21.28	
San Bernardino County	11.99	

Applicable Land Use Plans and Policies

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

As described above, the Action area includes BLM, NPS, Reclamation, Tribal, National Forest System, and Arizona State Trust lands. Activities in these areas would be subject to the plans and policies of federal and state agencies, tribal governments, and the requirements for areas with special designations. Major federal resource management plans in effect within the Action area include the Desert Tortoise Management Plan, the Prescott National Forest Land and Resource Management Plan, the Lake Mead National Recreation Area General Management Plan, the Kofa Mountains Complex Adaptive Predation Management Plan, and various BLM planning area specific Resource Management Plans. As these plans are revised, Western would work with the land managers to follow updated provisions.

The Action area crosses numerous local agency jurisdictions, such as counties and cities, which have adopted general plans and zoning ordinances. The Action area also crosses several Indian reservations and the Yuma Proving Ground. During O&M activities under the Proposed Action, Western would continue to coordinate with the tribal governments, the U.S. Army, and local agency jurisdictions to enhance compatibility with applicable plans and policies of these agencies.

3.2.1.2 Aviation

Subpart B, Section 77.13 of the guidelines of the Federal Aviation Administration (FAR Part 77) requires an applicant to submit FAA Form 7460-1 (Notice of Proposed Construction or Alteration) if any of the following would occur:

- Construction of new structures or equipment more than 200 feet above ground, or
- If objects would penetrate the imaginary surface extending outward and upward at a ratio of 100 to 1 from a public or military airport runway out to a horizontal distance of 20,000 feet.

The application must be submitted to the Manager, Air Traffic Division, FAA Regional Office having jurisdiction over the Project area for review and approval of the action (FAA 2008).

There are numerous civil and private airfields within one mile of the Project ROW. These airfields are listed in Table 3.2-2, below, by each geographic region within the Action area. The Action area also includes a portion of the Yuma Proving Ground, an area where aircrafts conduct military test operations.

Table 3.2-2. Civil and Private Airfields within 1.0 Mile of the Project

Nevada	▪ Boulder City Municipal Airport	
North/Central Arizona	▪ Laughlin-Bullhead International Airport ▪ Yuma International Airport ▪ Kingman Airfield ▪ Lake Havasu City Airport	▪ Phoenix Goodyear Airport ▪ Gila Port Airport ▪ Dunton Ranch Airport
Southern Arizona	▪ Tucson International Airport ▪ Potters Field Airstrip ▪ Martin Ranch Airstrip ▪ Y Strip Airport	▪ Avra Valley Airport ▪ Ammon Airport ▪ Carranza Farm Airstrip
California	▪ Blythe Airport ▪ Aha-Quin Airport ▪ WR Byron Airport	

3.2.2 Environmental Consequences from the Proposed Action

This section examines the potential impacts to land use and aviation.

3.2.2.1 Land Use

The implementation of activities under the Proposed Action would be temporary and short-term, but could disrupt residential, recreational, or agricultural uses in areas along the Project ROW (see Table 3.2-1). Implementation of land use SOPs would include actions such as notifying affected land owners and recreation users and posting signage in areas requiring temporary closure for vegetation management activities, minimizing noxious weeds by cleaning seeds from ground-disturbing equipment, and repairing damage caused during maintenance activities. Additionally, SOPs for aesthetics, noise, air quality, and recreation would help reduce potential nuisance impacts to adjacent land uses and aviation activities.

Western would coordinate with the affected land management agencies to ensure that activities under the Proposed Action would be consistent, to the maximum extent practicable, with the applicable land use plans and regulations of the entities listed in Table 3.2-1. The Action area includes local agency jurisdictions, such as counties and cities, which have adopted general plans and zoning ordinances. Western would follow these applicable plans and policies to the greatest extent feasible.

3.2.2.2 Aviation

The Proposed Action may include alteration to existing transmission structures or construction of new transmission infrastructure (Categories B and C), which could have the potential to conflict with aviation safety. Therefore, these activities may be subject to the requirements of FAR Part 77 (see Section 3.2.1.2). If required, Western's notification to the FAA would ensure that new or modified infrastructure poses no hazard to aircraft. Western would complete aerial inspections of the ROW by helicopter or small plane at least twice a year. Aerial inspections would not be concentrated in one area for an extended period and would not occur within restricted airspace. Aerial inspections would not be expected to pose increased risk to aviation facilities or airspace.

3.2.3 Environmental Consequences from the No Action Alternative

Under the No Action Alternative, Western would continue to conduct routine maintenance activities along the Project ROW and at substations. Potential impacts to land use and aviation from O&M activities would be the same as those described above for the Proposed Action.

Vegetation management under the No Action Alternative would continue to be need-driven where vegetation control needs are identified through periodic line patrols. Therefore, vegetation management under the Proposed Action is more aggressive than the No Action Alternative. Potential disruptions to land uses associated with vegetation management would be less under the No Action Alternative.

3.3 Recreation

3.3.1 Affected Environment

The largest recreation areas crossed by, or adjacent to, the Project include BLM, NPS, and National Forest System lands. These include national recreation and conservation areas, national forests, and wilderness areas. In addition, local and regional recreation areas are associated with residential and urban areas throughout the Action area. Table 3.2-1 (above) provides information on lands traversed (in miles) by the Proposed Action.

3.3.1.1 Nevada

The Action area crosses, or is adjacent to, approximately 26 miles of NPS land in this area. The Lake Mead NRA is managed by the NPS and includes Lake Mead and the surrounding area. The year-round recreational opportunities include boating, fishing, hiking, and sightseeing.

The Action area in this region also crosses approximately 29 miles of BLM land, including the Sloan Canyon National Conservation Area. This Conservation Area was designated to protect the Sloan Canyon Petroglyph Site, which contains sensitive cultural resources (BLM 2014a). This site attracts visitors who also use this area for hiking and sightseeing. The remainder of the BLM land provides opportunities for dispersed recreational activities such as off-highway vehicle (OHV) use, hiking, camping, hunting, and sightseeing. BLM-designated Wilderness Areas (WA), however, are limited to non-motorized recreation activities. There are several BLM-designated WAs adjacent to the Project area in this region including the Spirit Mountain WA, the Ireteba Peaks WA, and the El Dorado WA.

3.3.1.2 Northern and Central Arizona

The Proposed Action traverses approximately 13 miles of National Forest System lands and approximately 14 miles of NPS land in this area. The northern most portion of Prescott National Forest is traversed by the Action area in this region. The Prescott National Forest provides recreational opportunities including hiking, backcountry camping, mountain biking, hunting, and horseback riding. Due to the high elevation of the terrain, most recreational visitors are present during the summer months (USFS 2014). The Action area is adjacent to and then crosses two segments of the Lake Mead NRA. The Lake Mead NRA is managed by the NPS and includes Lake Mead and the surrounding area. The year-round recreational opportunities include boating, fishing, hiking, and sightseeing.

The Action area in this region crosses large sections of BLM and Arizona State Trust lands. These areas are open for public use and provide opportunities for dispersed recreational activities such as OHV riding, hiking, camping, hunting, wildlife observation, and sightseeing. In addition, the Action area in this region is adjacent to and crosses approximately 5 miles of National Wildlife Refuges (NWRs). The Kofa NWR is adjacent to the Proposed Action and attracts year-round visitors providing opportunities for recreational activities such as hiking, sightseeing, hunting, and wildlife observation. Large portions of the Kofa NWR are designated WAs, including portions that are adjacent to the Action area, and are limited to non-motorized recreation.

A few of the larger BLM WAs adjacent to the Action area include Warm Springs WA, Gibraltar Mountain WA, Rawhide Mountains WA, and Hassayampa River Canyon WA. Recreation in these areas is limited to non-motorized activities.

3.3.1.3 Southern Arizona

The Action area in this region traverses approximately 31.5 miles of BLM land, which attracts year-round visitors and provides opportunities for recreational activities such as hiking, sightseeing, hunting, and wildlife observation. Large portions of the Kofa NWR are adjacent to the Proposed Action and are designated WAs, including portions that are limited to non-motorized recreation. A segment of the Action area in this region is adjacent to the Imperial NWR, which provides recreational activities such as boating, sightseeing, hunting, and wildlife observation.

3.3.1.4 California

The Action area in this region crosses approximately 126 miles of BLM land, which provides opportunities for dispersed recreational activities, such as OHV riding, hiking, camping, hunting, and sightseeing. BLM WAs adjacent to the Action area include the Riverside Mountains WA, the Big Maria Mountains WA, and the Palo Verde Mountains WA. Recreation in these areas is limited to non-motorized activities. The Action area is also adjacent to the Cibola NWR, which provides recreational activities such as boating, hiking, sightseeing, hunting, and wildlife observation.

3.3.2 Environmental Consequences from the Proposed Action

Category A activities, such as ground and aerial inspections and manual vegetation clearing within fenced facility perimeters, could restrict access to recreation areas and cause disruptions. In addition, recreationists could experience indirect and temporary nuisances from increased noise levels from construction equipment and during aerial inspections, changes to the visual quality of an area from vegetation clearing, or risks to human health and safety from exposure to dust and odors from maintenance equipment. Category A activities would be temporary, and activities would occur over the entire Action area. For example, ground patrols would be conducted semi-annually, aerial inspections would be performed at least twice a year, there

would be periodic climbing inspections of antenna towers, and emergency repairs would occur as needed. Impacts to recreationists would not be concentrated in one area for an extended period.

Category B activities could include the installation or replacement of culverts or wood poles, cutting and dropping hazardous trees, or installation of fiber optic lines on existing transmission towers. These activities could permanently change the existing infrastructure and the visual quality of established recreation areas, such as trails or other facilities. Construction-related disruptions could be a nuisance and could degrade the experience of recreation facility users. However, based on past O&M activities, Western assumes that routine maintenance activities would occur on an annual basis. Therefore, these types of activities would occur for a short period at various locations within the entire Action area and would not be concentrated in one area for extended periods.

Category C activities, such as the use of heavy equipment or light duty helicopters for the addition of new access roads or tower and pole replacement and realignment, may disrupt recreational activities and degrade the experience of recreation facilities. The new infrastructure under Category C could alter the existing infrastructure along the Project ROW or change recreational areas. However, disruptions to recreation activities associated with Category C activities would be minimal due to the short duration and infrequency of the activities.

Western would coordinate with affected land management agencies, such as the BLM, NPS, USFWS, and USFS, to ensure that the public is informed of trail blockages by equipment or for safety purposes, and trail users would be directed to alternate trails or facilities. In places like the Lake Mead NRA, Kofa NWR, or the Prescott National Forest, Western would ensure that nuisance to recreationists or conflicts with established recreational areas would be avoided or minimized. In addition, Western would strive to ensure that Category B and C maintenance activities would preserve the natural surrounding and natural landscape for recreationists.

3.3.3 Environmental Consequences from the No Action Alternative

Under the No Action Alternative, Western would continue to conduct routine maintenance activities along the Project ROW and at substations. Potential impacts to recreation areas and facilities from O&M activities would be the same as those described above for the Proposed Action.

Vegetation management under the No Action Alternative would continue to be need-driven where vegetation control needs are identified through periodic line patrols. Therefore, vegetation management under the Proposed Action is more aggressive than the No Action Alternative. Potential disruptions to recreation areas associated with vegetation management would be less under the No Action Alternative.

3.4 Human Health and Safety

The study area for human health and safety includes the Parker-Davis transmission line ROW, substations, and access roads.

3.4.1 Affected Environment

This section examines the existing conditions and potential environmental effects on human health and safety from physical hazards, fire hazards, and electric and magnetic fields (EMF). Section 3.14 addresses the affected environment and environmental consequences of hazardous materials, and therefore will not be discussed in this section.

3.4.1.1 Fire Hazards

Within the ROW, typical fire hazards include ignition of fuel sources (primarily vegetation) caused by sparks from routine maintenance vehicles, tools, or personnel. In addition, lack of adequate ROW maintenance and clearance (i.e., vegetation or trees too close to transmission lines) could lead to fires. Fires outside of the ROW could start for various reasons and later move into the ROW, endangering system operation. These risks are greatest in highly vegetated areas surrounding the ROW, primarily within mountainous areas of the North/Central Arizona study area.

3.4.1.2 Physical Hazards

Current operational activities may present a physical hazard to maintenance workers and, to a lesser degree, the general public. Physical hazards may include injury from falling trees, improper use of tools or machinery, construction site dangers, and electrocution.

3.4.1.3 Electric and Magnetic Fields (EMF)

Both current and voltage are required to transmit electrical energy over a transmission line. The current, a flow of electrical charge measured in amperes, creates a magnetic field. The voltage, the force or pressure that causes the current to flow, measured in units of volts or kilovolts, creates an electric field. Electric fields and magnetic fields considered together are referred to as "EMF." Both fields occur together whenever electricity flows. Therefore, it is general practice to consider both as EMF exposure.

Transmission lines, like all electrical devices and equipment, produce EMFs. Electric field strength is usually constant with a given voltage; magnetic field strength can vary depending on the electrical load, design of the transmission line, and configuration and height of conductors. Both the magnetic field and the electric field decrease rapidly, or attenuate, with distance depending on the source.

There is public interest and concern about the potential health effects to workers and the general public from exposure to EMF from power lines. While there is uncertainty about the health effects of EMF, the balance of scientific evidence to date indicates that these fields do not cause disease. No federal regulations have established environmental limits on the strengths of fields from power lines; however, the Federal Government continues to conduct and encourage research on the EMF issue. Other sources of EMF in the study area include distribution feeds to homes and businesses, commercial wiring and equipment, and common household wiring and appliances for residences and communities in the area. In the home, power frequency fields (60 Hz) are associated with electrical appliances.

3.4.2 Environmental Consequences from the Proposed Action

3.4.2.1 Fire Hazards

Power line fires continue to be a main source of some of the most destructive wildfires throughout the western United States (Mitchell 2009). A major reason for this is that programs that only focus on hazard tree removal do not effectively facilitate risk reduction of wildfire ignitions (Guugenmoos 2003). Transmission line corridors with vegetation maintained to reduce the risk of high-intensity wildfire can be valuable resources for limiting the spread of and thus destruction caused by large, high-intensity wildfires that ignite from other sources. For example, in 2002 firefighters used a well-maintained transmission line corridor to create a backfire to successfully stop the spread of one of the biggest fires in Arizona history, the Rodeo-Chedeski Fire (Johnstone 2008).

Equipment used in the ROW, particularly during mechanical vegetation clearance, may ignite a spark, starting a fire. Fire hazards may also be present due to vegetation being close to transmission lines, or falling on and breaking, transmission lines and other structures. Public Health SOPs in Appendix A, Table 2, state that Western and its contractors would comply with applicable federal and state regulations for fire suppression, including having equipment on site (e.g., water tank and hose with adequate gallon requirements), the use of spark arrestors on all internal and external combustion engines, and daily knowledge of fire hazard levels. These SOPs would help avoid or minimize fire hazards. In addition, with the continued implementation of vegetation management, adequate clearance from vegetation to transmission lines and structures would be in place.

3.4.2.2 Physical Hazards

During Proposed Action activities, use of vehicles and equipment can present dangers and cause injury to maintenance crew workers. Some ROWs and access roads have restricted access, thereby minimizing or avoiding public exposure to potential effects. Proper training on mechanical tools and equipment used during proposed O&M activities would minimize accidents from occurring.

Western's Public Health SOPs state that structures and/or shield wire would be marked with highly visible devices in identified locations as required; workers would be required to wear high-visibility vests and hardhats; and excavations greater than one foot deep would be fenced, covered, or filled at the end of each working day, or have escape ramps. BMPs state that areas containing extremely dense vegetation with species like cacti, mesquite, tamarisk, and poison ivy would be closed, if necessary to ensure crew safety.

3.4.3 Environmental Consequences from the No Action Alternative

Under the No Action Alternative, Western would continue to conduct routine maintenance activities along the Project ROW and at substations. Potential impacts associated with fire and physical hazards from O&M activities would be the same as those described above for the Proposed Action.

Vegetation management under the No Action Alternative would continue to be need-driven where vegetation control needs are identified through periodic line patrols. Therefore, the vegetation management under the Proposed Action is more aggressive than the No Action Alternative, so the potential for fire hazards from overgrown vegetation would be greater under the No Action Alternative. However, the increase in activities as a result of the IVM program may result in the potential for increased physical hazards under the Proposed Action in comparison to the No Action Alternative.

3.5 Visual/Aesthetics

The section describes the affected environment with respect to visual quality and sensitivity, and examines the potential impacts of the Proposed Action and No Action Alternative on visual resources.

The analysis of aesthetics and visual resources uses resource-specific qualitative and quantitative terminology. The following are terms used in the analysis:

- **Viewshed:** The landscape that can be directly seen under favorable atmospheric conditions, from a vantage point or along a transportation corridor.
- **Visual Quality:** The relative subjective value of the overall impression or appeal of an area created by the physical features of the landscape, such as natural features (landforms, vegetation, water, color, adjacent scenery, and scarcity), and built features (roads, buildings, railroads, agricultural

patterns, and utility lines). These features create the distinguishable form, line, color, and texture of the landscape composition that can be judged for scenic quality using visual contrast at the criterion.

The analysis discusses visual quality and qualitative rating as follows:

- High: Where the valued natural landscape character is intact with only minute or no visual deviations from natural conditions. The existing natural landscape character is expressed at the highest possible level.
- Moderate: Where the valued natural landscape character appears slightly altered. Noticeable deviations must remain visually subordinate to the natural landscape character being viewed.
- Low: Where the valued natural landscape character appears moderately to heavily altered (urbanized). Visual deviations (human-made structures) primarily dominate the visual landscape character and have overwhelmed any previous natural landscape.

- **Visual sensitivity:** The concern by viewers with changes to visual quality. Visual sensitivity is generally higher in natural or unmodified landscapes.

The visual resources study area includes viewsheds where program activities would be seen from sensitive viewing locations.

3.5.1 Affected Environment

3.5.1.1 Existing Visual Conditions

This section characterizes the current conditions in the Action area for visual quality and sensitivity. The Project crosses a wide variety of land use types and natural terrain. In general, much of the route travels through open space characterized by unmodified, unique, and varying landscapes. These areas tend to have a high visual quality due to the presence of unmodified landscapes and unique landforms, vegetation patterns, and waterforms. Other portions travel through or near residential or urban development. The visual resources in these areas tend to be of moderate quality due to the presence or high concentration of obstruction to viewsheds.

The following subsections describe the conditions of the visual resource study area within each geographic region defined in Table 1-1 in Section 1.2. The visual quality and sensitivity described in the following subsections were based on the land use and development patterns described in Section 3.2.

Nevada

Most of the Action area in this region is adjacent to and crosses the Sloan Canyon National Conservation Area (NCA), El Dorado and Ireteba Peaks WAs on BLM lands, and the Lake Mead NRA on NPS lands. In general, these areas are characterized by mostly undeveloped land comprised of open vistas, semi-rugged terrain, and pristine waterbodies. Therefore, the visual quality tends to be high due to the presence of unobstructed views and unique and scenic landscapes. In addition, visual sensitivity tends to be high as these areas provide natural and scenic views. Portions of the Action area also cross areas of urban development south of the City of Las Vegas, like the Cities of Henderson and Boulder City. These areas are characterized as highly modified landscapes comprised of densely populated residential development and sprawling commercial and industrial facilities. These areas tend to have a moderate to low visual quality and sensitivity due to the obstruction of viewsheds and the unnatural character of the landscape.

North/Central Arizona

Much of the Action area in this region is located on open space comprised of undeveloped desert or forested landscapes. A segment of the Project passes through the Prescott National Forest which is characterized by rugged terrain covered by dense forests. A portion of the Project is adjacent to the Kofa NWR, which is comprised of undeveloped, moderately rugged terrain with sparse vegetation cover. These areas area tend to have a high visual quality and sensitivity, especially those within the Prescott National Forest and Kofa NWR, as they are comprised of mostly natural landscapes and provide varying, scenic vistas.

Southern Arizona

This region includes the highest percentage of urban development and agricultural land throughout the Project area. The Action area passes through the Phoenix and Tucson metropolitan areas where visual quality and sensitivity tends to be moderate to low due to the highly modified landscape. The remainder of the Action area in this region crosses open space characterized by an undeveloped desert landscape where visual quality tends to be higher due to the unobstructed views.

California

The Action area in this region is located primarily on undeveloped land characterized by a desert landscape with sparse vegetation cover. This includes the Big Maria Mountains and Riverside Mountains Wilderness Areas which are comprised of rugged terrain with a vast and scenic viewshed. The Action area is also adjacent to the Cibola NWR which includes mostly undeveloped landscapes with lush vegetation along the Colorado River. This area has a high visual quality and sensitivity due to the natural, unique, and scenic landscape. A portion of the Project ROW in this region also passes through the City of Blythe where the landscape is dominated by sprawling residential and commercial development and agriculture fields. This area tends to have a lower visual quality and sensitivity due to the modified landscape.

3.5.1.2 Adjacent Federal Land Management Agency Regulations

Bureau of Land Management – Visual Resource Management System

Over 500 miles of the Project cross BLM lands. By law, the BLM is responsible for ensuring that the scenic values of public lands under its jurisdiction are considered, if a project may have adverse visual impacts. BLM accomplishes this through its Visual Resource Management (VRM) system (BLM 2010).

BLM's VRM system provides a way to identify and evaluate scenic values to determine the levels of management. It also provides a way to analyze potential visual impacts and apply visual design techniques to ensure that surface-disturbing activities are in harmony with their surroundings.

The BLM VRM guidelines are often used by the NPS and Reclamation for visual resource assessment as Reclamation and the NPS do not have formalized guidance procedures for assessing visual resources.

U.S. Forest Service – Scenery Management System

The Project crosses the northern most portion of the Prescott National Forest managed by the USFS. The USFS has defined the Scenery Management System for the inventory and analysis of the aesthetic values of National Forest lands (USFS 1995). The Scenery Management System establishes the following:

- Common terminology;

- Consistent procedures for inventory, analysis, and synthesis;
- Standards and guidelines for scenery management; and
- Techniques for monitoring.

3.5.2 Environmental Consequences from the Proposed Action

Maintenance activities conducted under the Proposed Action would cause a visual change. However, impacts would only occur at locations with high visual quality and if the maintenance activity resulted in visual contrast that could dominate a rare, unique, scenic, or sensitive viewshed, or if there is conflict with or violation of a formal visual resources plan or policy, applicable to the study area and approved or adopted by the federal, state, or local agency that has jurisdiction.

Western SOPs related to aesthetics would be implemented as part of the Proposed Action and are intended to minimize visual impacts. As shown in Appendix A, SOPs for reducing potential aesthetic impacts include:

- Material storage and staging areas would be selected to minimize views from public roads, trails, and nearby residences, to the extent feasible. During O&M, the work site would be kept clean of debris and construction waste. For areas where excavated materials would be visible from sensitive viewing locations, excavated materials would be disposed of in a manner that is not visually evident, in coordination with the land owner and in compliance with applicable regulations.
- Replacement structures and hardware (e.g., conductors and insulators) would be replaced in kind, to the extent feasible, while ensuring that structures and hardware that are visible from sensitive viewing locations would have colors, finishes, and textures to most effectively blend into the visible landscape. If structures are visible from more than one sensitive viewing location, and backdrops are substantially different from different vantage points, the darker color would be selected, because dark colors tend to blend into landscape backdrops.
- Maintenance operations would be conducted to limit unnecessary scarring or defacing of the natural surroundings and preserve the natural landscape to the extent possible. To preserve vegetative screening from public areas, tree removal and vegetation clearing would be minimized along state highways and near recreation sites, and wherever possible along scenic roadways.

A majority of the Parker-Davis Transmission System lines have been in place since the 1940s and 1950s and are an existing component of viewsheds facing the ROW. Project activities could affect scenic quality from the temporary visual intrusion of construction vehicles, equipment helicopters, storage materials, and workers. Permanent visual change would mostly occur from vegetation clearing and new access road construction.

Vantage points available within 0.5 mile of the transmission lines afford the greatest viewing opportunities from the foreground and middle ground. Some Project features would be visible in the background (4 miles to horizon), but all background landscapes would also be seen in greater detail from closer distances and from other vantage points. Therefore, the study area of this visual analysis is limited to foreground and middle ground views of the ROW and access roads. Furthermore, visual changes associated with operation and maintenance activities are not considered adverse at viewsheds where the visual quality is considered low.

3.5.2.1 Category A – Inspection and Minor Maintenance

Category A activities would have little to no adverse visual effect on views with existing vegetation and landscape, and would not substantially degrade scenic quality. There would be no substantial dominant visual change to viewsheds with high or moderate visual quality as seen from sensitive viewer locations. Furthermore, implementation of SOPs identified above and in Appendix A would ensure no conflict with visual standards identified by a federal land-management agency, and no long-term dominant visual change to sensitive viewsheds.

3.5.2.2 Category B – Routine Maintenance

Since Western would not substantially modify the height or structure location of a transmission line, no adverse long-term impacts would occur to visual resources from Category B activities. Tree clearing along the edge of the transmission ROW and vegetation clearing along access roads could alter the visual quality of the foreground. These visual changes could make the industrial nature of the ROW more prevalent. However, due to the relatively small impacted area of the landscape and the limited viewshed, these activities would minimally impact the visual quality. Implementation of SOPs would help reduce damage to the visual landscape that might conflict with viewsheds with high to moderate visual quality.

Where activities would occur adjacent to federal lands, Western would work proactively with the BLM and USFS to ensure SOPs and Category B activities would not conflict with agencies' visual plans or standards. Therefore, Category B activities would not substantially degrade the scenic quality of a visually important landscape; cause substantial dominant visual changes in the landscape seen by highly sensitive viewer locations; or cause a visual interruption that would dominate a unique viewshed or scenic view.

3.5.2.3 Category C – New Infrastructure

Category C activities have the greatest potential to degrade or alter the scenic quality of a visually important landscape such as recreational areas identified in Section 3.5.1.1. Where Category C activities would occur adjacent to these federal recreational areas, Western would work with the BLM and USFS to ensure SOPs and Category C activities would not conflict with agencies' visual plans or standards.

Clearing of vegetation and establishing low-growing plants may make transmission ROWs and access roads more visible within the viewshed. However, because these areas would be relatively small and within or near an established transmission corridor, these low elevation visual changes would not typically cause substantial dominant changes in the landscape seen from highly sensitive viewer locations, or be expected to cause visual degradation at locations with high to moderate visual quality. Certain activities, such as new access roads, new large culverts, transmission structure realignment (placement of structures in locations not currently occupied by a pole/tower), and larger installations of rip rap would result in a permanent increase to visual contrast. However, these activities would typically occur within or adjacent to an already established transmission ROW. Therefore, the overall effect to the visual quality of the foreground and middleground is expected to be moderate to low.

As identified in Appendix A, Western would incorporate visual screening and other design techniques, to the maximum extent feasible, to reduce visual contrast of new or altered facilities where public viewsheds are impacted. The implementation of SOPs and coordination with affected federal agencies (conducting all necessary VRM and Scenery Management System studies) would ensure that visual changes associated with Category C activities are minimized to the greatest extent feasible at viewsheds considered with high to moderate visual quality.

During Proposed Action scoping, the Nevada Division of State Lands and the State Land Use Planning Agency expressed concern about the potential for transmission lighting to impact adjacent viewers within Nevada. Mitigation Measure 3.5-1 is recommended to reduce impacts and address this concern.

MM 3.5-1 If new or altered transmission facility lighting (aviation safety lights or other) is installed in Nevada as part of operation and maintenance of the Parker-Davis Transmission System, Western will coordinate with the Nevada Division of State Lands and the State Land Use Planning Agency to ensure the use of "Dark Sky" lighting practices, screening of lights, and other feasible measures are implemented to minimize light pollution of adjacent lands.

3.5.3 Environmental Consequences from the No Action Alternative

Under the No Action Alternative, Western would continue to conduct routine maintenance activities along the Project ROW. Ultimately, potential visual impacts from the No Action Alternative would be similar to those described above for the Proposed Action. The implementation of SOPs identified above and within Appendix A would ensure potential visual impacts are minimized and aesthetic changes to sensitive viewsheds and areas with high visual quality are in compliance with applicable guidelines and performance standards.

Vegetation management under the No Action Alternative would continue to be a need-driven management approach where vegetation control needs are identified through periodic line patrols. Therefore, vegetation management under the Proposed Action is more aggressive than the No Action Alternative, so alterations of the visual quality due to vegetation management may be slightly less under the No Action Alternative.

3.6 Noise

This section describes the affected environment of the Project in terms of noise, and examines the potential impacts to noise levels caused by the Proposed Action and No Action Alternative. The assessment of noise impacts uses specific terminology not commonly used. To facilitate a general understanding of the analysis, these terms are discussed below and are summarized in Table 3.6-1. The analysis area used in this EA for noise impacts includes an area within one mile from the Project ROW, where program activities may be heard by sensitive receptors.

To describe noise and to assess project impacts on areas that are sensitive to it, a measurement scale that simulates human perception is customarily used. The A-weighted scale of frequency sensitivity accounts for the sensitivity of the human ear, which is less sensitive to low frequencies, and correlates well with human perceptions of the bothersome aspects of noise. Noise is measured in decibels, which are logarithmic units that conveniently compare wide ranges of sound intensities. The A-weighted decibel scale (dBA) is used in most noise criteria.

Table 3.6-1. Summary of Acoustical Terms

Term	Definition
Decibel (dB)	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (a measure of force per square meter).
A-Weighted Sound Level (dBA)	The sound level in decibels as measured on a sound level meter using the A-weighted filter network. The A-weighted filter de-emphasizes the very low and very high frequency components of the sound similar to the frequency response of the human ear and correlates well with subjective reactions to noise. All sound levels in this report are A-weighted.

Table 3.6-1. Summary of Acoustical Terms

Term	Definition
Ambient Noise Level	The composite noise from all sources resulting in the normal, existing level of environmental noise at a given location. The ambient level is typically defined by the Leq level.
Equivalent Noise Level (Leq)	The average A-weighted noise level, on an equal energy basis, during the measurement period.
Day-Night Average Level (Ldn)	The average A-weighted noise level during a 24-hour day, obtained after the addition of 10 decibels between the hours of 10:00 p.m. and 7:00 a.m. to account for receptor sensitivity to evening noise.
Intrusive Noise	Noise that intrudes over and above the ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, time of occurrence, tonal content, the prevailing ambient noise level, and the sensitivity of the receiver.

Community noise levels are usually closely related to the intensity of nearby human activity. Noise levels are generally considered low when ambient levels are below 45 dBA, moderate in the 45 to 60 dBA range, and high above 60 dBA.

Typical Ldn noise levels occurring over a 24 hour day/night period are:

- 35 dBA or below in Wilderness Areas,
- 50 to 60 dBA in small towns or wooded or lightly used residential areas,
- 75 dBA in busy urban areas, and
- 85 dBA near major freeways and airports.

Although people often accept the higher levels associated with very noisy urban residential and residential-commercial zones, high noise levels are considered adverse to public health.

3.6.1 Affected Environment

3.6.1.1 Existing Transmission Line Noise

Current maintenance activities along the Project ROW generate short-term and temporary noise that does not contribute to overall ambient noise conditions along the transmission corridors. Operation of transmission lines creates corona discharge noise that can affect the ambient noise conditions proximate to the line. Corona effect is the ionization of air that occurs at the surface of the energized conductor and suspension hardware due to very high electric field strength at the surface of the metal during certain conditions. Corona generates audible noise during operation of transmission lines. The noise is generally characterized as a crackling, hissing, or humming noise.

Operational corona noise is typically most audible near transmission lines at 345 kV and above and is less noticeable on lines operated at lower voltages. As shown in Table 1-1, no Project transmission lines exceed 230-kV. For voltages similar to 230-kV, corona noise is not expected to significantly contribute to ambient noise conditions except in rare circumstances where a residence is located very close to a transmission line. The audible noise from transmission lines is expected to be lower than the typical ambient noise at locations beyond the edge of the ROW.

3.6.1.2 Noise-sensitive Receptors

Noise-sensitive receptors describe locations or areas where human activity can be adversely affected when noise levels exceed the thresholds described above. Examples of noise-sensitive receptors would be residences, schools, hospitals, wildlife management and conservation areas, and recreational

facilities. The sensitive receptors identified along the Project ROW were based on the land use and development patterns described in Section 3.2 above.

3.6.1.3 Existing Noise Conditions

A wide range of noise sources occur along the Project ROW. Much of the route travels through rural, unoccupied land. Other portions travel proximate to residential receptors. Surrounding land uses, described in Section 3.2 above, contribute many other noise sources. Noise levels in the Action area are highest near major transportation facilities, especially highway and freeway crossings, and near other localized noise sources such as airports, industrial operations, and military grounds. Noise-sensitive receptors are distributed throughout the Project area. The most common sensitive receptors in the vicinity of the Project area include residences, schools, hospitals, recreation areas, wildlife management areas, and ecological conservation areas.

The following subsections provide information on major noise sources and common noise-sensitive receptors within the study area in each of the geographic regions identified in Table1-1 in Section 1.2.

Nevada

The majority of the Action area in this region is adjacent to and cross BLM land, including the Sloan Canyon NCA and El Dorado and Ireteba Peaks WAs, as well as NPS land including the Lake Mead Recreation Area. The remainder of the Project area is located on private land including open space, and residential and urban development within the Boulder City and the City of Henderson. The most common noise-sensitive receptors in this region include visitors to the wilderness, conservation and recreation areas, as well as residences, schools, and hospitals in urban areas that are close to the Project area. Major localized noise sources include OHV activities on BLM land, motorized boating activities on Lake Mead, and aviation activities at the Boulder City Municipal Airport. Elevated noise levels are found along the US Highway 95 corridor, which parallels segments of the Project ROW.

North/Central Arizona

Much of the Project area in this region crosses sparsely populated areas on BLM, USFS, and Arizona State Trust lands where noise levels tend to be low. Localized noise sources in these areas include OHV activities, and oil and gas extraction activities within the Prescott National Forest. Multiple segments of the Project area pass through urban areas, including the City of Prescott and a portion of the City of Phoenix, where noise levels are elevated within areas of dense population and development.

The Project area also crosses the Yuma Proving Ground, where military testing operations can produce elevated noise levels depending on the equipment used to conduct the operation. Elevated noise levels also occur along the Interstate 40, Interstate 17, and Interstate 10 corridors. Common noise-sensitive receptors include residences, schools, and hospitals mostly concentrated within the urban areas. A segment of the Project area is adjacent to the Kofa NWR where common noise-sensitive receptors include wildlife and visitors to the NWR. This segment is also adjacent to Arizona State Route 95, which has elevated noise levels.

Southern Arizona

This region includes the highest percentage of urban development throughout the Project area. The Project area passes through the Phoenix and Tucson metropolitan areas, where noise levels tend to be elevated due a concentration of human activity. The remainder of the Project area in this region crosses open space on BLM and Arizona State Trust lands where human activity is minimal and noise levels tend

to be low. Localized noise may occur on BLM lands in areas of concentrated OHV activities. Elevated noise levels also occur along the Interstate 10 corridor. Common noise-sensitive receptors include residences, schools, and hospitals mostly concentrated within the urban areas.

California

The Project area crosses open space and areas of industrial development on BLM land as well as areas of urban and residential development associated with the City of Blythe. The areas of open space are sparsely populated and tend to have low noise levels. Localized noise sources include OHV activities and construction activities associated with large-scale solar and wind development on BLM land adjacent to segments of the Project area. Elevated noise levels occur within areas of urban and residential development within the City of Blythe, as well as along the Interstate 10 corridor. Common noise-sensitive receptors include residences, schools, and hospitals within the City of Blythe.

3.6.2 Environmental Consequences from the Proposed Action

There are two basic considerations for evaluating noise and vibration impacts from the Proposed Action. First, temporary noise and vibration levels generated during operation and maintenance activities must comply with the applicable federal, state, or local standards or regulations. Noise impacts on the surrounding community are enforced through local ordinance, supported by nuisance complaints and subsequent investigation. The second measure of impact is a permanent increase in noise levels above the ambient level from the introduction of a new source of noise. A permanent increase in ambient noise levels due to a new noise source can create an impact on people at sensitive receptor locations.

Typically, groundborne vibrations generated by man-made activities attenuate rapidly with distance from the source of the vibration. Man-made vibration issues are therefore usually confined to short distances (i.e., 500 feet or less) from the source (FTA 2006). Given the typical width of the Project ROW and access roads, coupled with distances to occupied structures, the potential for vibration impacts are considered minimal as part of the Proposed Action.

In general, noise impacts from the Proposed Action would be minimal. Maintenance activities would be temporary, intermittent, of short duration, and dispersed along the Project ROW. The Proposed Action would not involve the installation of significant stationary sources of permanent noise.

Adherence to Western SOPs related to noise would ensure temporary noise and vibration would be minimal and localized within the ROW and access road. As shown in Appendix A, key SOPs for reducing potential noise impacts include:

- All vehicles and equipment would be equipped with required exhaust-noise-abatement devices.
- For long-term O&M activities confined to a specific area, Western's Natural Resources Department would be contacted to evaluate local thresholds and all requirements of those agencies having jurisdiction over noise matters.

As described earlier in Section 3.6.1, sensitive receptors (primarily residential and recreation areas) and sensitive habitats are sporadically located near the Project ROW. These locations may be temporarily disturbed during an aerial inspection by a helicopter or minor maintenance activity associated with Category A activities. However, aerial inspections occur a minimum of two times per year and would disturb an area along the ROW for less than one minute. As Category A activities would not increase the number or frequency of aerial inspections, these Project activities would not change noise levels from existing conditions. Furthermore, other maintenance tasks identified under Category A would be completed within a short timeframe. As a result, there are no noise impacts expected from Category A activities.

Equipment noise resulting from Category B activities, typically ranging from 70 to 85 dB at a distance of 50 feet (FTA 2006), would be temporary and short-term. Such noise would attenuate approximately 4 dB per doubling of distance, accounting for both hard and soft surfaces adjacent to the work area (FTA 2006). Due to the nature of Category B activities, noise generated would generally be of a longer duration than activities described for Category A. Should sensitive noise receptors be located within 1,500 feet of the work area, the potential exists for these receptors to be temporarily impacted by the noise generated from these activities. Due to the short duration and minimal scope of Category B activities, noise or vibration generated by maintenance would not substantially affect sensitive receptors or conflict with applicable noise guidelines and performance standards.

Temporary noise impacts associated with Category C would be similar to those described for Category B, but possibly of a longer duration. While some activities included within Category C would result in both upgraded and new transmission lines, the Project does not include voltage greater than 230 kV. Therefore, no permanent corona noise impacts are expected from new or upgraded transmission facilities that would permanently increase ambient noise.

3.6.3 Environmental Consequences from the No Action Alternative

In the absence of the Proposed Action, Western would continue to conduct routine maintenance activities along the Project ROW, requiring negotiations documented in a categorical exclusion for each particular maintenance task. Ultimately, potential noise impacts from the No Action Alternative would be similar to those described above for the Proposed Action.

Vegetation management under the No Action Alternative would continue to be need-driven where vegetation control needs are identified through periodic line patrols. Therefore, vegetation management under the Proposed Action is more aggressive than the No Action Alternative, so potential noise and vibrations due to vegetation management activities may be less under the No Action Alternative.

3.7 Cultural Resources

Cultural resources can reflect the history, diversity, and culture of the region and people who created them. They are unique in that they are often the only remaining evidence of the activity that occurred historically. The Action area is rich in cultural resources that could be affected by O&M activities without adequate protections in place. This section considers and evaluates the potential impacts of the Proposed Action on cultural resources. Cultural Resources encompass archaeological, traditional (or ethnographic), and built environment resources, including but not necessarily limited to buildings, structures, objects, districts, and sites. Cultural resources include sites of important events, traditional cultural places and sacred sites, and places associated with an important person.

Three kinds of cultural resources, classified by their origins, are considered in this assessment: prehistoric, ethnographic, and historic. Prehistoric archaeological resources are associated with the human occupation and use of North America prior to prolonged European contact. In the Western United States, the prehistoric period began over 12,000 years ago and ranges between 1692 when the first Europeans settled in Arizona and 1769 when Europeans first settled in California. Ethnographic resources represent the heritage of a particular ethnic or cultural group, such as Native Americans or African, European, Latino, or Asian immigrants. Historic-period resources, both archaeological and architectural, are associated with Euro-American exploration and settlement of an area and the beginning of a written historical record.

Numerous laws, ordinances, regulations, and standards on federal, state, and local levels seek to protect and manage cultural resources. The key federal law regarding cultural resources is the National Historic Preservation Act of 1966 (NHPA), as amended [16 USC 470 et seq.] Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on such historic properties. Federal agencies must meet their Section 106 responsibilities as set forth in the regulations (36 CFR Part 800). These regulations require federal agencies to conduct the necessary studies or consultations to identify cultural resources that may be affected by an undertaking, evaluate cultural resources that may be affected to determine if they are eligible for the National Register of Historic Places (NRHP), and to assess whether such historic properties would be adversely affected. The federal agency is required to consult with the following parties: State Historic Preservation Office (SHPO)/Tribal Historic Preservation Office (THPO); Indian tribes (federally recognized); representatives of local governments; and additional consulting parties (e.g., the public, state recognized Indian tribes). These above-mentioned parties participate in the entire Section 106 process, including historic property identification, assessment of adverse effects, and resolving adverse effects.

Other federal legislation pertinent to cultural resources includes NEPA, the Archaeological Resources Protection Act (ARPA) as amended [16 USC 470aa-mm], the American Antiquities Act [16 USC 431-433], the Executive Order on Protection and Enhancement of the Cultural Environment [EO 11593], Executive Order 13007 Indian Sacred Sites, and the Native American Graves Protection and Repatriation Act (NAGPRA) (25 USC 300). The Proposed Action covers land managed by BLM, USFS, and NPS. Federal land managing agencies have specific guidance for managing cultural resources within their jurisdiction. State regulations relevant to cultural resources include CEQA, the Arizona Antiquities Act (AAA) (as amended), and the Arizona State Historic Preservation Act.

3.7.1 Affected Environment

The Project traverses lands within much of Arizona and a small part of southeastern California and southern Nevada. These areas can be broken into three areas that share similar environments and similar cultural resources: Colorado River, Northern Uplands, and Southern Lowlands. The key historic-era resource in the Project area is the Parker-Davis Transmission System itself, portions of which were constructed more than 50 years ago, which Western considers to be a historic district eligible for the NRHP. Additional information about this resource is available in *Western Area Power Administration, Desert Southwest Region's Facilities Historic Context Statement* (Western 2014). Other types of historic-era resources common in the region include resources associated with transportation (stage stops, roads, railroad lines); power generation and transmission (dams, transmission lines, substations); agriculture (irrigation canals, farmsteads, ranches); mining for gold, silver, and copper (adits, camps); and WWII era maneuvers (tank tracks, fox holes, ammunition, food cans, camps).

The entire region is particularly sensitive for prehistoric resources. The direct descendants of the prehistoric Native American peoples of the area still live locally, and these resources are considered an important part of their current religious and secular lives. The following discussion provides a very brief overview of the kinds of prehistoric resources common in each area. It is beyond the scope of the current discussion to summarize the decades of research has taken place in the Project area. Instead, references to key texts are provided.

3.7.1.1 Colorado River

For the purposes of this discussion the Colorado River portion of the Parker-Davis Transmission System extends along the Colorado River in Arizona, California, and Nevada from Henderson to Yuma. The river is one of the few permanent water sources in a very dry environment, and therefore this area has been

the focus of human activity and occupation for thousands of years. The prehistoric peoples of this area are known as the Patayan. They built permanent villages along the river and practiced floodwater farming of wild grasses, corn, beans, and squash. Geological formations along the river were excellent sources of stone for the manufacture of projectile points and ground stone. The dry environment of this region has preserved miles of ancient trails demonstrating this was an important trade route both from north to south on either side of the river and east to west. The ceramics, obsidian, shell beads and other materials found along these trails provide evidence of long distance trade with the Pacific Coast, central Arizona and New Mexico. The trails and other related features such as cairns, earth figures, cleared circles, rock rings, rock art sites, and artifact scatters appear to be elements of ceremonial centers, located along a route extending between sacred places, representing the cosmology and iconography of the local people (Castetter and Bell 1951; Ezzo and Altschul 1993; McGuire and Schiffer 1982; Schaefer and Laylander 2007; Stone 1991; Sutton et al. 2007). Historically, the native peoples of the area were part of two competing alliances; Mohave, Quechan, Chemehuevi, Yavapai, and Kamia were allied against the Halchidhoma, Maricopa, Pima, Papago, and Cocopah in the east, and the Cahuilla, Diegueño, and Serrano in the west. Today some of the tribal communities that have historic ties to the region include the Chemehuevi Reservation, Colorado River Indian Tribe, Fort Mojave Indian Tribe, Fort Yuma Quechan Indian Nation, Kaibab Band of Paiutes, Las Vegas Tribe of Paiute, Moapa Band of Paiute, Cocopah Indian Tribe, Morongo Band of Mission Indians, San Manuel Band of Mission Indians, Twenty-Nine Palms Band of Mission Indians, and Agua Caliente Band of Cahuilla Indians.

3.7.1.2 Arizona – Northern Uplands

The Northern Uplands portion of the Parker-Davis Transmission System extends from west to east from Davis Dam through Kingman and Prescott, Arizona. Several prehistoric groups were present in this area including the Patayan, the Hohokam (discussed below), the Anasazi, and the Sinagua. All occupants of the northern uplands were hunters and gatherers and later dry farmers. They occupied small villages with pit-houses and masonry walled structures. Sometimes hilltop forts and Hohokam style ball courts were constructed (Downum 2012). Historically, the native peoples living in this area included: Havasupai, Hopi, Mohave, Navajo, Yavapai, Walapai, and Western Apache. Some of the tribal communities that have historic ties to the region include: Havasupai Tribe, Hopi Tribe, Hualapai Tribe, McDowell Yavapai Nation, Navajo Nation, Pueblo of Zuni, San Carlos Apache Tribe, Tonto Apache Tribe, Yavapai-Apache Nation, Yavapai Prescott Indian Tribe, and White Mountain Apache Tribe.

3.7.1.3 Arizona – Southern Lowlands

The Southern Lowlands portion of the Parker-Davis Transmission System extends east from Parker Dam, through Phoenix and Tucson, Arizona. The human use of this very dry area has focused on the Salt, Gila, and Santa Cruz Rivers. The prehistoric peoples of the area are known as the Hohokam. The Hohokam are known for their intensive agriculture and extensive irrigation systems, ball courts, platform mounds, multi-story adobe structures, specialized ceramic production, and long-distance trade networks focused on ocean shell. Greater Phoenix has been built over the remains of prehistoric fields, irrigation systems and associated villages – much of which is still intact underneath modern structures (Bayman et al. 2013; Fish and Fish 2008). Historically the native peoples living in this area included Halchidhoma, Maricopa, Pima, Papago, Yavapai and Western Apache. Some of the tribal communities that have historic ties to the region include Ak Chin Indian Community, Gila River Indian Community, Fort McDowell Yavapai Nation, Pascua Yaqui Tribe, Salt River Pima-Maricopa Indian Community, San Carlos Apache Tribe, San Javier Tohono O'Odham, Tonto Apache Tribe, Tohono O'Odham Nation, and White Mountain Apache Tribe.

3.7.1.4 Cultural Resources within the Proposed Action Study Area

The Project cultural resources study area consists of those locations where the operation and maintenance of power system, including vegetation management, might adversely impact cultural resources. This includes Parker-Davis Transmission System ROW, access roads, and substations with an additional 100-foot buffer on either side. The majority of Western's Parker-Davis Transmission System ROWs have been inventoried for cultural resources (roughly 71 percent, or about 923 miles of ROW), although the bulk of these inventories took place more than 10 years ago (before 2004) and were completed well after construction of the transmission line and are therefore out of date. A review of available data in online repositories for all cultural resources information in Arizona and Nevada showed there are at least 811 known cultural resources in Arizona and 24 resources in Nevada within Parker-Davis System ROWs. However, this information is incomplete and must be supplemented in order for impacts to cultural resources to be avoided or mitigated.

3.7.2 Environmental Consequences from the Proposed Action

Conducting O&M activities and managing vegetation along the ROWs may adversely affect cultural resources. In general direct permanent impacts are associated with the damage or destruction of a resource as a result of ground disturbance. Indirect, usually temporary, impacts are associated with increased access to a resource that may result in vandalism changes to the setting of a resource as a result of the addition or removal of plants or structures in the vicinity. These impacts are currently avoided or minimized through Western's programmatic agreements (PAs) with the Arizona SHPO, the California SHPO, and the Nevada SHPO (see Appendix D). These agreements identify which activities require cultural resources studies and which activities are exempt. It should be noted, however, that the three PAs while similar, are not identical.

In general, most Category A activities (Inspection and Minor Maintenance) are exempt from further cultural resources work unless it involves maintenance and repair to historic buildings or structures (greater than 45 years old or older). Many Category B activities (Routine Maintenance) are exempt unless they involve ground disturbance outside of substations or in sediments that have not been already disturbed by previous Western construction activities. Finally, most Category C activities (Additions to Existing Infrastructure) require cultural resources studies. The PAs require that an annual report summarizing the actions taken under the PAs be submitted to the signatories, that an annual resource awareness and sensitivity training for maintenance personnel be conducted, and that a formal plan for monitoring and inadvertent discoveries be developed. In addition, the PAs ensure that all Western and contract cultural resources staff conducting studies associated with these projects must meet the Secretary of the Interior Qualification Standards and must have all of the appropriate federal and state permits. Finally, the exact procedures that are required and the thresholds for a determination of No Adverse Effect are identified. These procedures are consistent with Section 106 and include: identification of a formal Area of Potential Effect (APE), Class I inventory (historic research and inventory of previous research in and around the APE), Class II (sample) pedestrian survey for an APE previously surveyed, or Class III (100 percent) pedestrian survey for an APE that has never been surveyed, 30-day review of the resulting technical report for tribal and agency signatories, formal evaluations and determinations of eligibility for all resources in the APE, and if necessary the development of mitigation in consultation with tribal and agency signatories. The DSW Historic Context Statement (Western 2014) discussed above, supplements the PAs and provides more specific guidance when components of the Parker-Davis Transmission System itself must be evaluated and impacts must be mitigated.

Therefore, potential adverse effects to cultural resources associated with IVM program under the Proposed Action would be avoided and minimized by the PAs, BMPs, and SOPs.

3.7.3 Environmental Consequences from the No Action Alternative

Under the No Action Alternative, Western would continue to conduct routine maintenance activities along the Project ROW and at substations. Potential impacts to cultural resources from O&M activities would be the same as those described above for the Proposed Action.

Vegetation management under the No Action Alternative would continue to be need-driven where vegetation control needs are identified through periodic line patrols. Therefore, potential adverse effects to cultural resources associated with vegetation management would be greater under the Proposed Action, as these efforts would be more aggressive and would potentially involve more ground disturbance.

3.8 Wildlife

This section describes the general wildlife in the Action area and assesses the potential impacts to wildlife from the Proposed Action and No Action Alternative. The term "general wildlife" refers to all mammal, bird, invertebrate, reptile, and amphibian species that are not protected under state or federal laws or regulations. Section 3.9 presents information and analyses for special-status wildlife, and Section 3.10 presents information and analysis for vegetation. Data presented in this section were compiled from a literature review and recent field work conducted throughout the Project area. Appendix E includes the Biological Opinion for the Project.

3.8.1 Affected Environment

The majority of the Project is within Arizona. The components of the system that are in Nevada are limited to the southernmost portion of the state from the Henderson area at Lake Mead south along the El Dorado Mountains to the border with Arizona. The westernmost segments of the system parallel the Colorado River and extend into eastern California.

The Project's approximately 1,500 miles of transmission lines, substations, and associated infrastructure cross a variety of habitats. Common vegetation includes various types of desert scrub, pinyon-juniper woodland, and grassland. Rocky, dry mountainous areas with sparse vegetation are also common. Desert riparian scrub is found in ephemeral drainages, and riparian woodlands and wetlands are found along portions of the Colorado River, San Pedro River, Bill Williams River, and lakes and reservoirs along the system. Chaparral and montane woodlands occur at higher elevations. Extensive agricultural areas are located along the Colorado River floodplain in Arizona and California. Ruderal and developed lands are common in urbanized areas such as Henderson, NV; Laughlin, NV; Bullhead City, AZ; Lake Havasu City, AZ; Kingman, AZ; Blythe, CA; Prescott, AZ; the greater Phoenix metropolitan area; and Tucson, AZ.

Wide-ranging wildlife such as common raven (*Corvus corax*), mourning dove (*Zenaida macroura*), European starling (*Sturnus vulgaris*), great-tailed grackle (*Quiscalus mexicanus*), house finch (*Carpodacus mexicanus*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), rabbits, and ground squirrels occur across the habitats in the system, including open space and urbanized areas. Turkey vulture (*Cathartes aura*), red-tailed hawk (*Buteo jamaicensis*), Gambel's quail (*Callipepla gambelii*), and white-winged dove (*Zenaida asiatica*) are common birds system wide.

Common bats such as the Mexican free-tailed bat (*Tadarida brasiliensis*) are also widespread in habitats ranging from desert scrub through pinyon-juniper woodlands and pine-oak forests at higher elevations. Agriculture, riparian habitat, and open water also support high densities of flying insects and serve as feeding areas for a variety of bats.

Reptiles such as the banded gecko (*Coleonyx variegatus*), gopher snake (*Pituophis catenifer*), and rattlesnake (*Crotalus* spp.) occur in a variety of desert habitats. Others are restricted to particular habitats; for example, the sidewinder (*Crotalus cerastes*) is found on sandy soils in desert scrubs and dunes.

Natural lands in the system area support less common mammals such as porcupine (*Erethizon dorsatum*), elk (*Cervus canadensis*), javelina (*Tayassu* [*Pecari*] *tajacu*), desert kit fox (*Vulpes macrotis*), mountain lion (*Felis concolor*), black bear (*Ursus americanus*), and bighorn sheep (*Ovis canadensis*). Native habitats provide important movement and migration lands for large mammals and other wildlife. More than 100 butterfly species migrate through southern Arizona during the summer, including the two-tailed swallowtail (*Palilio [Pterourus] multicaudatus*). The Action area is within a broad bird migratory pathway linking Canada and Mexico, and numerous birding "hotspots" are found throughout the area.

Open water and riparian habitats, especially along the Colorado River, support a concentration of migratory birds. Native amphibians including Baja California treefrog (*Pseudacris hypochondriaca*) and red-spotted toad (*Anaxyrus punctatus*), and invasive species such as the Rio Grande leopard frog (*Lithobates berlandieri*) and American bullfrog (*L. catesbeianus*) also inhabit the lower Colorado River. Open waters throughout the Action area support many gamefish species, including various species of bass (*Micropterus* spp.), sunfish (*Lepomis* spp.), catfish (*Ictalurus* spp., *Pylodictis olivaris*, and *Ameiurus* spp.), and trout (*Oncorhynchus* spp., *Salvelinus* spp., and *Salmo trutta*).

3.8.2 Environmental Consequences from the Proposed Action

Conducting O&M activities and managing vegetation along the ROWs may affect wildlife directly or indirectly as both short-term and long-term impacts. Impacts may occur directly through wildlife mortality on access roads or in weed abatement areas; loss or degradation of occupied habitat; disruption of bird breeding and consequent loss of eggs, chicks, or fledglings; or wildlife injury or death from direct or indirect contact with herbicides. Indirect impacts may include habitat fragmentation or altered hydrology leading to vegetation changes (e.g., surface runoff from upland vegetation removal or access road maintenance).

The following sections describe the types of general impacts that are possible due to implementation of the Proposed Action. Western would minimize impacts as part of the Project (see Appendix A). In addition, environmental laws and regulations and applicable agency requirements would be included in the annual training program for Western O&M personnel. Western would coordinate with regulatory and land-management agencies (see Section 2.2.5) to ensure that specific actions have the lowest potential for adverse effect. Potential effects of herbicide use would be minimized through measures described in Section 2.2.2.

Impacts to general wildlife were assessed by evaluating the potential of the Proposed Action to violate applicable laws or regulations. The Federal Endangered Species Act protects certain wildlife species that have been formally listed as threatened or endangered, and the states of Arizona, Nevada, and California recognize additional species as protected at the state levels; these special-status species are discussed in Section 3.9.

The following federal laws were considered in the impact assessment for general wildlife:

- The National Environmental Policy Act (NEPA; 42 U.S.C. Section 4321 *et seq*.), which requires consideration of impacts of federal actions on a variety of resources;

- The Federal Migratory Bird Treaty Act (MBTA; 16 U.S.C. Sections 703-712), which protects all migratory birds against take; and
- The Bald and Golden Eagle Protection Act (BGEPA; 16 U.S.C. §§ 668-668d) prohibits take of bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*).

3.8.2.1 Vegetation Management Effects to Wildlife

Habitat Loss and Degradation

Vegetation management activities would include initial removal of nearly all vegetation (except grasses, forbs, and some small shrubs) within the ROWs, and subsequent maintenance of vegetation to safely and reliably operate the transmission facilities. "Danger trees" outside of the ROWs would also be removed as needed. As the ROWs are managed to achieve Western's desired condition and clearance standards, it is anticipated that low-growing vegetation (e.g., grasses and forbs, some small shrubs) would become the predominant condition within the ROWs and the numbers of trees, including danger trees within and adjacent to the ROWs would decline over time, thus reducing the need for additional vegetation removal. Although habitats would be converted in some areas from taller vegetation (chaparral, woodland, or forest) to shorter shrublands and grasslands, these altered habitats would still be available to general wildlife. Habitat conversion would be limited to the area of the ROWs, and native habitats would remain intact in the surrounding areas. In addition, habitat within the Project area has been previously disturbed and degraded to varying degrees through past management practices. Relative to the amount and type of habitats available, additional Project-related habitat loss or alteration is unlikely to be substantial, given Western's commitment to regulatory compliance.

Conversion of shrublands, forests, and woodlands to more open, low-growing vegetation would remove or degrade habitat for some wildlife, but improve it for other species. For example, tree-dwelling species such as tree squirrels and many forest birds would generally be replaced in the ROWs by ground-dwelling species such as ground squirrels and quail. Removal of "danger trees" would cause a localized decline in nesting habitat for woodpeckers and other birds that nest in old woodpecker cavities. Removal of these trees also may lead to a localized decline in downed logs, which provide habitat for many reptiles, amphibians, and small mammals. However, these effects would be limited to the ROWs and immediate vicinity and would only indirectly affect surrounding habitat (see habitat fragmentation, below).

The Proposed Action is designed to create permanent changes in habitat conditions through conversion of existing conditions to stable, low-growing vegetation. This strategy requires short-term disturbances to create long-term vegetation changes. It is intended to reduce the need for more frequent as-needed vegetation management activities and, therefore, long-term reductions in disturbance to local wildlife (see Section 3.8.2.2, below).

Western would minimize habitat loss and degradation impacts to wildlife, including avoiding vegetation removal and other activities around caves, mine tunnels, and rock outcrops to minimize disturbance to bats; and leaving work areas in a condition that would facilitate natural regrowth of desired, low-growing vegetation.

Habitat Fragmentation

While open areas and habitat edges are beneficial for some wildlife, linear openings also fragment habitats. Habitat fragmentation creates more habitat patches that are smaller than the original tract, and changes habitat attributes and characteristics (Garrison 2005). Depending on the size and shape of the original tract and the size and shape of the new opening, the new patches may become too small to support certain species. Fragmentation of primary habitat types can hinder regional wildlife movements,

potentially reducing interactions between individuals and changing long-term population dynamics. This effect may increase the chance of localized extinction for certain populations (Kupfer et al. 1997; Krauss et al. 2010). Effects of fragmentation on the movement or dispersal of organisms is crucial to community composition and diversity (Opdam 1991; Perault and Lomolino 2000; Franklin et al. 2002).

The proposed vegetation management work would alter local habitat along the linear ROWs, but is not expected to create barriers to wildlife movement. In addition, the existing access routes and previous transmission line work on the ROWs has caused similar alterations in the past. Therefore, the Proposed Action is not likely to substantially increase the impacts of habitat fragmentation that have already occurred.

Herbicide Use

Wildlife could be exposed to and adversely affected by herbicides through being directly sprayed; inhaling spray mist or vapors; drinking or living in herbicide-contaminated water; eating herbicide-contaminated seeds or vegetation; or consuming animals, such as mice or grasshoppers, that have themselves consumed contaminated vegetation. Some chemicals may bio accumulate as they move up the food chain, with effects being greater to top predators than to animals lower on the food chain.

The potential for wildlife to be affected depends on the toxicity of the herbicide to a given species, herbicide persistence in the environment, length of exposure, and the exposure amount. The amount of chemical to which an animal is exposed is largely a function of its feeding habits. Small herbivorous mammals, insects, and birds that feed on insects or vegetation (seeds, fruits, etc.) would be more susceptible to herbicide exposure.

The U.S. Environmental Protection Agency (USEPA) has standards for formula registration and application methods intended to reduce risks in the environment to an acceptable level. Appendix B lists herbicides approved for use on BLM lands; these or similar types of herbicides would be used under the Proposed Action. Herbicides approved for use by Western are low in toxicity to wildlife and most have a minimal potential to bioconcentrate. At least one herbicide, Diuron, approved for use by Western has a low to moderate potential to bioconcentrate in fish tissue when used in aquatic systems (BLM 2007).

The end effect of herbicide use with the Proposed Action is the ability to promote stable, low-growth vegetation, which results in a long-term reduction in required vegetation maintenance (Section 3.8.3, below). Because of the low toxicity of herbicides Western proposes for use, and Western's Project activities that dictate safe herbicide use, the effects to wildlife would be minimal.

Wildlife Disturbance, Injury, and Mortality

Vegetation removal and maintenance would primarily be manual (e.g., cutting and trimming) and mechanical (e.g., mowing and chipping). If vegetation management is done during the bird breeding season, disturbance to nesting birds could cause loss of eggs, chicks, or nestlings, which would violate the MBTA. Manual and mechanical vegetation removal can also injure or kill wildlife or destroy burrows or nests. Pets brought to project sites by workers can injure or kill wildlife. Feeding wildlife either deliberately or via trash left in work areas can result in illness or attract predatory species that prey on wildlife in the area. Western would require that crews receive training about sensitive biological resources, vehicles stay on designated roads to the extent feasible and maintain safe speeds, prohibit pets at project sites, prohibit deliberate or inadvertent wildlife feeding (e.g., by leaving trash in work areas), and require protection of nesting birds, thereby minimizing potential wildlife disturbance, injury, and mortality.

3.8.2.2 Operation and Maintenance Effects to Wildlife

Transmission System O&M activities are classified into three categories based on intensity. Typical activities in each category are listed in Tables 2-1, 2-2, and 2-3. General O&M impacts to wildlife are similar to those described for vegetation management, and include habitat loss, degradation, and fragmentation; and wildlife disturbance, injury, and mortality. Disturbance to nesting birds or direct loss of nests, eggs, and nestlings could violate the MBTA, even for birds that are not otherwise special-status species. In addition, disturbance to nesting bald or golden eagles or direct losses of nests, eggs, and nestlings could violate the BGEPA.

Category A – Inspection and Minor Maintenance

Category A activities are primarily inspection-type actions, with some minor repairs that would not cause substantial soil, habitat, or noise disturbance (see Section 2.2.1 for more detail). They could lead to short-term noise and minor disturbance impacts, but likely would not cause substantial impacts to wildlife. Western would require that crews receive training about sensitive biological resources; vehicles stay on designated roads to the extent feasible and maintain safe speeds; prohibit pets at project sites, prohibit deliberate or inadvertent wildlife feeding, and require protection of nesting birds.

Category B – Routine Maintenance

Category B activities such as pole replacements, installation of new culverts, and mechanical vegetation management have greater potential to adversely affect wildlife, because they may occur in areas where existing conditions do not include regular human disturbance, and because they may disturb more ground. Western's BMPs, SOPs, and PCMs include measures to avoid wildlife entrapment in excavations, minimization of nighttime activities to only emergency situations to avoid disturbing nocturnal wildlife, and implementation of measures to minimize bird mortality and injury on transmission facilities would ensure that no substantial impacts to general wildlife occur.

Western would also minimize off-road travel; implement standard erosion- and sediment-control measures; minimize noisy O&M activities near caves, mine tunnels, and rock outcrops; and isolate in-stream activities from the active flowing stream.

Category C – New Infrastructure

Category C activities such as construction of new access roads, reconductoring, tower replacement, and installation of underground or overhead facilities would likely impact wildlife. These actions are generally those maintenance activities that would disturb large areas and would use heavy equipment.

Equipment used may include light-duty helicopters, steel-tracked and rubber-tired bulldozers, graders, backhoes, and front-end loaders. As stated above, impacts to wildlife would be both direct and indirect and include mortality, disturbance, habitat modification, and displacement. Pre-construction surveys and monitoring would be implemented as part of the Proposed Action and would ensure potential impacts would be minor.

3.8.3 Environmental Consequences from the No Action Alternative

The No Action Alternative would result in impacts that are largely the same as those under the Proposed Action; however, the No Action Alternative could lead to higher levels of repeated disturbance, rather than the less frequent disturbance with the vegetation management approach of the Proposed Action. The No Action Alternative would result in less loss of forest habitats as a result of vegetation clearing and type-conversion.

Under the No Action Alternative, Western would implement the same SOPs and BMPs as the Proposed Action. Therefore, adverse effects to wildlife during maintenance activities would be similar to the Proposed Action.

3.9 Special-Status Species

This section presents a description of special-status species that could occur within the Action area, and an assessment of the potential impacts that could occur from implementation of the Proposed Action and No Action Alternative. Information presented in this section is based on data gathered through a literature review, and was provided by biologists from the Arizona Game and Fish Department (AZGFD) and USFWS. Appendix E includes the Biological Opinion for the Project. Species-specific surveys were not conducted for the purpose of the Proposed Action but results from previous species-specific surveys in the Action area were used whenever possible.

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

- federally or state-listed, proposed for listing, or candidates for listing as threatened or endangered, or
- identified by a land management agency (i.e., BLM, USFS, State of Arizona, etc.) as sensitive.

The statute regulating the federal listing of species is the Endangered Species Act (ESA) of 1973 (16 United States Code 1531 et seq.), as amended. The ESA provides for the conservation of federally listed plant and animal species and their habitats. The ESA directs federal agencies to conserve listed species and imposes an affirmative duty on these agencies to ensure that their actions are not likely to jeopardize the existence of a listed species or adversely modify their habitat.

3.9.1 Affected Environment

The list of special-status species considered in this document was generated through Environmental Conservation Online System (ECOS 2013), the Arizona Ecological Services Office website, the Ventura Fish and Wildlife Office website, the Southern Nevada Fish and Wildlife office, and through scoping letters. Table 3.9-1 lists those species reasonably expected to occur within the Action area (within 0.25 mile). Those species whose range does not overlap the Action area and/or that do not have suitable habitat within the Action area were excluded from further analysis. Detailed discussion of the wildlife habitats present in the Action area that may also be utilized by special-status species, are described above in Section 3.8 (Wildlife) and are discussed for each special-status species below.

Species that were present, or whose probability of occurrence was possible, are analyzed in more detail following Table 3.9-1.

The potential for occurrence of special-status species within the Action area was categorized using the following criteria:

- None – Project is well outside the known geographic and elevation range, or lacks suitable habitat necessary for the species, or both. Plants with highly restricted ranges are considered to have no potential to occur if the proposed Project is outside its known range, even if the required habitat characteristics are present on-site.

- Unlikely – Project may contain suitable habitat for this species but is outside its known geographic and/or elevation range.
- Possible – Project is within the geographic and elevation range and has suitable habitat for the species.
- Present – The species has been documented within the Action area by Western, a land management agency, or other entity.

Table 3.9-1. Special-Status Species Reasonably Expected to Occur in the Action area

Species Name	Status[1]	Occupied Counties within Action area	Habitat and Range	Probability of Occurrence in Action area
AMPHIBIANS				
Arizona Treefrog *Hyla wrightorum*	C	AZ: Cochise	Madrean oak woodlands, savannah, pine oak woodlands, and mixed conifer forests; from 5,000-8,500 ft. Known from less than 20 localities in the Huachuca Mountains and adjacent Canelo Hills.	None. The geographic range of this species is outside of the Action area.
California red-legged frog *Rana draytonii*	T CH	CA: San Bernardino	Occupies dense, shrubby or emergent riparian vegetation associated with deep still or slow-moving waters. Closely associated with deep pools with dense overhanging willows and intermixed cattails. Frogs aestivate in small mammal burrows and moist leaf litter. Species range and CH occurs along coastal areas of California.	None. Action area is outside the dispersal range from known metapopulations. No CH occurs in the Action area.
Chiricahua leopard frog *Lithobates chiricahuensis*	T CH	AZ: Cochise, Pima, Pinal, Yavapai	Streams, rivers, backwaters, ponds, or stock tanks in oak or pine woodlands, chaparral, or grasslands in montane regions of central and southeastern Arizona from 3,300 to 8,900 feet. The Chiricahua leopard frog is now often restricted to springs, livestock tanks, and streams in the upper portions of watersheds where non-native predators either have yet to invade or habitats are marginal. Suitable habitat could occur along the San Pedro River.	Possible. The Action area is within the typical range of the species and suitable habitat parameters may be present.
Relict leopard frog *Lithobates (Rana) onca*	C	AZ: Mohave NV: Clark	Occurs in permanent streams, springs, and spring-fed wetlands at elevations below 2,000 feet. Prefers relatively open shorelines where dense vegetation does not dominate. Breeds in pools or slow-moving side areas of streams, with or without emergent vegetation. A few scattered individuals observed at Willow Beach fish hatchery in Arizona. Small, isolated populations may also occur in Lake Mead NRA and in springs below Hoover Dam in Nevada.	Possible. The Action area is within the typical range of the species and suitable habitat parameters may be present.
Sonoran Tiger Salamander *Ambystoma mavortium stebbinsi*	E	AZ: Cochise	Stock tanks and impounded cienegas; rodent burrows, rotted logs, and other moist cover sites; from 4,000- 6,300 ft. Populations occur within the headwaters of the Santa Cruz and San Pedro	None. The Action area is outside of the geographic range of the species.

Table 3.9-1. Special-Status Species Reasonably Expected to Occur in the Action area

Species Name	Status[1]	Occupied Counties within Action area	Habitat and Range	Probability of Occurrence in Action area
			Rivers. These include San Rafael Valley and in the foothills of the east slope of the Patagonia and Huachuca Mountains and Fort Huachuca.	
BIRDS				
California condor *Gymnogyps californianus*	E/XN	AZ: Mohave, Yavapai	Occupies canyon, gorge, and cliff habitats. Condors in northern Arizona and southern Utah are part of a nonessential experimental population when they are within the designated 10(j) area.	Possible. The Action area is within the typical range of the species and suitable habitat parameters may be present.
California least tern *Sterna antillarum browni*	E	AZ: Maricopa, Mohave	Open, bare, or sparsely vegetated sand, sandbars, gravel pits, or exposed flats along shorelines of inland rivers, lakes, reservoirs, or drainage systems (USFWS 2009aa). Breeding documented in Maricopa County, while transient migrants have been recorded in Pima and Mohave counties, Arizona (USFWS 2009aa). Elevations below 2,000 feet (USFWS 2014c).	Unlikely. Although the species has been documented in Arizona the Action area does not contain the species typical habitat.
Masked bobwhite *Colinus virginianus ridgwayi*	E	AZ: Pima	Desert grasslands with diversity of dense native grasses, forbs, and brush from 1,000 to 4,000 feet. Species is closely associated with Prairie acacia (*Acacia angustissima*). Reintroduced populations on the Buenos Aires National Wildlife Refuge.	None. The geographic range of this species is outside of the Action area.
Mexican spotted owl *Strix occidentalis lucida*	T CH	AZ: Maricopa, Mohave, Yavapai	Found in canyons and dense multi-storied closed canopy forests with many snags and downed logs. Patchily distributed in forested subalpine and montane coniferous forest, throughout Arizona at elevations from 4,100 to 9,000 feet.	Unlikely. The vegetation, topography, and elevation suitable for the species do not occur in the Action area. No CH occurs in the Action area.
Northern aplomado falcon *Falco femoralis septentrionalis*	XN	AZ: Cochise	Grassland and savannah from 3,500 to 9,000 ft. Non-essential experimental population designated in Arizona and New Mexico in 2006 (71 FR 42298). Species formerly nested in southwestern U.S., now rarely occurs. Good habitat has low ground cover and mesquite or yucca for nesting platforms.	Unlikely. Although the Action area is within the historical range of the species and suitable habitat parameters may be present, the species has not been seen in Arizona since an observation in Cochise County in 1977 (AZGFD 2001a, ebird 2014).
Southwestern willow flycatcher *Empidonax traillii extimus*	E CH	AZ: La Paz, Maricopa, Mohave, Yavapai CA: Riverside, San Bernardino, Imperial NV: Clark	Found in the middle to lower San Pedro River, along the Little Colorado, Gila, Verde, and Salt Rivers (AZGFD 2002a, 2012b). Cottonwood-willow and tamarisk vegetation communities along rivers and streams.	Present. The Action area is within the typical range of the species and suitable habitat parameters may be present. This species was detected nesting along the Bill Williams River in the Action area in 2012 (McLeod and Pellegrini 2013).

Table 3.9-1. Special-Status Species Reasonably Expected to Occur in the Action area

Species Name	Status[1]	Occupied Counties within Action area	Habitat and Range	Probability of Occurrence in Action area
Sprague's pipit *Anthus spragueii*	C	AZ: La Paz, Maricopa, Yuma	Requires grassland habitat for breeding and wintering. Nests in short-grass plains, mixed grass prairie, alkaline meadows, and wet meadows where the vegetation is intermediate in height and provides dense cover. More common in native grasslands than areas with introduced grasses.	Possible. The Action area is within the typical range of the species and suitable habitat parameters may be present.
Yellow-billed cuckoo *Coccyzus americanus*	T PCH	AZ: La Paz, Maricopa, Mohave, Yavapai, Yuma NV: Clark	All counties of Arizona but generally found in southern and central portions (AZGFD 2011a, 2012b). Large blocks of riparian woodlands (cottonwood, willow, or tamarisk galleries) below 6,500 feet (FWS 2013a, 2013c).	Present. The Action area is within the typical range of the species and suitable habitat parameters may be present. This species was detected along the Bill Williams River in the Action area in 2012 (McNeil et al. 2013).
Yuma clapper rail *Rallus longirostris yumanensis*	E	AZ: La Paz, Maricopa, Mohave, Yuma CA: Riverside, San Bernardino, Imperial NV: Clark	This large marsh bird species is primarily found along the Colorado River from Yuma to Lake Mead. Also known from the Virgin, Bill Williams, and lower Salt, Verde, and Gila Rivers. Populations along the Gila River may be migratory (FWS 2010a). Elevations below 4,500 feet (FWS 2013g). Freshwater and brackish marshes with tall, dense emergent vegetation (FWS 2013g).	Possible. The Action area is within the typical range of the species and suitable habitat parameters may be present.
FISH				
Beautiful shiner *Cyprinella Formosa*	T	AZ: Cochise	Small to medium sized streams and ponds with sand, gravel, and rock bottoms; below 4,500 feet. Virtually extirpated in the United States, with the exception of a few populations on San Bernardino National Wildlife Refuge.	None. Species not known to occur in the Action area.
Bonytail chub *Gila elegans*	E CH	AZ: La Paz, Mohave, Yuma CA: San Bernardino NV: Clark	Warm, swift, turbid mainstem rivers of the Colorado River basin, reservoirs in lower basin. Population augmentation is occurring in Lake Mohave and Lake Havasu. Action area is within the Lower Basin Recovery Unit. Critical Habitat on Lower Colorado River from Hoover Dam to Davis Dam, and the Colorado River and its 100-year floodplain from the northern boundary of Havasu National Wildlife Refuge (NWR) to Parker Dam, including portions of the Bill Williams River (LCR MSCP 2004).	Possible. The Action area is within the typical range of the species and suitable habitat parameters may be present. Bonytail have been reintroduced below Parker Dam as part of the LCR MSCP (L. Fitzpatrick pers. comm.).
Colorado pikeminnow *Ptychocheilus lucius*	E CH	AZ: Maricopa, Yavapai CA: San Bernardino	Occupies pools, deep runs, and eddy habitats. High spring flows are necessary to maintain characteristics of suitable habitat. Extirpated from the Lower Colorado River Basin. Reintroduced populations exist in the	None. The geographic range of this species is outside of the Action area.

Table 3.9-1. Special-Status Species Reasonably Expected to Occur in the Action area

Species Name	Status[1]	Occupied Counties within Action area	Habitat and Range	Probability of Occurrence in Action area
			Gila River subbasin, where it persists in small numbers in the Verde River (USFWS 2002).	
Desert pupfish *Cyprinodon macularius*	E CH	AZ: Maricopa, Yavapai CA: Imperial, Riverside	Shallow springs, small streams, and marshes. Tolerates saline and warm water. Extirpated from Arizona. Along with the Gila topminnow, has been stocked at nearly fifty locations (AZGFD, 2014a). Nearest known reestablished site is located in Agua Fria National Monument in Arizona (Voeltz and Bettaso 2003). In California, found in the Salton Sea and tributaries (Black 1980).	None. The geographic range of this species is outside of the Action area. CH does not occur within the Action area.
Gila chub *Gila intermedia*	E CH	AZ: Pima, Pinal, Yavapai	Found in pools in smaller streams, springs, cienegas and artificial impoundments, such as man-made impoundments (USFWS 2005*b*). Nearest extant populations occur in tributaries of the Agua Fria and upper Verde rivers (AZGFD 2002b, 2012b).	None. The geographic range of this species is outside of the Action area.
Gila topminnow *Poeciliopsis occidentalis occidentalis*	E	AZ: La Paz, Maricopa, Yavapai	Occurs in small streams, springs, and cienegas below 4,500 feet elevation, primarily in shallow areas with aquatic vegetation and debris for cover. Remaining native populations primarily in Santa Cruz River; reintroduced populations occur throughout Arizona.	None. The geographic range of this species is outside of the Action area.
Gila trout *Oncorhynchus gilae*	T	AZ: Yavapai	In Arizona this fish is found in the Blue River (tributary to San Francisco River), lower Gila River (Frye Creek and Frye Mesa Reservoir), and Grapevine Creek (tributary to the Agua Fria River) (AZGFD 2002d). Introduced in Dude Creek, Arizona. Gila trout are found in moderate to high gradient perennial mountain streams above 5,400 feet elevation with stream temperatures below 77°F. (AZGFD 2014b).	None. The geographic range of this species is outside of the Action area.
Headwater chub *Gila nigra*	C	AZ: Yavapai	This fish is endemic to the Gila River basin of Arizona and New Mexico in the middle and headwater reaches of middle-sized streams (AZGFD 2010d; BISON-M 2011ac). Known from 13 streams within Yavapai, Gila, and Graham counties of Arizona (FWS 2006aa). Elevations range from 3,000 to 6,700 feet.	None. The geographic range of this species is outside of the Action area.
Humpback chub *Gila cypha*	E CH	AZ: Mohave	Restricted to deep, swift, canyon-bound regions of the mainstem and large tributaries of the Colorado River Basin. Extirpated below Hoover Dam (LCR MSCP 2004*b*).	Unlikely. No Parker-Davis transmission lines cross the Colorado River or Lake Mead above the Hoover Dam. The area is outside the geographic range of this species. No CH occurs in the Action area.

Table 3.9-1. Special-Status Species Reasonably Expected to Occur in the Action area

Species Name	Status[1]	Occupied Counties within Action area	Habitat and Range	Probability of Occurrence in Action area
Loach minnow *Tiaroga cobitis*	E CH	AZ: Yavapai	Benthic species of small to large perennial streams with swift shallow water over cobble and gravel. Recurrent flooding and natural hydrograph important. This small fish was once common throughout much of the Gila River system including portions of the Gila, Blue, Tularosa, White, Verde, Salt, San Pedro, and San Francisco rivers in Arizona and New Mexico, as well as some of their tributaries. Present populations are geographically isolated and inhabit the upstream ends of their historical range (FWS 2012ab) at elevations below 8,000 feet (FWS 2012ab).	None. The geographic range of this species is outside of the Action area.
Razorback sucker *Xyrauchen texanus*	E CH	AZ: La Paz, Maricopa, Mohave, Yavapai, Yuma CA: Imperial, Riverside, San Bernardino NV: Clark	This large fish is found in Lake Mohave, Green River Basin and the Upper Colorado River Basin (AZGFD 2002f) at elevations below 6,000 feet (FWS 2009ab). Historically razorback suckers inhabited the Colorado, Gila, Salt, Verde, and San Pedro Rivers. Presently natural adult populations exist only in Lake Mohave, Lake Mead, and Lake Havasu.	Possible. The Action area is within the typical range of the species and suitable habitat parameters may be present.CH occurs in the Action area. Razorback sucker have been reintroduced in the Project area (L. Fitzpatrick pers. comm.).
Roundtail chub *Gila robusta*	C	AZ: La Paz, Maricopa, Mohave	In Arizona, this fish occurs in tributaries of the Little Colorado, Bill Williams, Salt, Verde, Gila (Eagle Creek), and San Pedro (Aravaipa Creek) rivers (AZGFD 2002c). Cool to warm waters of rivers and streams at elevations from 1,210 to 7,220 feet. Cool to warm waters of rivers and streams, often occupy the deepest pools and eddies of large streams. (FWS 2010c).	Possible. The Action area is within the typical range of the species and suitable habitat parameters may be present.
Sonora chub *Gila ditaenia*	T	AZ: Pima	The Sonora chub is native to southeastern Arizona and northern Mexico (USFWS 1992). In Arizona, the species is only known to exist in California Gulch and Sycamore Canyon in Santa Cruz County (USFWS 2013). Critical Habitat has been designated in Santa Cruz county, AZ, approximately 50 miles south of the Tucson-Apache transmission line.	None. The Action area is outside of the geographic range of the species.
Spikedace *Meda fulgida*	E CH	AZ: Yavapai	Moderate to large perennial streams with gravel cobble substrates and moderate to swift velocities over sand and gravel substrates. Recurrent flooding and natural hydrograph important.	None. The Action area is outside of the geographic range of the species.

Table 3.9-1. Special-Status Species Reasonably Expected to Occur in the Action area

Species Name	Status[1]	Occupied Counties within Action area	Habitat and Range	Probability of Occurrence in Action area
Virgin River Chub *Gila seminude (=robusta)*	E CH	AZ: Mohave	The Virgin chub is an extremely rare minnow, occurring only in the Virgin River system of southwestern Utah, southern Nevada, and northwestern Arizona (USFWS 2014b).	None. The Action area is outside of the geographic range of the species.
Woundfin *Plagopterus argentissimus*	E CH	AZ: Maricopa, Mohave NV: Clark	Runs and quiet waters adjacent to riffles over sand and gravel substrates. Native populations and CH only in Virgin River. Reintroduced in portions of the Verde, Gila, San Francisco River, Hassayampa River, and Tonto Creek.	None. The Action area is outside of the geographic range of the species. No CH occurs in the Action area.
Yaqui catfish *Ictalurus pricei*	T CH	AZ: Cochise	Moderate to large streams with slow current over sand and rock bottoms; from 4,000 to 5,000 ft (FWS 2010d). Critical habitat includes all aquatic habitats on San Bernardino National Wildlife Refuge (49 FR 34490).	None. The Action area is outside of the geographic range of the species.
Yaqui chub *Gila purpurea*	E CH	AZ: Cochise	Deep pools of small streams near undercut banks and debris; pools associated with springheads, and artificial ponds; from 4,000 to 6,000 ft. Introduced populations exist in Leslie Canyon, in San Bernardino National Wildlife Refuge, and ponds and mainstem of West Turkey Creek in the Chiricahua Mountains. Critical habitat includes all aquatic habitats on San Bernardino National Wildlife Refuge (49 FR 34490).	None. The Action area is outside of the geographic range of the species.
INVERTEBRATES				
Huachuca springsnail *Pyrgulopsis thompsoni*	C	AZ: Cochise	Aquatic areas, small springs with vegetation and slow to moderate flow; from 4,500 to 7,200 ft. Individuals found on firm substances (roots, wood, and rocks) (FWS 2013a). Populations found on Fort Huachuca.	None. The geographic range of this species is outside of the Action area.
Page springsnail *Pyrgulopsis morrisoni*	C	AZ: Yavapai	The Page springsnail occurs in springs, seeps, marshes, spring pools, outflows, and diverse lotic (flowing) waters, at approximately 3,510 feet elevation. All extant populations are known to exist only within the Oak Creek Springs complex and in springs along Spring Creek (USFWS 2013d).	None. The Action area is outside of the geographic range of the species.
San Bernardino springsnail *Pyrgulopsis bernardina*	T CH	AZ: Cochise	Springs with firm substrate composed of cobble, gravel, woody debris, and aquatic vegetation. This small snail is found in small seeps near San Bernardino Ranch in Arizona (AZGFD 2006a, 2007). Elevation of 3,806 feet (FWS 2013a).	None. The Action area is outside of the geographic range of the species.

Table 3.9-1. Special-Status Species Reasonably Expected to Occur in the Action area

Species Name	Status[1]	Occupied Counties within Action area	Habitat and Range	Probability of Occurrence in Action area
MAMMALS				
Black-Footed ferret *Mustela nigripes*	XN	AZ: Yavapai	No known natural populations exist in Arizona (BISON-M 2011ad). Two re-introduction sites in Arizona (Aubrey Valley and Espee Ranch) (FWS 2012ae). Associated with prairie dogs, there only known food source (BISON-M 2011ad).	None. This species is extremely rare, there are no known prairie dog colonies within the proposed Project, and the Project ROW is distant from re-introduction sites.
Desert Bighorn Sheep *Ovis canadensis nelsoni*	AZS	AZ: Throughout state CA: Imperial, Riverside, San Bernardino NV: Clark	Open shrublands and conifer forest, remote mountains; scattered populations in desert mountains and surrounding ranges.	Present. Species documented in the Action area (e.g., Aspen 2012).
Hualapai Mexican vole *Microtus mexicanus hualpaiensis*	E	AZ: Mohave	Occurs in grass or grass-sedge habitats along permanent or semi-permanent waters with some riparian or ponderosa pine overstory (USFWS 1991). Found at elevations between approximately 3,000 and 8,400 feet (AZGFD 2003*b*).Confirmed in the Hualapai Mountains; possible in Prospect Valley and the Music Mountains. Until further studies are complete, the range of the subspecies is considered by the USFWS to be restricted to the Hualapai Mountains (USFWS 2008c).	Unlikely. Within the Action area, the Griffith-Peacock corridor occurs on the northern edge of the Hualapai Mountains at approximately 1,000 feet elevation. The analysis area is not within the species typical range.
Jaguar *Panthera onca*	E CH	AZ: Cochise, Pima	The largest native cat to the Western Hemisphere, it historically is known from as far north as central Arizona, but currently known from Santa Rita, Baboquivari Mountains and the Peloncillo Mountains of Arizona. Elevations range from 1,600 to 9,000 feet (USFWS 2014c).	Unlikely. Although suitable habitat parameters may be present, the analysis area is not within the species' typical range. Critical habitat exists 2.4 miles south of the Tucson-Apache line, east of Nogales, AZ.
Lesser long-nosed bat *Leptonycteris curasoae yerbabuenae*	E	AZ: Maricopa, Yuma	Desert scrub habitat with agave and columnar cacti present as food plants. Day roosts in caves and abandoned tunnels. Forages at night on nectar, pollen, and fruit of paniculate agaves and columnar cacti.	Possible. The Action area is within the typical range of the species and suitable habitat parameters may be present.
Ocelot *Leopardus pardalis*	E	AZ: Cochise, Maricopa, Pima, Pinal	Humid tropical and subtropical forests, savannahs, and semiarid thornscrub below 8,000 feet. May persist in partly-cleared forests, second-growth woodland, and abandoned cultivated areas reverted to brush. Universal component is presence of dense cover.	Unlikely. The geographic range and habitat requirements of this species do not occur in the Action area. There are no forest or dense woodland present except at major drainage crossings.

Table 3.9-1. Special-Status Species Reasonably Expected to Occur in the Action area

Species Name	Status[1]	Occupied Counties within Action area	Habitat and Range	Probability of Occurrence in Action area
Sonoran pronghorn *Antilocapra americana sonoriensis*	E, XN	AZ: Maricopa, Pima, Yuma	Broad intermountain alluvial valleys with creosotebush-bursage and palo verde-mixed cacti associations. Reintroduced (non-essential experimental) herd is located at Kofa NWR.	Unlikely. The reintroduced pronghorn herd at Kofa NWR currently occupies the King Valley. The King Valley is separated from the Parker-Gila corridor by the Castle Dome Mountains. Endangered population is not present in the Action area.
PLANTS				
Acuna cactus *Echinomastus erectocentrus var. acunensis*	E PCH	AZ: Maricopa	In Maricopa County, known from the Sand Tank Mountains on BLM lands within the Sonoran Desert National Monument, south of Interstate 8, in an area less than 62 acres in size (USFWS 2013).	None. Action area is not within the range of this species. No PCH occurs in the Action area.
Arizona cliffrose *Purshia subintegra*	E	AZ: Maricopa, Mohave, Yavapai	Occurs only on limestone derived from Tertiary lakebed deposits in chaparral and associated ecotonal habitat.	None. Although chaparral habitat occurs near the Mead-Perkins corridor in the vicinity of the Mohave-Yavapai county line, no suitable habitat or known populations occur in the Action area.
Arizona Hedgehog cactus *Echinocereus triglochidiatus var. arizonicus*	E	AZ: Maricopa, Pinal	Usually among boulders in oak woodlands and chaparral between 3,450 and 4,600 feet elevation; Central Arizona, from Pinal and Gila counties. This includes the Pinal, Dripping Springs, Superstition and Mescal mountains. It also can be found in the highlands between Globe and Superior (AZGFD 2003e).	None. The geographic range of this species is outside of the Action area.
Canelo Hills ladies'-tresses *Spiranthes delitescens*	E	AZ: Cochise, Pima	Found in the upper San Pedro watershed on finely grained, highly organic, saturated soils of cienegas at 5,000 ft.	None. The geographic range of this species is outside of the Action area.
Cochise Pincushion cactus *Coryphantha robbinsiorum*	T	AZ: Cochise	Grows on gray limestone hills in semidesert grassland with small shrubs, agave, other cacti, and grama grass, in southeastern Cochise County and adjacent Sonora, Mexico; at 4,200 ft.	None. The geographic range of this species is outside of the Action area.
Fickeisen plains cactus *Pediocactus peeblesianus var. fickeiseniae*	E PCH	AZ: Mohave	Cold-adapted cactus which retreats into the soil during cold and dry seasons. Endemic to Kaibab limestone soils on the Colorado Plateau. 47,123 acres of critical habitat are proposed in northern Coconino and Mohave counties (USFWS 2013a).	None. Suitable soil types do not occur within the Action area. No PCH occurs in the Action area.

Table 3.9-1. Special-Status Species Reasonably Expected to Occur in the Action area

Species Name	Status[1]	Occupied Counties within Action area	Habitat and Range	Probability of Occurrence in Action area
Gierisch mallow *Sphaeralcea gierischii*	E	AZ: Mohave	Gierisch mallow is a perennial, flowering member of the mallow family. S. gierischii is only found on gypsum outcrops associated with the Harrisburg Member of the Kaibab Formation in northern Mohave County, Arizona.	None. The geographic range of this species is outside of the Action area.
Holmgren milk-vetch *Astragalus holmgreniorum*	E	AZ: Mohave	Holmgren milk-vetch occurs at elevations between 2,480 and 2,999 feet in areas that drain to the Santa Clara and Virgin Rivers.	None. The geographic range of this species is outside of the Action area.
Huachuca water-umbel *Lilaeopsis schaffneriana var. recurva*	E	AZ: Cochise, Pima	Cienegas, perennial low-gradient springs, and other wetlands from 3,500 to 6,500 feet. Within these habitats, the species occurs on saturated soil or in standing water from 2 to 10 inches deep in shaded or unshaded sites.	Unlikely. Although the Action area is within the former range of this species, changes in hydrology have eliminated suitable habitat within the Action area.
Jones Cycladenia *Cycladenia humilis var. jonesii*	T	AZ: Mohave	Long-lived herbaceous perennial in the Dogbane family (Apocynaceae) which grows 4 to 6 inches (10 to 15 centimeters) tall. It occurs between 4,390 to 6,000 feet elevation in plant communities of mixed desertscrub, juniper, or wild buckwheat-Mormon tea (USFWS 2008). Only known Arizona population is located near Fredonia, Arizona.	None. The geographic range of this species is outside of the Action area.
Kearney's blue star *Amsonia kearneyana*	E	AZ: Pima	West-facing drainages in the Baboquivari Mountains from 3,600 to 3,800 feet.	None. The geographic range of this species is outside of the Action area.
Las Vegas buckwheat *Eriogonum corymbosum var. nilesii*	C	NV: Clark	Found on sandy, gypsum-rich soils, typically with exposed soils having a cryptogamic soil crust. Historically known from Las Vegas Valley, Gold Butte, and Muddy Mountains in Clark County.	None. The geographic range of this species is outside of the Action area.
Nichol's Turk's Head cactus *Echinocactus horizonthalonius var. nicholii*	E	AZ: Maricopa, Pima, Pinal	Sonoran desertscrub on dissected alluvial fans at the foot of limestone mountains and on inclined terraces and saddles on limestone mountainsides. Geographic range for this species is restricted to the Vekol and Waterman Mountains; from 2,400 to 4,100 feet.	None. The Action area is outside of the geographic range of the species.
Pima Pineapple cactus *Coryphantha scheeri var. robustispina*	E	AZ: Pima	Sonoran desertscrub or semi-desert grassland communities from 2,300 to 5,000 feet; occurs most commonly in open areas on flat ridge tops or areas with less than 10-15% slope. The range extends east from the Baboquivari Mountains to the western foothills of the Santa Rita Mountains. The northernmost boundary is near Tucson.	Present. Species documented in the Action area (AZGFD 2001d, LSD 2012).

Table 3.9-1. Special-Status Species Reasonably Expected to Occur in the Action area

Species Name	Status[1]	Occupied Counties within Action area	Habitat and Range	Probability of Occurrence in Action area
Peirson's milk-vetch *Astragalus magdalenae var. peirsonii*	T CH	CA: Imperial	Occurs on slopes and hollows of windblown dunes in Sonoran Desertscrub habitat. Found at Algodones Dunes in Imperial County (USFWS 1998a).	None. The Action area is outside of the geographic range of the species.
Siler Pincushion cactus *Pediocactus sileri*	T	AZ: Mohave	The cacti are found growing on elevations between 2,800 and 5,400 feet, in the Great Basin Desert Shrub community. The geographic range extends from southeast of Fredonia, extreme northwestern Coconino County, Arizona, west for about 70 air miles in north-central Mohave County, Arizona (USFWS 2009).	None. The Action area is outside of the geographic range of the species.
Wright's Marsh thistle *Cirsium wrightii*	C	AZ: Cochise	Wet, alkaline soils of seeps, marshy areas, and streams; 3,450 to 8,500 feet elevation. Species has been extirpated from Arizona (USFWS 2010).	None. The Action area is outside of the geographic range of the species.
REPTILES				
Banded Gila Monster *Heloderma suspectum cinctum*	BLMS NVP	AZ: Western and southern portions of state CA: Imperial, Riverside, San Bernardino NV: Clark	Found mainly below 5,000 feet, with habitat requirements of desert wash, spring and riparian habitats with complex rocky landscapes of upland desert scrub. Occasionally found in gentler terrain and alluvial fans. Species is secretive and difficult to locate, spending greater than 95% of their lives underground (NDOW 2012).	Possible. The Action area is within the typical range of the species and suitable habitat parameters may be present.
Flat-tailed horned lizard *Phrynosoma mcallii*	CA	AZ: Yuma	Occupies sandy areas in creosotebush-white bursage habitats.	Possible. The Action area is within the typical range of the species and suitable habitat parameters may be present.
Mojave Desert tortoise *Gopherus agassizii*	T CH	AZ: Mohave CA: Imperial, Riverside, San Bernardino NV: Clark	Occurs in Mohave desertscrub north and west of the Colorado River. Habitat ranges from flatlands to rocky slopes and bajadas.	Present. Species documented in the Action area (Aspen 2012).
Narrow-headed gartersnake *Thamnophis rufipunctatus*	PT PCH	AZ: Yavapai	Found along and below the Mogollon Rim in Arizona. Inhabits clear, rocky streams using predominantly pool and riffle habitat that includes cobbles and boulders.	Unlikely. The geographic range and habitat requirements of this species do not occur in the Action area. No CH occurs in the Action area.
New Mexican Ridge-Nosed rattlesnake *Crotalus willardi obscurus*	T CH	AZ: Cochise	Primarily canyon bottoms in pine-oak communities; from 5,000-6,600 ft. Occurs in extreme southeastern Arizona, in the Huachuca, Santa Rita, Patagonia, and Whetstone mountains and the Canelo Hills (Thirkhill and Starrett 1992; McCrystal et al. 1996).	Unlikely. The geographic range and habitat requirements of this species do not occur in the Action area. No CH occurs in the Action area.

Table 3.9-1. Special-Status Species Reasonably Expected to Occur in the Action area

Species Name	Status[1]	Occupied Counties within Action area	Habitat and Range	Probability of Occurrence in Action area
Northern Mexican gartersnake *Thamnophis eques megalops*	T PCH	AZ: La Paz, Mohave, Yavapai	Cienegas, stock tanks, large-river riparian woodlands and forests, streamside gallery forests. Core population areas in Arizona include mid/upper Verde River drainage, mid/lower Tonto Creek, and the San Rafael Valley and surrounding area.	Possible. The Action area is within the typical range of the species and suitable habitat parameters may be present.
Sonoran desert tortoise *Gopherus morafkai*	C	AZ: La Paz, Maricopa, Mohave, Yavapai, Yuma	Primarily rocky (often steep) hillsides and bajadas of Mohave and Sonoran Desertscrub but may encroach into desert grassland, juniper woodland, interior chaparral habitats, and even pine communities. Washes and valley bottoms may be used in dispersal.	Present. Species documented in the Action area (AZGFD 2010c).
Sonoyta Mud turtle *Kinosternon sonoriense longifemorale*	C	AZ: Pima	Ponds and streams near 1,100 feet. The Sonoyta mud turtle occurs only in pond and stream habitat at Quitobaquito Springs in Organ Pipe Cactus National Monument, Arizona and in the nearby Rio Sonoyta, Sonora, Mexico.	None. The Action area is outside of the geographic range of the species.

Notes[1]: AZS = Arizona Sensitive Species; C = candidate; CA = Conservation Agreement; CH = designated critical habitat occurs in Action area; E = endangered; BLMS= BLM Sensitive Species; NVP = Nevada Protected Species; PCH = proposed critical habitat occurs in Action area; PT = Proposed Threatened; T = threatened; XN = experimental, non-essential

3.9.1.1 Amphibians

There are two special-status amphibian species with known occurrences and/or designated critical habitat within the Action area. These locations are limited to the extreme southeast and northwest portions of the Parker-Davis Transmission System.

Chiricahua Leopard Frog

Life History: The Chiricahua leopard frog was listed as threatened in 2002 with critical habitat designated in 2012 (USFWS 2012b). The frog occurs in central and southeastern Arizona, southwestern New Mexico, and south into Mexico. Populations are also found on the Mogollon Rim in Arizona and into New Mexico in mountainous areas as well in in the southern portions of Arizona in the various mountain ranges south into Sierra Madre, Mexico (AZGFD 2011b; USFWS 2012b). Historically, it occurred in a variety of wetland habitats, but is now restricted primarily to stock tanks and other man-made waters, as well as headwater streams, ciénegas, and springs that lack introduced predators (USFWS 2014d). The most serious threats to this species include predation by nonnative organisms (i.e., bullfrogs, fish, etc.), fungal skin disease, and habitat degradation and destruction.

Chiricahua leopard frogs are aquatic habitat generalists that use areas with water including cienegas, streams, rivers, springs, and livestock tanks where non-native predators are not present or are present at low levels. The adults of the species feed primarily on arthropods and other invertebrates and may eat some vertebrate species including small fish; the larvae feed on algae, plant tissue, and organic matter (AZGFD 2011b; FWS 2012b).

Habitat Evaluation and Suitability: The Action area is within the known geographic range and elevation range for the Chiricahua leopard frog. Suitable habitat for the species could be present within the Action area where perennial aquatic features are present. No designated critical habitat for the species is present in the study area. The portions of the Action area that are most likely to support habitat would be at the San Pedro River and Cienega Creek crossings; however, the lack of a permanent or intermittent water source at these locations makes it unlikely that the species would inhabit the area. The perennial portion of the San Pedro River, over 6 miles upstream (south), and Las Cienegas National Conservation Area, 5 miles upstream (south) from the Action area, could support this species.

Relict Leopard Frog

Life History: The relict leopard frog is a relatively small leopard frog closely related to the lowland leopard frog (*Lithobates yavapaiensis*). The relict leopard frog was considered extinct in the 1950s, but several populations were rediscovered in 1991 (USFWS 2002b). Adult relict leopard frogs inhabit permanent streams, springs, and spring-fed wetlands below about 1,900 feet. Some individuals may use open shorelines that have areas free of dense vegetation. Relict leopard frogs breed in pools or slow-moving areas of streams. The species is currently limited to springs and streams free of non-native predators (AZGFD 2003d; Brennan and Holycross 2006).

Historically, relict leopard frogs like streams, springs, and wetlands associated with the mainstem Lower Colorado, Virgin, and Muddy Virgin rivers (Relict Leopard Frog Conservation Team 2005; Brennan and Holycross 2006). Several populations have been discovered at springs, including six on lands managed by the National Park Service at Lake Mead NRA in Nevada and one on private lands in Arizona near Littlefield, Mohave County. The Littlefield population and one of the Lake Mead NRA populations have since become extirpated. As of 2005, the relict leopard frog was known to occur only within two general areas near the Overton Arm of Lake Mead, Nevada, and in Black Canyon, Nevada, below Hoover Dam. All known extant populations occur within perennial spring habitats (Relict Leopard Frog Conservation Team 2005). Further, no known populations currently exist within the Action area (Michael Boyles, NPS, pers. comm.).

Habitat Evaluation and Suitability: Within the Action area, relict leopard frogs are possible, most likely during dispersal events, generally in spring and wetland habitats from the Black Canyon area of Lake Mohave northward. However, within this area, suitable habitat is limited and the steel lattice towers are located above the high water mark of the reservoir. No springs occur within the Action area where it overlaps the range of the relict leopard frog.

3.9.1.2 Birds

There are five special-status bird species with known occurrences and/or designated critical habitat within the Action area.

California Condor

Life History: The California condor occupies rocky canyons, gorges, and mountains, relying on high perches for roosting and for the creation of updrafts to provide lift in flight. Historically, the range of the species included most of western North America. Condors scavenge opportunistically on carcasses of large mammals such as deer, elk, and bighorn sheep. Condors typically forage within about 50 miles of their nest sites, but may travel up to 150 miles in a day.

The California condor was listed as endangered in 1967, in a law predating the ESA. Critical habitat has been designated for the species in California only. The primary threats to the species include lead poisoning and shooting. In late 1996, six condors were released into the wild on the Vermillion Cliffs at

the southwestern corner of the Paria Plateau of northern Arizona, approximately 165 miles northeast of Kingman, Arizona. This population is considered an experimental nonessential population. Condors within this 10(j) experimental area are treated as proposed species under the ESA. This population area is bounded by Interstate 40 on the south, U.S. Highway 191 on the east, Interstate 70 on the north, and Interstate 15 and U.S. Highway 93 on the west. By the end of 2011, approximately 73 California condors were present within, and in the vicinity of, the Arizona/Utah population area (Southwest Condor Review Team 2012). Suitable canyon and gorge habitat for California condors is limited to northern portions of the Action area, primarily along the Colorado River. Portions of the Davis-Prescott transmission corridor are located within the 10(j) population area for condors.

Habitat Evaluation and Suitability: No known condor records exist within the Action area. The nearest reported condor sighting is from northwest of Sedona, Coconino County, Arizona roughly 30 miles northeast of the Proposed Project (eBird 2014). Additional sightings from Charleston Peak west of Las Vegas, Clark County, Nevada, and from the Grand Canyon West Skywalk, Coconino County, Arizona are roughly 50 miles from the Action area (eBird 2014).

Southwestern Willow Flycatcher

Life History: The willow flycatcher is a summer resident throughout much of North America and an obligate riparian species, breeding in mesic areas with standing water or saturated soils. The southwestern willow flycatcher (SWFL) breeds from west Texas to Southern California and from southern Nevada, Utah, and Colorado to northern Mexico. The SWFL is an obligate riparian species, breeding in mesic areas with standing water or saturated soils.

In the desert southwest, SWFLs begin arriving on territories in late April to early May. Flycatcher territories occur within two disjunct habitat types in Arizona: tamarisk and mixed riparian habitats below 4,000 feet; and willow thickets in broad, flat drainages above 7,000 feet in elevation. Southwestern willow flycatchers are typically found along rivers with wide, dense riparian habitat consisting of a multi-layer structure and trees of varying size and age classes.

The SWFL was listed as federally endangered in 1995. In 2005, the USFWS designated critical habitat for the SWFL throughout the Southwest. Designated critical habitat includes riparian areas and streams within the 100-year floodplain, totaling 208,973 acres.

Surveys for the SWFL were conducted statewide within Arizona, including the Lower Colorado River (LCR), by the AZGFD, U.S. Geological Survey, and other state and federal agencies from roughly 1993 through 2006 (see Ellis et al. 2008 and others). In addition, Western conducted surveys for the SWFL in the LCR floodplain near the Black Point Mesa Communications Site in Imperial County, California, in 2013. Two SWFL nests were found in the Action area, between the Bill Williams River and the Parker–Planet Tap corridor (McLeod and Pellegrini 2013).

Habitat Evaluation and Suitability: Suitable habitat for the SWFL in the Action area is limited to patches of riparian woodland and scrubland habitats associated with the LCR, the Bill Williams River, the San Pedro River, Cienega Creek, and the Gila River. Along the Bill Williams River the habitat is occupied and nesting is likely. The patches of suitable habitat at the remaining crossings, patch size and structure does not currently contain elements of suitable breeding habitat for the SWFL. Numerous desert washes containing riparian scrubland habitat dissect transmission line corridors in the Action area; however, these are typically dry and do not contain standing water or saturated soils. However, the SWFL may use these patches for migration or during post-breeding dispersal.

Designated critical habitat for the SWFL occurs at Bill Williams NWR. Western's Parker Dam-Planet Tap 69-kV transmission line crosses or is adjacent to suitable riparian woodland habitat for a total of about

one linear mile within the NWR, including crossing 0.3 mile of designated SWFL critical habitat. At the Parker Dam-Planet Tap crossing, no structures are located within the riparian woodland habitat; the transmission line spans the Bill Williams River and the associated riparian woodlands.

Sprague's Pipit

Life History: Sprague's pipit breeds in Alberta, Saskatchewan, and Manitoba, Canada to Montana, North Dakota, South Dakota, and Minnesota. The species winters in southeastern Arizona, southern New Mexico, northern Mexico, and further east into the southeast United States. In Arizona, the species winters along the lower Colorado River, in grass and alfalfa near Phoenix and Sierra Vista, and in San Rafael, Sonoita, and Sulphur Springs grasslands (USFWS 2010a). The Sprague's pipit was listed as a candidate species on September 15, 2010 (USFWS 2010b).

Native grassland is used extensively by Sprague's pipits throughout their life cycle, particularly during the breeding season. Sprague's pipits are limited to large blocks (72 acres) of native grassland; grasslands are also preferred habitat of wintering Sprague's pipits, although they may use non-native grasslands to a greater extent. Little, if any, data are available for habitat preferences during migration (Jones 2010).

Habitat Evaluation and Suitability: Although Sprague's pipit does not breed in the Action area, birds may use larger tracts of agricultural lands and semidesert grasslands during the migration and winter seasons. According to eBird (2014), Sprague's pipit have been reported outside Phoenix, in the Santa Cruz flats area southeast of Casa Grande, southeast of Tucson, and along the Colorado River from Yuma to Bullhead City, Arizona. Native grasslands within the Action area are limited to small pockets of semidesert grassland, primarily along the Tucson-Apache transmission line.

Yellow-billed Cuckoo

Life History: The yellow-billed cuckoo (YBCU) was listed as federally threatened in 2014. Primary threats to the species continue to be habitat loss from clearing and removal or alteration and fragmentation of riparian forest for agriculture, urban development, flood control, invasion of exotic species, and water management practices (USFWS 2013f).

Historically, western YBCUs were found from southern British Columbia through the states of Washington, Oregon, California, and eastward to the Rocky Mountains. They were considered locally common and widespread in Arizona and California; locally common but restricted to a few river reaches in New Mexico; common locally in Oregon and Washington; and local and uncommon in arid and semiarid portions of scattered drainages in western Colorado, western Wyoming, Idaho, Nevada, and Utah, and probably uncommon and local in British Columbia. Currently, western YBCUs breed locally in California, Arizona, New Mexico, extreme western Texas, Sonora, Chihuahua, and south irregularly to Zacatecas, Mexico (Johnson et al. 2006).

In the arid Southwest, YCBUs are primarily restricted to densely wooded rivers and streams and damp thickets with relatively high humidity. Western YBCUs nest primarily in wide, cottonwood-willow-dominated woodlands greater than 50 acres in size, and at low to moderate elevations (USFWS 2013f). In Arizona, this species is primarily found along low-elevation drainages where stands of multi-storied native riparian woodlands occur (Corman and Wise-Gervais 2005). Approximately 70 percent of Arizona Breeding Bird Atlas observations were in lowland riparian woodlands that often contained some combination of Fremont cottonwood, willow, velvet ash, Arizona walnut, mesquite, and tamarisk. In southeastern Arizona, YBCUs also occurred along intermittent drainages with dense stands of velvet mesquite and netleaf hackberry (Corman and Wise-Gervais 2005). YBCUs in California rarely used

riparian habitat patches smaller than 200 acres in size, especially if those patches were spatially isolated from other similar habitat patches (USFWS 2013f). YBCUs begin migration to the Southwest during mid-May to mid-June and breed during mid-June to the end of August with the peak of breeding about June 15 to August 15.

Foraging habitat for cuckoos is characterized by high foliage volume of cottonwoods, but may also use stands of smaller mesquite trees or tamarisk (Johnson et al. 2006, Laymon 2011). Little is known about habitats used by YBCUs in migration. Migrating YBCUs may use a variety of habitat types including coastal scrub and hedgerows. They may also be found in smaller riparian patches than those typical of nesting habitat (USFWS 2013f). Several YBCUs were documented in the Action area, between the Bill Williams River and the Parker–Planet Tap corridor in 2012 (McLeod and Pellegrini 2013).

Habitat Evaluation and Suitability: Within the Action area, cottonwood-willow-dominated vegetation typical of YBCU breeding habitat is restricted to the Parker-Planet Tap corridor within Bill Williams NWR, the Gila-North Gila corridor at the Gila River crossing in Yuma, Arizona, and the San Pedro River and Cienega Creek crossings east of Tucson. The suitable habitat along the Bill Williams River should be assumed to be occupied. Because little is known about foraging and migration habitat use by YBCUs, the species may occur at a number of corridor crossings over drainages containing riparian woodland vegetation within the Action area.

Yuma Clapper Rail/Ridgeway's Rail

Life History: The clapper rail is widespread in coastal areas of North, Central, and South America. Twenty-four subspecies of clapper rail are currently recognized. The Yuma clapper rail (YCRA) has recently been renamed Ridgeway's rail but to avoid confusion will be referred to as the Yuma clapper rail in this document (Chesser et al 2014). The YCRA is one of three endangered western clapper rail subspecies. Territory formation begins in March and April, with the breeding season lasting through September (AZGFD 2006b; Corman and Wise-Gervais 2005). The wintering range is not fully known (Anderson and USFWS 1983), although recent studies indicate that the majority of birds winter along the LCR (AZGFD 2006b).

The YCRA occurs in freshwater and brackish marshes. Characteristics of the soil-water interface zone may be more important than vegetation composition within occupied territories. Water depth at occupied YCRA sites is typically less than 11.8 inches, with areas of deep water rarely used (AZGFD 2006b). YCRAs tend to occupy relatively large (greater than 19 acres) areas of emergent vegetation. Cattail (*Typha* spp.) is the predominant species associated with YCRA territories; giant bulrush *(Scirpus californicus)* is also common in territories along the Colorado River. Common reed *(Phragmites australis)* and tamarisk may occur in association with cattail habitat (USFWS 1983).

The present range of the Yuma clapper rail in the U.S. includes portions of Arizona, California, and Nevada. Occupied habitats exist in the LCR from the Southerly International Boundary with Mexico to the upper end of Lake Mead at the Grand Canyon, the Virgin River (a tributary to Lake Mead) in Nevada, the Lower Gila River from its confluence with the LCR to the vicinity of the Phoenix metropolitan area in Arizona, and the Imperial Valley/Salton Sea area in California (USFWS 2010a).

Habitat Evaluation and Suitability: Little suitable habitat for the YCRA occurs within the Action area. At most crossing locations within the LCR and its floodplain, Western infrastructure spans wetland habitat and is located outside of active river channels. Currently, suitable YCRA habitat within the Action area is restricted to the Gila-North Gila corridor at the Gila River crossing in Yuma, Arizona.

3.9.1.3 Fish

There are three special-status fish species with known occurrences and/or designated critical habitat within the Project area. These locations are limited to the LCR and adjacent tributaries.

Bonytail chub

Life History: The bonytail is endemic to the Colorado River Basin. It occupies mainstem rivers, and a variety of habitats within reservoir systems. Within riverine systems, bonytail typically occupy pools and eddies. Bonytail found in reservoirs, namely Lake Mohave, appear to prefer more lake-like habitats than riverine habitats nearer to Hoover Dam. Habitat preferences in reservoir systems are likely related to temperature and current gradients caused by cold-water releases. Prey items include chironomid and caddisfly larvae and mayfly nymphs (USFWS 1990).

The bonytail was listed as endangered on May 23, 1980. Critical habitat was designated for the bonytail on April 20, 1994. The critical habitat comprises portions of the Colorado, Green, and Yampa rivers in Colorado and Utah, and portions of the Colorado River in Arizona (USFWS 1994a). Threats to the bonytail are largely due to the combined effects of changes to natural river flows, alterations in temperature and sediment regimes, the introduction of nonnative fish, and other human-influenced disturbances.

Historically, bonytail were distributed throughout the Colorado River and its main tributaries, including the Green River in Utah and Wyoming, and the Colorado, Gila, Salt, and Verde rivers in Arizona. Currently, bonytail occur as isolated populations in the Yampa, Green, and Colorado rivers in the upper Colorado River, and in Lake Mohave in the LCR. Some individuals may persist in Lake Mohave between Parker Dam and Davis Dam (AZGFD 2001b). Reintroductions have occurred below Parker Dam as part of the LCR Multi-Species Conservation Program (MSCP) activities.

Habitat Evaluation and Suitability: Suitable habitat for bonytail occurs in the mainstem and backwaters of the LCR within the Action area. In addition, designated critical habitat occurs from Hoover Dam to Parker Dam. Western's transmission lines span the LCR in several locations (see Section 5.2); of these, four crossing locations overlap designated critical habitat: near Monkey Hole within the Lake Mead NRA (Mead-Perkins/Mead-Liberty corridor); about 5 miles north of Davis Dam (Davis-Mead); at Laughlin, Nevada, below Davis Dam (Davis-McCullough); and about 0.5 mile north of Parker Dam (Black Mesa-Parker and North Havasu-Parker).

Razorback Sucker

Life History: The razorback sucker is endemic to the Colorado River Basin. The species uses a variety of habitat types from mainstem channels to slow backwaters of medium and large streams and rivers. Spawning occurs over a variety of substrates, from silt to cobble, starting in the late winter through the spring. Prey items include algae, insect larvae, plankton, and detritus (AZGFD 2002f).

The razorback sucker was listed as endangered on November 22, 1991. Critical habitat was designated on April 20, 1994. Within the Action area, designated critical habitat consists of the Colorado River from Lake Mead to Davis Dam; and from Parker Dam to Imperial Dam (USFWS 2005c). Threats to razorback sucker include habitat modification due to dam operation (i.e., cold-water releases), habitat loss, and altered migration corridors; the introduction of nonnative fish species; pesticides; and pollutants (USFWS 2005c).

Historically, the razorback sucker was distributed throughout the Colorado River Basin. The current distribution of razorback sucker includes the Green, upper Colorado, and San Juan River subbasins; LCR between Lake Havasu and Davis Dam; reservoirs of Lakes Mead and Mohave; and small tributaries of the Gila River subbasin. In the Lower Colorado River Basin, wild razorback suckers occur in Lake Mead and Lake Mohave; as of 2002, the largest population of razorback suckers was found in Lake Mohave (USFWS 2002a). Some individuals may persist below Lake Mohave to Imperial Dam (USFWS 2005c). The species has been reintroduced in the LCR below Parker Dam as part of LCR MSCP activities.

Habitat Evaluation and Suitability: Western's transmission lines span the LCR at numerous locations, including several within designated critical habitat: near Monkey Hole within the Lake Mead NRA (Mead-Perkins/Mead-Liberty corridor); about 5 river miles north of Davis Dam (Davis-Mead); immediately south of Parker Dam (numerous); about 5 river miles south of Parker Dam (Parker-Headgate and Parker-Bouse); and below the California State Route 62/Arizona State Route 72 bridge crossing at Parker, Arizona (Blythe-Headgate). At the crossings above Parker Dam, all of Western's structures consist of steel lattice towers. Below Parker Dam, transmission structures are generally wood H-frame or light-duty, steel H-frame. In all cases, the structures and towers are located above the high water mark of the reservoir; no infrastructure is located within the active channel of the LCR.

Roundtail Chub

Life History: The roundtail chub is one of several species in the genus *Gila* found in the LCR basin. Roundtail chub occupy cool to warm water in mid-elevation streams and rivers, often occupying the deepest pools in larger waters. Roundtail chub are present in waters where cover in the form of boulders, root balls, and submerged trees and branches are present (AZGFD 2002c; USFWS 2009). The roundtail chub is a candidate for listing under the ESA. Threats to the species include habitat loss and competition with and predation by nonnative fish.

Historically, the roundtail chub occurred throughout the entire Colorado River basin from Wyoming to Sonora, Mexico. Subsequently, populations in the upper and lower basins were physically separated by the construction of Glen Canyon Dam. The current range of the species includes following: Chevelon and East Clear creeks (tributaries of the Little Colorado River); several tributaries of the Bill Williams River basin; the Salt River and four of its tributaries; the Verde River and five of its tributaries; Aravaipa Creek (tributary of the San Pedro River); and Eagle Creek (tributary of the Gila River) (AZGFD 2002c). Roundtail chub are not currently known to occur in the mainstem LCR. Roundtail chub do not occur in California or Nevada.

Habitat Evaluation and Suitability: The Action area crosses several tributaries to the Bill Williams River that are occupied by roundtail chub. Within the Action area, these tributaries are upstream of the occupied reaches and dry, therefore they do not provide suitable habitat.

3.9.1.4 Mammals

There are two special-status mammals with known occurrences and/or designated critical habitat within the Project area.

Desert Bighorn Sheep

Life History: Desert bighorn sheep are recognized as sensitive by the BLM and are fully protected under the California Fish and Game Code except where designated otherwise by the California Department of Fish and Wildlife. They inhabit in the mountains of California, Nevada, Arizona, and Utah deserts. Threats to desert bighorn sheep include habitat loss or degradation; limited availability of water sources;

barriers to local or regional movement (e.g., highways and aqueducts); disease spread by domestic livestock; and natural predation by mountain lions in some populations.

Habitat Evaluation and Suitability: Suitable desert bighorn sheep habitat occurs throughout the Action area. Desert bighorn sheep were observed on the Henderson-Mead #1 and #2 transmission lines (Aspen 2012) and also on the Davis-Mead transmission line (Aspen 2013). They are likely to be present throughout much of the Action areas, at least seasonally.

Lesser Long-Nosed Bat

Life History: Lesser long-nosed bats are migratory in portions of their range with some populations in Mexico that are non-migratory (Lowery et al. 2009). Populations that occur in Arizona and New Mexico migrate south in September/October to Mexico and Central America. Breeding activities take place in the southern part of the species' range. In spring, the species migrates north and females form maternity colonies in April and May. These colonies may contain hundreds or thousands of female bats. Young are born in May and are capable of flying by the end of June. Maternity colonies disband in July. Roosts are generally found in caves and mines with some occurrences in old buildings (AZGFD 2011c).

The lesser long-nosed bat was listed as endangered in 1988 without critical habitat. Threats to the species include degradation or loss of roost sites, and the excessive harvesting of agaves (AZGFD 2011c).

Lesser-long nosed bats are found in southern Arizona and extreme southwestern New Mexico and range south through western Mexico to Honduras and El Salvador (FWS 1997). Current population numbers of lesser long-nosed bats exceed the levels known and recorded at the time of listing in 1988 (FWS 2007a). Numbers of lesser long-nosed bats at most of the roost sites in both the United States and Mexico are stable or increasing; however, the number of known roost sites has not increased significantly.

Habitat Evaluation and Suitability: Suitable habitat for the lesser long-nosed bat occurs in the Sonoran Desertscrub portions of the Action area, although only portions of the Action area in western and central Maricopa County are within the current range of the species. The species has been recorded in several mountain ranges of southeastern Arizona. Recent surveys for *Leptonycteris* species identified additional roost locations in the Picacho Mountains, within 8 miles of Electrical District #5–Saguaro #1 in the Action area (AZGFD 2011c). In addition, the lesser long-nosed bat may travel up to 25 miles from roost sites to forage (Lowery et al., 2009) making it highly likely that they forage in the Action area. Approximately 60 miles of transmission line are located both within the known range and suitable habitat for lesser long-nosed bat.

3.9.1.5 Plants

Pima Pineapple Cactus

Life History: The Pima pineapple cactus is found in south-central Arizona and north-central Sonora, Mexico. Within Arizona the species is found in Pima and Santa Cruz counties; its range is bounded by the Santa Rita Mountains to the east, Baboquivari Mountains to the west, City of Tucson to the north, and the Arizona/Mexico border to the south (AZGFD 2001d). Pima pineapple cactus has been documented along the Tucson-Apache transmission line.

Pima pineapple cactus is found in alluvial basins and on ridges in desert grasslands and Sonoran desertscrub with little to no slope and sparse vegetation, between 2,300 and 4,500 feet. The species blooms only once—at midday on one day—per year and reproduces both asexually and by seed. Pollination is by small black and white bees (AZGFD 2001d).

Habitat Evaluation and Suitability: Suitable habitat for Pima pineapple cactus is present in the Action area, in particular, along the Tucson–Apache transmission line where it is known to be present (LSD 2012). A total of thirteen Pima pineapple cactus were found in the Action area in 2012 (LSD 2012).

3.9.1.6 Reptiles

Banded Gila Monster

Life History: This species is rarely observed, which is the primary reason for its protected classification by the State of Nevada (NDOW 2012). The bulk of the Gila monster's range is in western and southern Arizona, continuing to southern Sonora, Mexico, but it can also be found in extreme southeastern California, southern Nevada, extreme southwestern Utah, and southwestern New Mexico. The northern form is the banded gila monster and the southern form is the reticulate gila monster.

The Gila monster is most commonly found in mountain foothills below 5,000 feet dominated by saguaros and palo verde trees. It also uses washes that extend down into valleys. It may use burrows dug by other animals, or construct burrows of its own. Little information exists on detailed distribution and relative abundance.

Habitat Evaluation and Suitability*:* No Gila monsters have been observed within the Action area. There is suitable habitat in eastern California and throughout much of Arizona. The entire Action area, except for the developed areas, provides suitable habitat.

Flat-tailed Horned Lizard

Life History: Flat-tailed horned lizards are associated with the creosotebush *(Larrea tridentata)*-white bursage *(Ambrosia dumosa)* series of Lower Sonoran Desertscrub. They have also been documented within mixed scrub series. In California, flat-tailed horned lizards occupy a broad range of habitats including sandy flats and hills, badlands, salt flats, and gravelly soils. In Arizona, the species appears to primarily occupy sandy and hardpan flats. The primary prey item for flat-tailed horned lizards is ants, particularly harvester ants.

The range of the flat-tailed horned lizard extends from the Coachella Valley in California to extreme southwest Arizona and southward into Baja California and northwest Sonora, Mexico. Within this range, suitable habitats are highly fragmented due to agricultural and urban development.

Habitat Evaluation and Suitability: No flat-tailed horned lizards have been observed within the Action area. However, occurrence records for the species are known from the Yuma area in Yuma County, Arizona. Much of the southwest portion of the Action area comprises creosotebush-white bursage habitat association. Sandy or hard pack areas are more localized. Sandy dune areas occur within portions of Western's corridors in Imperial, La Paz, San Bernardino, and Yuma counties. The Parker-Blythe line crosses through dune habitat north of Blythe, and the Parker-Gila line crosses through the La Posa Plain, although these areas are outside of the current known range for the species. Approximately 13 miles of the Gila-Sonora line, and 6 miles of the Sonora-Wellfield line are located within or immediately adjacent to the Yuma Management Area for flat-tailed horned lizards, south of Yuma, Arizona.

Mojave Desert Tortoise

Life History: The Mojave Desert tortoise is listed as threatened under the ESA, and includes all tortoises in Nevada and California and in Arizona north and west of the Colorado River. It occupies sandy loam to rocky soils in valleys, bajadas, and hills in Mojave desertscrub and the Lower Colorado River Valley subdivision of the Sonoran Desert. It is typically found in plant communities dominated by creosote bush,

other shrubs, and small cacti; and in some areas, abundant Joshua trees (*Yucca brevifolia*). Burrows are excavated below vegetation more often than below rocks and boulders and may reach depths of more than 30 feet, though caves in washes and shallow pallets are also commonly used. The USFWS (1994b) describes desert tortoise habitat suitability as sufficient space to support viable populations and provide for movements, dispersal, and gene flow; sufficient quantity and quality of forage species and soil conditions that provide for the growth of such species; suitable substrates for burrowing, nesting, and overwintering; burrows, caliche caves, and other shelter sites; sufficient vegetation for shelter from temperature extremes and predators; and habitat protected from disturbance and human-caused mortality. Friable soils, such as sand and fine gravel, are important for burrow excavation.

Habitat Evaluation and Suitability: Western has conducted numerous surveys for Mojave Desert tortoise within suitable habitat in the Action area. These surveys identified Mojave Desert tortoise within the Action area in Nevada and California; the Action area does not overlap the range of the species within Arizona.

Northern Mexican Gartersnake

Life History: The northern Mexican gartersnake was designated as a threatened species under the ESA in 2014. Critical habitat was proposed in 2013 (USFWS 2013b). Threats to the species include habitat loss, the introduction of nonnative predators, and population fragment and isolation (AZGFD 2012a).

The northern Mexican gartersnake is a native riparian obligate. It generally inhabits wetlands and cienegas, large-river riparian woodlands and gallery forests. Occupied riparian habitats tend to be characterized by dense grass and herbaceous ground cover. A healthy native prey base and the absence of nonnative predator species are considered important to the persistence of northern Mexican gartersnake. Typical prey includes native fish and leopard frogs (*Lithobates* spp.), although small mammals, lizards, and treefrogs (*Hyla* spp.) may also serve as supplemental food sources (USFWS 2006).

Habitat Evaluation and Suitability: Historically, northern Mexican gartersnake occurred in Arizona within the Santa Cruz, San Pedro, Colorado, Salt, Agua Fria, Rio Yaqui, and Verde River watersheds. The subspecies also once occurred within the upper Gila River watershed in New Mexico, but is now believed to be extirpated within the state. The species is currently found across portions of Arizona including the middle and lower reaches of Tonto Creek, over 100 miles east of the Action area, the middle and upper reaches of the Verde River, roughly 20 miles east of the Action area, and in the middle and upper reaches of Cienega Creek drainage, less than one mile north of the Tucson–Apache transmission line, within the Action area (AZGFD 2012a; USFWS 2013h). It is also found in isolated wetlands in the southeastern part of the state (AZGFD 2012a; USFWS 2013h). Northern Mexican gartersnake has also been documented recently within the Bill Williams River drainage immediately upstream of the Parker–Plant Tap transmission line, within the Action area (L. Fitzpatrick, pers. comm. 2013). The only suitable habitat within the Action area is along the Parker–Planet Tap transmission line.

Sonoran Desert Tortoise

Life History: The Sonoran desert tortoise is usually associated with rolling, often rocky terrain in the foothills of, and within, desert mountain ranges where the relief provides naturally occurring shelter sites (Fritts and Jennings 1994; Germano et al. 1994). The tortoise's coloration, shape, and rocklike appearance are a natural camouflage (AZGFD 2010c). Sonoran desert tortoises often use natural shelter sites and may modify them for use as shelter. Such sites include caliche bank holes along arroyos, rock crevices, spaces under and among boulder piles and debris piles created by woodrats (*Neotoma* spp.), and thick vegetation (Germano et al. 1994).

The Sonoran desert tortoise is a candidate for listing under the ESA (USFWS 2010a). Threats to the Sonoran desert tortoise include habitat loss, degradation, and fragmentation. Other threats include disease, increased predation, and increased risk of wildfire associated with the introduction and spread of non-native plant species (USFWS 2010a).

The current range of the Sonoran desert tortoise includes suitable habitat south and east of the Colorado River in Arizona, as well as in Mexico south to the Rio Yaqui in Sonora. The Germano et al. (1994) distribution map for the species includes virtually all hilly and mountainous Arizona upland habitat, excluding intermontane valleys. The San Pedro River drainage is the easternmost population. Some tortoises observed in southeastern Cochise County, Arizona, are likely released pets (AZGFD 2010c).

Habitat Evaluation and Suitability: Within the Action area, the Sonoran desert tortoise occurs in Arizona from Davis Dam south and east, except extreme western Yuma County and much of the Gila River floodplain. About 50 percent of the Mojave and Sonoran Desertscrub habitat in the Project area occurs in Arizona. Rocky slopes and bajadas containing adequate forage, such as annual and perennial grasses, forbs, and succulents, make up suitable habitat for Sonoran desert tortoises in the Action area. Developed urban and agricultural land use areas are not considered suitable. The majority of suitable habitat for Sonoran desert tortoises is found along the Liberty-Parker Oracle area (Coolidge-Oracle, Oracle-Saguaro, Oracle-Tucson) corridors.

3.9.2 Environmental Consequences from the Proposed Action

The Proposed Action has the potential to adversely affect special-status species, both in the short and long term. These changes can include habitat loss and degradation, habitat fragmentation, human presence, and noise. Impacts can be direct or indirect, temporary or permanent. Direct impacts result directly from Project-related activities on the landscape such as alteration, disturbance, or removal of biological resources. Indirect impacts are unintentional consequences of Project-related impacts and may occur later in time. An example of an indirect impact could be increased nest parasitism as a result of habitat fragmentation. Permanent impacts are considered to be any impacts that would last for the life of the transmission line. Resources may be able to recover, following decommissioning. Temporary impacts are those that occur only during Project-related activities such as disturbance from machinery noise.

Impacts would be minimized through implementation of the BMPs, PCMs, and SOPs listed in Appendix A. These efforts are part of the Proposed Action and would be implemented when necessary.

3.9.2.1 Amphibians

Chiricahua Leopard Frog

The Chiricahua leopard frog is primarily found in wetlands and waterways. Leopard frogs have been found far from water when they are dispersing; however, Project-related impacts are anticipated to be negligible.

The Proposed Action would not occur within or near Chiricahua leopard frog habitat or designated critical habitat; therefore, no direct effects on the species from the proposed Project are anticipated. The nearest wetted reach of the San Pedro River is more than 6 miles upstream (south of the Action area) and outside of the potential dispersal distance for the species. The nearest wetted reach of Cienega Creek is approximately 5 miles upstream from the proposed Project, and outside the potential dispersal distance for the species. Potential impacts on habitat downstream from increased erosion and sedimentation would be avoided through the implementation and monitoring of erosion control measures; therefore, no indirect effects on the species from the proposed Project are anticipated.

Relict Leopard Frog

Occurrence records for relict leopard frogs indicate the species is not known in the Action area. Category A activities are short in duration, do not involve heavy equipment, and would not result in new ground disturbance. Therefore, due to the limited scope of Category A activities, and the lack of known frog records, injury or mortality due to vehicle strikes are not expected.

Category B and C activities may result in the alteration or removal of canopy trees and other vegetation within suitable habitat that interferes with transmission lines. Removal of this vegetation would alter the habitat and may disrupt behaviors or cause the frogs to leave the area because of noise associated with the activities. In addition, some Category B and C activities, such as access road repairs and footing maintenance, have the potential to indirectly affect frog habitat due to sediment runoff from earthwork. However, including buffer areas for activities occurring near wetlands and springs would ensure no impact to suitable habitat. Impacts to the Relict leopard frog resulting from the Proposed Action are expected to be negligible.

3.9.2.2 Birds

California Condor

Project activities are unlikely to directly affect condors, as O&M activities would not impact known roosting or nesting areas. Although unlikely, condors may be directly impacted by collision with lines or facilities, and some Category B and C activities (e.g., tree removal) may result in the loss of potential roost trees. Roosting or nesting condors may be affected by Project-related noise disturbance; however, noise effects are unlikely due to the limited nature of Project activities and the low density of ROW corridors within the condor range. Effects may occur if new roosting or nesting areas are identified in proximity to the Action area such that nesting behaviors are disrupted by O&M activities.

Though California condors have been not observed in the Action area, they may occur in the area during foraging activities. In the unlikely event that a condor does forage in, perch in, or pass through the Action area, Project-related activity may disrupt normal behavior and cause condors to leave the immediate area. However, nearby habitat is expansive and is as suitable or more suitable for foraging and perching activities than habitat within the Action area; therefore, change in behavior as a result of Project activities would be negligible. In addition, Western would avoid directly or indirectly affecting condors by requiring awareness training and avoidance of activities during sensitive nesting periods. Impacts to California condors are expected to be negligible.

Southwestern Willow Flycatcher

Direct effects to WIFLs resulting from the Proposed Action, although unlikely, may include collision with the overhead wires. WIFLs may be impacted by noise disturbance, which disrupts normal breeding behavior, primarily along the Bill Williams River where nesting has been documented within the Action area (McLeod and Pellegrini 2013). In addition, seasonal avoidance of suitable habitat, per the LCR MSCP, would be implemented where feasible; protocol surveys would be conducted prior to Project activities that may occur during the avoidance period. Therefore, direct effects to SWFLs would be negligible. Other potential impacts from noise associated with O&M and IVM activities could include changes to habitat use patterns, increased utilization of adjacent habitats, increased stress responses, decreased immune responses, and changes in predator-prey relationships (Gordon and Uetz 2012; Grubb and King 1991; Herrera-Montes and Aide 2011; Pater et al. 2009; Slabbekoorn and Ripmeester 2008; Weisenberger et al. 1996). These responses may vary depending on the nature, duration, rate of onset, sound level, number of events, and level of background noise in the study area. Migrating and

dispersing birds may also be impacted by noise disturbance however; these effects would be short-term, as birds could move away from the noise to other suitable riparian woodland or scrubland habitats adjacent to work areas.

Category B and C activities may result in the alteration or destruction of suitable and critical habitat. Vegetation management activities may result in the removal of canopy trees and other vegetation within riparian woodland habitat. Within the Bill Williams River, San Pedro River, and Cienega Creek riparian corridors, these routine activities are expected to occur infrequently (every 2 to 5 years), and would be restricted to those trees or vegetation which interfere with the O&M of the transmission line. Because the transmission line structures at Bill Williams River crossing are located on the canyon edges above the river, the conductors are high enough that the need for IVM within the riparian corridor is unlikely.

Access road improvements may occur along the Parker-Planet Tap and Tucson-Apache corridor; however, due to the inaccessible terrain through the Bill Williams, San Pedro and Cienega riparian area, Western or APS does not maintain an access road within the ROW in the active channel area. Access road improvements elsewhere along the corridor would occur on existing road grades.

Within the Action area, IVM activities are expected to occur every 2 to 5 years, and would be restricted to those trees or vegetation which interfere with the operation and maintenance of the transmission line, and would be conducted outside of the SWFL breeding period. In addition, much of the riparian scrubland and woodland habitat in the Action area is already cleared or highly modified, given that the majority of the transmission line corridors were established more than 30 years ago and have been regularly maintained over that time. In these areas, trees and shrubs may regenerate and encroach upon the ROW and need to be cut or trimmed, or treated for permanent removal. However, potential habitat modifications would not be from a natural, pristine condition, but from an already managed condition to a new condition that would be designed to require less management over the long term.

The Proposed Action would have short-term negligible impacts to the southwestern willow flycatcher and its critical habitat.

Sprague's Pipit

Sprague's pipits may occur within the Action area during migration and the wintering months. Direct effects on Sprague's pipit from the proposed Project include collision with the overhead wires, although these effects are unlikely given the rarity of the species in the Action area. Sprague's pipits are susceptible to habitat fragmentation. However, because Project activities are for ongoing O&M and IVM activities in disturbed ROWs, no new fragmentation to native or agricultural grasslands would occur as a result of this Project. The Proposed Action would have negligible impacts on the Sprague's pipit.

Yellow-Billed Cuckoo

Direct effects to YBCUs resulting from the proposed Project, although unlikely, may include collision with the overhead wires. YBCUs may be impacted by noise disturbance which disrupts normal breeding behavior. However, no breeding records for YBCUs are known from the Action area. In addition, seasonal avoidance of suitable habitat, per the LCR MSCP, would be implemented where feasible; presence/absence surveys would be conducted prior to Project activities which may occur during the avoidance period. Therefore, direct effects to YBCUs would be minimized or avoided. Migrating and dispersing birds may also be impacted by noise disturbance which alters normal foraging behavior; however, these effects would be short-term, as birds could move away from the noise to other suitable foraging habitats adjacent to work areas.

Category B and C activities may result in the alteration or destruction of suitable and critical habitat. Vegetation management activities may result in the removal of canopy trees and other vegetation within riparian woodland habitat. Within the Bill Williams River, San Pedro River, and Cienega Creek riparian corridors, these routine activities are expected to occur infrequently (every 2 to 5 years), and would be restricted to those trees or vegetation which interfere with the O&M of the transmission line. Because the transmission line structures at Bill Williams River crossing are located on the canyon edges above the river, the conductors are high enough that the need for IVM within the riparian corridor is unlikely.

Access road improvements may occur along the Parker-Planet Tap and Tucson-Apache corridor; however, due to the inaccessible terrain through the Bill Williams, San Pedro and Cienega riparian area, Western or APS does not maintain an access road within the ROW within the active channel area. Access road improvements elsewhere along the corridor would occur on road grades. Access within the Gila River riparian habitat at the Gila-North Gila corridor would likely consist primarily of shrub clearance and improvement of existing grades. Therefore, little to no effect to canopy trees is expected as a result of access road work.

Generally, IVM activities are expected to occur every 2 to 5 years and would be restricted to those trees or vegetation which interfere with the operation and maintenance of the transmission line, and would be conducted outside of the YBCU breeding period. In addition, much of the riparian scrubland and woodland habitat in the Action area is already cleared or highly modified, given that the majority of the transmission line corridors were established more than 30 years ago and have been regularly maintained over that time. In these areas, trees and shrubs may regenerate and encroach upon the ROW and need to be cut or trimmed, or treated for permanent removal. However, potential habitat modifications would not be from a natural, pristine condition, but from an already managed condition to a new condition that would be designed to require less management over the long term.

The Proposed Action would have short-term negligible impacts to the yellow-billed cuckoo.

Yuma Clapper Rail/Ridgeway's Rail

Project activities within or adjacent to the Gila River crossing could affect Yuma clapper rail or its habitat. Effects to YCRA resulting from Category A activities would be limited to noise disturbance, which may disrupt normal breeding behaviors and potentially result in nest failure. However, seasonal avoidance of suitable habitat, per the LCR MSCP, would be implemented; therefore, effects to nesting YCRAs would be avoided. Project-related noise and other activities at the Gila River crossing outside the nesting season could affect YCRA during foraging or dispersal. However, there is an extensive swath of similar foraging and dispersal habitat available upstream and downstream of the Action area. YCRAs in the vicinity during Project activities would be able to move away from the disturbance.

Category B and C activities may require some vegetation clearing along the access road to structures on the north side of the Gila River channel but still within the riparian corridor. However, no work would occur within wetland habitat; IVM activities would be limited to above the active channel. Generally, within the Action area where it crosses the LCR floodplain and its associated riparian corridors, IVM activities are expected to occur every 2 to 5 years, would be restricted to vegetation which interferes with the operation and maintenance of the transmission line, and would be conducted outside of the YCRA breeding period.

The Proposed Action could have short-term impacts to the Yuma clapper rail that would be negligible.

3.9.2.3 Fish

It is not anticipated that special-status fish species or their critical habitat would be impacted because of Project-related activities. There would be no direct impacts to waterways, as Western would require that machinery remain outside of wetlands, creeks, rivers, and tanks. Western would not allow debris to fall into streams, creeks, or rivers. This would allow water flow to remain unimpeded. Additionally, as the Proposed Action would not typically result in a bare-ground condition within the ROW, the level of sediment transported to creeks and rivers would be negligible. Thus these indirect impacts are not likely to impact the special-status fish species known to occur within the Project area.

Bonytail Chub

Bonytail may persist within the LCR between Hoover Dam and Parker Dam. However, Western's infrastructure is not located within occupied or suitable habitat for bonytail; the transmission lines span the LCR at all crossing locations, and all transmission line structures and facilities are located in upland habitat above full pool elevation. O&M activities would not occur within the LCR, although inspection overflights or other aerial O&M activities may occur on conductors or overhead ground wire spanning the LCR. Impacts to bonytail or its habitat resulting from these overhead activities are not anticipated. Therefore, direct effects to bonytail or its habitat would not occur as a result of Project activities.

Some Category B and C activities, such as access road repairs and footing maintenance, have the potential to affect bonytail habitat due to sediment runoff from earthwork. However, Western's use of erosion control measures would alleviate impacts to suitable or designated critical habitat.

The Proposed Action is not expected to impact the bonytail chub, its suitable habitat, and its critical habitat.

Razorback Sucker

Razorback suckers are known to occur at several locations within the Action area where Western's infrastructure spans the LCR. Suitable and designated critical habitat occurs at several transmission line crossings along the LCR. However, Western's infrastructure is not located within occupied or suitable habitat for razorback suckers; the transmission lines span the LCR at all crossing locations, and the infrastructure is above the full pool elevations. O&M activities would not occur within the LCR, although inspection overflights or other aerial O&M activities may occur on conductors or overhead ground wire spanning the LCR. Therefore, direct effects to the razorback sucker or its habitat would not occur as a result of Project activities.

Some Category B and C activities, such as access road repairs and footing maintenance, have the potential to indirectly affect razorback sucker habitat due to sediment runoff from earthwork. However, Western's use of erosion control measures would ensure no impact to suitable or designated critical habitat.

The Proposed Action is not expected to impact razorback sucker, its suitable habitat, and its critical habitat.

Roundtail Chub

Although suitable habitat occurs at several transmission line crossings along the LCR and its tributaries, roundtail chub are not known to occur within the Action area. In addition, Western's infrastructure is not located within occupied or suitable habitat for roundtail chub; the transmission lines span the LCR at all crossing locations, and the existing infrastructure is above the full pool elevations. O&M activities

would not occur within the LCR, although inspection overflights or other aerial O&M activities may occur on conductors or overhead ground wire spanning the LCR. If new populations are discovered or reintroduced in the mainstem LCR, Western SOPs and PCMs for other species would provide protection for roundtail chub.

Roundtail chub upstream of the Action area are physically isolated from downriver habitat by Alamo Dam and intermittent dry streambeds; therefore, effects to roundtail chub potentially occurring in this area would be discountable. Project activities would have no direct effects to the roundtail chub or its habitat.

Some Category C activities, such as footing maintenance, have the potential to indirectly affect currently unoccupied roundtail chub habitat due to sediment runoff from earthwork. However, Western's use of erosion control measures would ensure no impact to suitable habitat.

The Proposed Action is not expected to impact roundtail chub or its suitable habitat.

3.9.2.4 Mammals

Desert Bighorn Sheep

Habitats throughout much of the Proposed Action area are suitable for bighorn sheep. Project activities would cause some habitat degradation but these impacts would be negligible because the footprint of the transmission lines and access roads on the landscape are relatively minor in relation to the large habitat area required by this species. Project activities could cause noise and human disturbance which could cause bighorn sheep to temporarily leave the area. Pre-activity clearance survey, worker training, prohibiting pets, and enforcing speed limits would minimize potential Project impacts to desert bighorn sheep. Impacts to bighorn sheep would be negligible to minor and short-term.

Lesser long-nosed Bat

Because of the lack of roost sites within the Action area, Project activities would not directly affect known roost sites. Project activities would occur more than 15 miles from the nearest known roost locations; therefore, Project-related noise disturbances would not affect roosting bats. Although bats may forage in the southeastern extent of the Action area, Project activities would be restricted to daytime hours and would not affect foraging individuals.

Category A activities involve little to no ground disturbance and have no effect on the bat. Project activities in Category B and C may result in the removal or topping of individual saguaros in some cases (e.g., where tall saguaros or agave flowering stalks encroach within unsafe distances of conductors). However, Western would require the avoidance of forage species wherever practicable. Removal or topping would be limited to small numbers of forage plants and would occur periodically throughout the year and in dispersed locations. Small saguaros and agaves would be replanted outside of work areas where feasible. Therefore, effects to forage plants would be negligible relative to the remaining suitable forage species in the habitat surrounding the Project area. The Proposed Action would have negligible to minor impacts to the lesser long-nosed bat.

3.9.2.5 Plants

Pima Pineapple Cactus

Disturbance to Pima pineapple cactus habitat would occur during O&M activities along the ROW, particularly when ground disturbance is necessary. Disturbance could occur from maintaining access

roads, pulling and tensioning sites, and structure work areas. Ground disturbance may directly affect the Pima pineapple cactus through direct loss of individual plants and may indirectly affect the species by facilitating the establishment and spread of invasive plant species.

Ground-disturbing activities could lead to increased establishment and spread of invasive plant species, which can compete with the Pima pineapple cactus for space and resources and could modify fire regimes in habitat that could lead to increased mortality for the species and degradation of habitat. Measures to minimize the establishment and spread of invasive plant species would minimize the potential for indirect effects on the Pima pineapple cactus from the proposed Project.

Prior to ground-disturbing or vegetation clearing activities in Pima pineapple cactus habitat a protocol-level survey would occur. Identified cactus would be flagged prior to work commencing to ensure avoidance. The Proposed Action would have minor impacts to the Pima pineapple cactus.

3.9.2.6 Reptiles

Banded Gila Monster

Since this species is rarely observed and spends more than 95 percent of its time underground (NDOW 2012), the likelihood of impacts occurring during non-ground disturbing activities would be low. However, the possibility of mortality by vehicle strikes does exist. It is more likely the Gila monster would be encountered during excavation and other ground disturbing activities. Implementation of Nevada Department of Wildlife's (NDOW) reporting protocol (2012), which requires that workers and personnel (1) know how to identify Gila monsters and distinguish them from other lizards, (2) report any observations of Gila monsters to NDOW, (3) be alert to consequences of a Gila monster bite, and (4) be aware of protective measures provided under state law. Pre-construction surveys would reduce the possibility of Gila monster mortality during O&M activities. The Proposed Action could have negligible to minor impacts to the banded Gila monster.

Flat-tailed horned lizard

Flat-tailed horned lizards may be present in suitable habitats in the Yuma area. Lizards may be directly affected by injury or mortality due to crushing during Project activities. Noise and vibrational disturbance may cause flat-tailed horned lizards to avoid the work areas; however, these effects would be short-term and temporary.

Category B and C activities may result in disturbance to sandy substrates and creosotebush-bursage habitats. Category B activities would be largely restricted to existing disturbed roads and work pads that have been compacted over years of O&M activities; therefore, new effects to loose or sandy soils would be minimal. Category C activities involving new work sites may result in compaction and disturbance to active dune areas and loose, sandy soils. However, this habitat type would be expected to recover to pre-construction conditions without additional restoration measures. Seasonal avoidance and pre-construction surveys would be implemented to alleviate potential effects to flat-tailed horned lizard and its habitat. The Proposed Action would have negligible to minor impacts to the flat-tailed horned lizard.

Mojave Desert Tortoise

Mojave Desert tortoises are likely to occur in large portions of the Action area west of the LCR. Tortoises may be directly affected by all Project activities due to injury or crushing resulting from increased human activity and vehicle traffic. The Workers Environmental Awareness Program (WEAP) and reduced speed limits on roads would avoid and minimize these effects. Tortoises and burrows would be avoided

wherever possible. Per Western Project requirements (see Appendix A), Western's O&M activities would be planned outside of the tortoise activity season, as feasible, to reduce the likelihood of tortoise interactions with workers and equipment. In addition, Category A activities would be conducted primarily without the use of heavy equipment, allowing for better visibility and ease of vehicle maneuvering in work areas. Many of these activities provide for flexibility in staging, allowing for avoidance of burrows and other habitat features.

Ground disturbing activities associated with Category B and C activities present an increased risk to tortoises resulting from vehicle strikes and the potential destruction of burrows. These activities may result in the "take" of tortoises resulting from the capture, handling, or relocation of desert tortoises found in harm's way; however, the primary goal would be avoidance of tortoises and burrows wherever possible. With implementation of pre-construction surveys and reduced speed limits, impacts to tortoises would be minimized. If discovered in work areas, tortoises would only be handled and relocated by qualified individuals as authorized by the USFWS and following accepted protocols. Litter control programs and monitoring watering activities would alleviate potential predator attractants.

Category B and C activities may also result in an increase of noxious and invasive plant species in the area following ground disturbing activities. The introduction of invasive species can cause the displacement of native forage species for tortoises, as well as increase fine fuels and the risk of fire. Maintenance equipment may facilitate the spread of existing noxious or invasive species in the Project area by incidentally transporting seeds and plant parts. However, vehicle washing would reduce or eliminate these effects.

Category A activities would involve little to no ground disturbance and therefore would not affect designated critical habitat. Category B may result in more ground disturbing activities than Category A, however, these activities would occur within disturbed ROWs, including access roads and work pads associated with transmission line structures. Developed areas, such as roads, are not considered critical habitat as they do not contain the Primary Constituent Elements (PCEs) of suitable tortoise habitat. Therefore, new effects to critical habitat resulting from Category B activities are likely to be temporary and negligible in acreage.

Category C activities may result in new disturbance to critical habitat outside of established work areas. These new disturbance areas would likely be variable in size, and temporary to permanent depending on the nature of the activity. Temporary work areas would be restored to pre-work contours where feasible. Permanent habitat loss may occur as a result of activities such as the installation of inset structures, new or repaired footings, erosion control features, or new antenna towers. This type of work would involve localized disturbance in small (1- to 2-acre) patches and occur infrequently.

Overall, the Proposed Action would have minor impacts to the Mojave Desert tortoise and its associated critical habitat. Any habitat losses, temporary or permanent, or potential take of the species resulting from Proposed Action would require consultation with the USFWS.

Northern Mexican Gartersnake

Gartersnakes may be directly affected by injury or mortality due to crushing or vehicle strikes. Given the limited area of suitable habitat and lack of species records within the Action area, direct effects to gartersnakes from Category A activities are unlikely to occur. In addition, Category A activities are short in duration, do not involve heavy equipment, and would not result in new ground disturbance. In addition, a WEAP and restricted IVM activities in suitable habitat would avoid and minimize potential impacts to gartersnakes.

Category B and C activities may result in the alteration or destruction of suitable and proposed critical habitat. Vegetation management activities may result in the removal of canopy trees and other vegetation within riparian woodland habitat. Within the Bill Williams River, San Pedro River, and Cienega Creek riparian corridors, these routine activities are expected to occur infrequently (every 2 to 5 years), and would be restricted to those trees or vegetation which interfere with the O&M of the transmission line. Because the transmission line structures at the crossing location are located on the edges above the river, the conductors are high enough that the need for IVM within the riparian corridor is unlikely. Access road maintenance and improvements may occur along these corridors; however these actions occur on existing road grades.

The Proposed Action has the potential for minor impacts to the northern Mexican gartersnake and its proposed critical habitat. Any habitat loses, temporary or permanent, or potential take of the species resulting from the Proposed Action would require consultation with the USFWS.

Sonoran Desert Tortoise

Sonoran desert tortoises are likely to occur in large portions of the Action area east of the LCR. Tortoises may be directly affected by all Project activities due to injury or crushing resulting from increased human activity and vehicle traffic. The WEAP and reduced speed limits on roads would alleviate these effects. Tortoises and burrows would be avoided wherever possible. Western's O&M activities would be planned outside of the tortoise activity season, as feasible, to reduce the likelihood of tortoise interactions with workers and equipment. In addition, Category A activities would be conducted primarily without the use of heavy equipment, allowing for better visibility and ease of vehicle maneuvering. Many of these activities provide for flexibility in staging, allowing for greater avoidance of burrows and other habitat features than Category B and C activities. Ground disturbing activities associated with Category B and C activities present an increased risk to tortoises resulting from vehicle strikes and the potential destruction of burrows. These activities may result in the capture, handling, or relocation of desert tortoises found in harm's way; however, the primary goal would be avoidance of tortoises and burrows wherever possible.

Although Category B activities may result in increased ground-disturbing activities than Category A, these activities would occur within existing disturbed ROWs, including existing access roads and work pads associated with transmission line structures. Therefore, new effects to suitable habitat are likely to be temporary and negligible in acreage. Category C activities may result in new disturbance to suitable habitat outside of established work areas. These new disturbance areas would likely be variable in size, temporary to permanent depending on the nature of the activity, and minimal relative to available suitable habitat outside of the ROWs. Litter control programs and monitoring watering activities would alleviate potential predator attractants.

Overall, the Proposed Action would have minor impacts to the Sonoran desert tortoise.

3.9.3 Environmental Consequences from the No Action Alternative

Under the No Action Alternative, Western would continue to conduct routine maintenance activities along the Project ROW and at substations. Potential impacts to special-status species resulting from O&M activities would be the same as those described above for the Proposed Action.

Vegetation management under the No Action Alternative would continue to be need-driven where vegetation control needs are identified through periodic line patrols. Therefore, vegetation management under the Proposed Action is more aggressive than the No Action Alternative. Potential

impacts to special-status species associated with vegetation management would be less under the No Action Alternative.

3.10 Vegetation

This section characterizes the environmental setting for vegetation. It discusses in general terms the vegetation near Western's transmission lines, communication facilities, and access roads. Appendix E includes the Biological Opinion for the Project.

3.10.1 Affected Environment

Descriptions of the vegetation communities that occur within the analysis area are provided in the following sections. The terms biotic communities and plant associations are also used below. All three terms—vegetation communities, biotic communities, and plant associations—are defined based on the presence of dominant plant species that characterize the species composition and physical structure of the landscapes.

The planning area is diverse in terms of biotic communities, ranging from Lower Colorado River Sonoran Desertscrub to Madrean Evergreen Woodland. Much of the area vegetation is Mohave and Sonoran desertscrub and semidesert grassland, which comprise 92 percent of the vegetation within the ROWs of the Parker-Davis System. The largest yucca species, the Joshua tree, characterizes the Mohave Desert ecoregion, a transitional desert between the higher and cooler Great Basin Desert and the lower, hotter Sonoran Desert. The Sonoran Desert ecoregion occurs in the southern part of the planning area where the saguaro is the characteristic plant and biodiversity is quite high. The Colorado Plateau Shrublands and Arizona Mountains Forests ecoregions are characterized by chaparral, conifer woodlands and higher elevation grasslands.

The map of biotic communities of the Southwest produced by Brown and Lowe (1980) and based on biotic communities described in Brown (1982) shows nine communities within the Action area. Acreage calculations by biotic community presented below were derived for the total analysis area of the Parker-Davis System.[1] In descending order of coverage, these communities are Lower Colorado River Subdivision of Sonoran Desertscrub (21,504 acres), Arizona Upland Subdivision of Sonoran Desertscrub (4,928 acres), Mohave Desertscrub (4,544 acres), Great Basin Conifer Woodland (2,176 acres), Semidesert Grassland (2,176 acres), Chihuahuan Desertscrub (320 acres), Interior Chapparal (320 acres), Plains and Great Basin Grassland (192 acres), and Madrean Evergreen Woodland (64 acres). A description of each of these communities is provided in the following paragraphs.

[1] The acreage calculation was based on a ROW width of 200 feet.

3.10.1.1 Sonoran Desertscrub – Lower Colorado River Subdivision

The Lower Colorado River Subdivision comprises 60 percent of the analysis area and covers large areas of the southern and western parts of the biotic community in Arizona, California, Baja California, and Sonora, Mexico. This subdivision is a shrub-dominated community situated topographically below the Arizona Upland Subdivision (Brown 1982). This community is the hottest and driest part of the Sonoran Desert, with average annual rainfall between 1.2 and 11.3 inches. Dominant shrub species include creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), and saltbush (*Atriplex spp.*). Other shrubs and small trees are present in washes and along small drainages. Common small trees include mesquite (*Prosopis spp.*), palo verde (*Parkinsonia spp.*), ironwood (*Olneya tesota)*, and smoketree (*Psorothamnus spinosus*). In the Action area, this community exists along the southwestern and central portions of the Project area.

3.10.1.2 Sonoran Desertscrub – Arizona Upland Subdivision

The Arizona Upland Subdivision comprises only 0.4 percent of the analysis area but covers large areas of the northern and eastern parts of the Sonoran Desertscrub biotic community in Arizona and Sonora, Mexico. This subdivision is a cactus-dominated community situated topographically above the Lower Colorado River Subdivision and below Semidesert Grassland (Brown 1982). As with other communities, the upper and lower elevation limits of this community vary substantially over its distribution. The lower edge of this subdivision is generally between about 1,000 and 2,100 feet, whereas the upper contact with Semidesert Grassland is generally between 2,950 and 3,300 feet. Average annual rainfall in this community ranges from 7.9 to 16.7 inches. This community is dominated by a high diversity of cactus, and most of the woody shrubs have thorns. Common cactus species include saguaro (*Carnegiea gigantea*), chollas (*Cylindropuntia* spp.) and prickly pears (*Opuntia* spp.), barrel cactus (*Ferocactus* spp.), hedgehog cactus (*Echinocereus* spp.), and pincushion cactus (*Mammillaria* spp.). Some common small trees and shrubs include palo verde, ironwood, velvet mesquite (*Prosopis velutina*), acacias (*Acacia* spp.), and creosote bush. In the analysis area, this community stretches from Tucson to Parker, Arizona.

3.10.1.3 Mohave Desertscrub

The boundary between Mohave desertscrub and Arizona Upland and Lower Colorado River Sonoran desertscrub is often difficult to discern. Mohave desertscrub covers a transitional zone between the higher and cooler Great Basin desert and the lower, hotter Sonoran desert. While many of the same plants found in other deserts occur here, some are indicative of the Mohave Desert such as the Joshua tree and certain cacti and endemic ephemeral plants, most of which are winter annuals (Brown, 1982). The community is shrub-dominated and creosote bush and bursage are often dominant species. Mohave desertscrub covers most of the Detrital Valley, Lake Mohave and Sacramento Valley basins at elevations below about 3,500 feet that receive 5 to 11 inches of annual rainfall.

3.10.1.4 Great Basin Conifer Woodland

These forests cover the high elevation plateaus of northern Arizona and the high elevation ranges of southeastern Arizona. Great Basin conifer (pinyon-juniper) woodlands cover large areas below the ponderosa pine forest at elevations between about 5,000 and 7,500 feet that receive about 12 to 20 inches of annual precipitation. Pinyon pine (*Pinus edulis*) dominates at higher elevation while junipers (*Juniperus* spp.) are the dominant species at lower and drier areas that may include open grasslands. Bark beetle infestations have killed large areas of pinyon pine southeast of Valle and smaller areas south of the South Rim in the Coconino Plateau Basin. Approximately 100 miles of the Parker-Davis System transects this vegetative community northwest of Prescott, Arizona.

3.10.1.5 Semidesert Grassland

The Semidesert Grassland biotic community comprises six percent of the analysis area and covers large areas of southeast Arizona, southwest New Mexico, West Texas, and northern parts of Sonora and Chihuahua, Mexico. This perennial, grass-shrub-dominated community is situated topographically above desertscrub communities and below evergreen woodland, chaparral, or plains grassland (Brown 1982). The upper and lower elevation limits of this community vary substantially over its distribution. The lower contact with desert scrub is generally between about 3,600 and 4,600 feet, while the upper contact with evergreen woodland or chaparral is generally between 4,920 and 5,580 feet. Average annual rainfall in this community ranges from 9.8 to 17.7 inches. This community is dominated by a variety of grasses and seasonally abundant forbs. Common shrub species include mesquites, Mormon tea (*Ephedra* spp.), mimosas (*Mimosa* spp.), catclaw acacia (*Acacia greggii*), and ocotillo (*Fouquieria splendens*). Common leaf succulents include agaves (*Agave* spp.), yuccas (*Yucca* spp.), and sotols (*Dasylirion* spp.).

Wildfire is a natural disturbance within this community, and Semidesert Grassland is characterized by low-severity fire that occurs every 0 to 35 years. Human development and fire suppression has changed the vegetative structure of this community in specific areas, particularly on and bordering the Coconino National Forest. This community is interspersed with Chihuahuan Desertscrub and occurs south of Prescott and east of Nogales, Arizona.

3.10.1.6 Chihuahuan Desertscrub

The Chihuahuan Desertscrub biotic community comprises one percent of the analysis area and covers large areas of southern New Mexico and West Texas, smaller areas of southeast Arizona, and a large part of the State of Chihuahua, Mexico. This community is centered in the highland plains and basins of northern Mexico, below the Semidesert Grassland community (Brown 1982). This biotic community is dominated by basin and range topography, and most of this community is underlain by limestone. The lower elevation limit of Chihuahuan Desertscrub is around 1,300 feet, while its upper limit is generally between 4,600 and 5,250 feet. Average annual rainfall in this community ranges from 7.9 to 11.8 inches. Large areas of this desert are dominated by three shrubs: creosotebush, tarbush (*Flourensia cernua*), and viscid acacia (*Acacia neovernicosa*). Honey mesquite (*Prosopis glandulosa*) and saltbush (*Atriplex* spp.) are common in some areas. Common leaf succulents include agaves, yuccas, and sotols. Within the analysis area, this community occurs in the San Pedro and Cienega Creek basins.

3.10.1.7 Interior Chapparal

Interior chaparral occupies mid-elevation foothill, mountain slopes and canyons (3,500-6,000 feet) from Kingman, Arizona in the northwest to areas north of Tucson, Arizona. It is bordered by ponderosa pine or pinyon-juniper woodlands and shrublands at the upper elevations, and semi-desert grasslands at the lower elevations. Interior Chaparral vegetation has a uniform dense structure dominated by shrubs with thick, often stiff, waxy evergreen leaves. Chaparral communities typically are a mix of several shrubby species such as mountain-mahogany (*Cercocarpus spp.*), Sonoran scrub oak (*Quercus turbinella*), and manzanita (*Arctostaphylos spp.*) and commonly include cactus, agave, and yucca. Chaparral plants are well adapted to drought conditions. The Parker-Davis Transmission lines cross this vegetative community south of Prescott, Arizona in the Prescott Valley.

3.10.1.8 Madrean Evergreen Woodland

The Madrean Evergreen Woodland biotic community comprises less than one percent of the analysis area but is widespread in southeast Arizona, eastern Sonora, and western Chihuahua. This community is dominated by small evergreen tree species and is situated topographically above the Semidesert

Grassland (Brown 1982). The lower elevation limit of this community is about 4,800 feet in the proposed Project vicinity. Average annual rainfall in this community ranges from about 13.0 to 40.2 inches. This community is dominated by a variety of oak (*Quercus* spp.), pines (*Pinus* spp.), and junipers. In the analysis area, this community is found only at the north end of the Dragoon Mountains, southwest of Willcox, Arizona.

3.10.1.9 Plains and Great Basin Grassland

Plains grasslands, primarily composed of mixed or short-grass communities, are widespread in the planning area at elevations above 4,000 feet that receive between 11 and 18 inches of annual precipitation. These areas are located primarily in the Coconino Plateau, Kanab Plateau, Shivwits Plateau, Bonita Creek, Cienega Creek, San Rafael and Upper San Pedro basins. On the Arizona Strip, Great Plains grassland, which is drier and receives a larger percentage of annual rainfall in the winter and spring, transitions with plains grasslands (Brown 1982). In some areas, native bunchgrasses have been replaced by Eurasian annual species such as cheatgrass due to grazing and fire-suppression practices (Grahame and Sisk 2002).

Vegetation consists mostly of grasses and forbs with interspersed shrubs. Dominant grass species may include, Western wheatgrass (*Pascopyrum smithii*), spike muhly (*Muhlenbergia wrightii*), black grama (*Bouteloua eriopoda*), Indian ricegrass (*Achnatherum hymenoides*), threeawns (*Aristida spp.*), blue grama (*Bouteloua gracilis*), fescues (*Festuca spp.*), needle grass (*Achnatherum* spp.*)*, bottlebrush squirreltail (*Distichlis spicata*), James' galleta (*Pleuraphis jamesii*), dropseed (*Sporobolus dryptandrus)*, Sandberg bluegrass (*Poa secunda*), and tobosa grass (*Pleuraphis mutica*). Shrub species may include, but are not limited to, saltbush, snakeweed (*Gutierrezia sarothrae*), rabbitbrush (*Ericameria nauseosa*), winterfat (*Krascheninnikovia*spp.*)*, buckwheat (*Fagopyrum esculentum*), and juniper. The piñon-juniper woodland and madrean evergreen woodland is often intermixed with this grassland in the Action area.

3.10.2 Environmental Consequences from the Proposed Action

Several types of vegetative communities occur within the Action area, as described in the previous section. Western must manage the vegetation throughout its system to comply with federal laws, regulations, and directives, including those for maintaining system reliability and public and worker safety. The following sections identify potential impacts to vegetation resulting from vegetation removal and management, right-of-way maintenance activities, and O&M activities. PCMs to minimize potential impacts to vegetation were considered as a part of the analysis of environmental consequences.

The Action area has a variety of habitats requiring vegetative maintenance. The lower growing plant communities such as grassland and scrub would require little maintenance. Conversely, other parts of the Action area, particularly in the upper elevation areas (i.e., Central highlands, Colorado plateau), include densely forested coniferous areas that would require more maintenance. Under the Proposed Action, these conifer forests would be replaced by low-growing plant native communities over time, which would require less maintenance in the long-term.

3.10.2.1 Impacts Resulting from Vegetation Management

Activities related to initial vegetation removal would have an impact on vegetation. All vegetation within the ROWs was removed or altered from its natural state during construction of the Parker-Davis Transmission System in the 1940s and 1950s. Since that time, successional vegetation growth has occurred within the ROWs, resulting in establishment of large woody species such as trees in the right-of-way. Under the Proposed Action, most of the current vegetation would be removed throughout the

ROW, resulting in a change of the mid-late seral to subclimax successional status of the Action area to a pre-successional condition. This change would be permanent until the transmission lines are decommissioned.

Vegetation management is anticipated to occur on a 5-year cyclical basis throughout the entire Action area. The primary impact resulting from both mechanical and manual methods of vegetation management and danger tree removal could include increased disturbance to surrounding non-target vegetation (e.g., trees falling on vegetation outside the right-of-way). Additionally, sensitive plant communities such as riparian habitats or wetlands, special-status plants, and trees that should remain in place would be marked prior to vegetation management activities to minimize impacts to those resources.

Many common weeds are found throughout the Action area and control of these species is not practical. Noxious and invasive weeds that are either currently absent from the Action area or have a narrow distribution present the greatest concern. As provided in Chapter 2 and Appendix A of this EA, Western would minimize impacts from noxious and invasive weeds and reduce the potential for these problematic species to spread. Utility mowers, tracks, or other off-road equipment would be free of soil, weeds, vegetative matter, or other debris that could harbor seeds prior to entering the Action area.

Impacts to Vegetation and Wetlands from Herbicide Application

Herbicides kill or damage plants by inhibiting or disrupting basic plant processes. Impacts from herbicide treatment to non-target vegetation result from misuse. Herbicides can unintentionally contact vegetation by drift, leaching, or spilling. The degree to which a habitat is impacted depends on the selectivity (type) of the herbicide, application treatment, and accidental contact. Refer to Section 2.2.2 for additional information on the herbicides proposed for use within the Action area and the proposed methods of application.

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

Application spray treatment (stump, basal, and foliar). Stump treatment is highly selective and causes little effect to non-target vegetation. Basal and foliar treatments are more broadly applied and can come in contact with non-target vegetation or habitats, including cropland, special-status species, and wetlands. Applying a broadcast application of non-selective herbicide can have highly detrimental effects to overall diversity, composition, and soil chemistry, and can cause a monoculture of weedy vegetation. Using a selective herbicide coupled with a selective application technique would result in the least amount of damage to non-target vegetation and sensitive habitats.

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

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

Routine maintenance and operation of the transmission line may contribute to the spread of noxious weeds and invasive plant species. The introduction of low-growing native plants may temporarily promote the invasion of grasses during initial establishment that would compete against native herbaceous and woody species both within and outside of the ROW. As the native low-growing vegetation becomes established noxious weeds and invasive plants should become less of a problem and they would likely only remain a problem in areas that are periodically disturbed the vegetation management activities. Western is required to comply with the Federal Noxious Weed Act of 1974, as amended by section 15, Management of Undesirable Plants on Federal Lands, 1990, which mandates each federal land-management agency to:

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

Additionally, to prevent impacts from the spread of noxious weeds or from invasive plant species, Western would implement SOPs (Appendix A) and follow the IVM Program.

3.10.2.2 Operation and Maintenance Effects to Vegetation

Category A O&M activities are minor actions that would not cause substantial soil or habitat disturbance (see Table 2-1 for more detail). Category B and C O&M activities have potential to cause more substantial soil and habitat disturbance (see Tables 2-2 and 2-3 for more detail). Equipment used for all O&M activities has the potential to contribute to the introduction of noxious weeds by inadvertently transporting noxious weed seeds when the equipment is moved between locations. It may also spread noxious weeds along an established ROW as the equipment moves from an area with established weeds into areas where the weeds may be absent. Maintenance activities may result in temporary and permanent loss of habitat because vegetation would be removed for maintenance activities and access road maintenance.

Vegetation clearing and herbicide use would typically be a short-term impact since vegetation would grow back; however, this may contribute to the introduction of noxious weeds. The introduction of low-growing native plants may promote the invasion of grasses, as described above in Section 3.10.2.1 (Impacts Resulting from Vegetation Management), that would compete with native herbaceous and woody species. Western would reduce impacts by requiring that seeds from ground-disturbing equipment be cleaned off before moving between work sites.

Impacts to vegetation resulting from the Proposed Action would be minor, both short- and long-term.

3.10.3 Environmental Consequences from the No Action Alternative

Under the No Action Alternative, Western would continue to conduct routine maintenance activities along the Project ROW and at substations. Potential impacts to vegetation species resulting from O&M activities would be the same as those described above for the Proposed Action.

Vegetation management under the No Action Alternative would continue to be need-driven where vegetation control needs are identified through periodic line patrols. Therefore, vegetation management under the Proposed Action is more aggressive than the No Action Alternative. Potential

impacts to vegetation associated with vegetation management would be less under the No Action Alternative.

3.11 Water Resources/Floodplains/Waters of the U.S.

This section characterizes the environmental setting for both surface and ground water resources that are crossed by or adjacent to the Parker-Davis Transmission System (Action area) components, including: transmission lines, substations, communication facilities, and access roads.

3.11.1 Affected Environment

The continental United States is divided into 18 Hydrologic Regions (HR) as defined by the USGS Watershed Boundary Dataset (WBD), a component of the National Hydrography Dataset (NHD). The Action area lies almost entirely within the Lower Colorado HR, although small portions of the western edge of the Action area cross into the Great Basin HR and the California HR. These Hydrologic Regions are further divided into Hydrologic Subregions (HSR). The majority of the Action area falls within three HSRs: the Lower Colorado, the Lower Gila, and the Middle Gila. An additional four HSRs contain small portions of the Action area: the Central Nevada Desert Basins and Lower Colorado-Lake Mead HSRs to the north, the Southern Mojave-Salton Sea HSR to the west, and the Salt HSR to the east. Within these HSRs, the Action area crosses 33 Subbasins, which are watersheds with an average size of 700 square miles.

3.11.1.1 Topography and Climate

The Action area crosses mostly flat deserts, shallow valleys, and isolated, relatively small mountain ranges. Steeper topography and more prominent mountains border the area along the eastern boundary. In the north, the Action area parallels the El Dorado Mountains, between the Black Mountains and the McCullough Range. Heading due south, it crosses the Mojave Valley, Parker Valley, Palo Verde Mesa, and the La Posa and Castle Dome Plains, which are bordered by the Chocolate Mountains to the west and the Kofa Mountains and Gila Desert to the east. The northeast section of the Action area crosses the Black Mountains, Sacramento Valley, the Hualapai Mountains and Valley, the Cottonwood, Juniper, Bradshaw, and New River Mountains, and terminates in Paradise Valley north of Phoenix, AZ. The southeast segment of the Action area crosses the Buckskin Mountains, the Cactus Plain, the Harcuvar Mountains, McMullen Valley, the Hassayampa Plain and Santa Cruz Flats, and terminates in the Galiuro Mountains at the easternmost edge of the Action area. The Gila Mountains and the San Francisco Plateau bound the Action area on the east and northeast edges, the Sonoran Desert underlies the southern area, and the Mojave Desert lies to the west.

Climate in the Action area varies with topography; the deserts are the driest and hottest, while the mountainous areas receive more rainfall and are considerably cooler. Average annual precipitation ranges from less than five inches in the southwestern desert portion of the Action area to a maximum of 25 inches in the northeastern mountainous region. In the deserts, summer maximum temperatures regularly exceed 110 degrees Fahrenheit, and winter minimum temperatures fall to the low 40s to upper 30s. In the mountains, summer maximum temperatures reach the mid-90s, and winter lows drop to the mid-30s.

3.11.1.2 Floodplains and Floodways

Most of the floodplains within the Action area are small and not based on detailed studies, but rather are approximate zones of potential flooding designated as Zone A, or the 100-year floodplain. Due to the small size and narrow widths of the vast majority of the floodplains within the Action area, most

Proposed Action activities would occur outside of 100-year floodplains. The majority of potential flooding within the Action area is associated with the Colorado River, the Gila River, and the Santa Cruz River. The most substantial floodplains traversed by the Proposed Action are located along the Santa Cruz River and on the Santa Cruz Flats, northwest of Tucson, AZ.

3.11.1.3 Waterbodies

Nearly 2,000 named waterbodies, as well as thousands of unnamed streams and washes, fall within the Action area. Due to the high summer temperatures and low annual average precipitation, most streams within the Action area do not flow year-round. The Action area is broadly defined by two major rivers and their associated watersheds: the Colorado River, which runs north to south along the western portion of the area, and the Gila River, which runs east to west through the central portion of the area. Aerial photography and the NHD were used to identify major waterbodies within the Action area. These major waterbodies and their general location are listed here, and the quality of these waters is discussed below.

Within the Lower Colorado-Lake Mead HSR, major waterbodies that cross or lie adjacent to the Action area include Lake Mead and the Colorado River. No major waterbodies exist near the Action area within the Central Nevada Desert Basins HSR. The Salt River crosses the Action area within the Salt HSR, near Phoenix, AZ. The Colorado River Aqueduct and the All-American Canal lie close to the Action area within the Southern Mojave-Salton Sea HSR.

Major waterbodies within the Lower Colorado HSR include: the All-American Canal, the Bill Williams River, Chemehuevi Wash, the Colorado River and Aqueduct, Lake Havasu, Lake Mojave, Milpitas Wash, Piute Wash, Sacramento Wash, Standard Wash, Trout Creek, and Warm Springs Wash.

Within the Lower Gila HSR, major waterbodies include: the Agua Fria River, Gila River, Hassayampa River, New River, and Lake Pleasant. Major waterbodies within the Middle Gila HSR include: Cienega Creek, the Gila River, Queen Creek, the San Pedro River, Santa Cruz River, and Santa Rosa Wash.

3.11.1.4 Surface Water Quality

There are relatively few waterbodies (streams or lakes) within the Action area that are listed on the Clean Water Act (CWA) 303d list of impaired and threatened waters that have been identified and reported to the USEPA. In the northern portion of the Action area, the Colorado River, from Hoover Dam to Lake Mohave, is listed as impaired by selenium, but no Total Maximum Daily Load (TMDL) has been developed. Additionally, the Colorado River from Lake Mohave south to the Nevada-California state line is listed as impaired for water temperature, but no TMDL exists.

In the southwest portion of the Action area, the Colorado River, from Imperial Reservoir to the Gila River, is listed as impaired by selenium; no TMDL exists. The Colorado River, from the Main Canal to the Mexico border, is listed as impaired by selenium and a lack of dissolved oxygen. A TMDL for nitrogen and phosphorus was developed in 1992 to address the problem of low dissolved oxygen. The Gila River, from Coyote Wash to Fortuna Wash, is listed as impaired by boron and selenium; no TMDLs have been developed. The Palo Verde Outfall Drain and Lagoon are listed as impaired by pesticides and pathogens; no TMDL exists.

In the northeastern portion of the Action area, Watson Lake is listed as impaired by nitrogen, high acidity, and low dissolved oxygen. No TMDLs have been developed. In the central portion of the Action area, west and southwest of Phoenix, the Gila River is listed as impaired by numerous constituents, including: pesticides (chlordane, DDT, and toxaphene), toxic inorganics (boron), and metals (selenium).

In the same location, the Salt River (from the 23rd Avenue Wastewater Treatment Plant outfall to the Gila River) and the Painted Rock Reservoir are also listed as impaired by pesticides. No TMDLs have been developed for these waterbodies.

In the easternmost portion of the Action area, near the Galiuro Mountains, the San Pedro River is listed as impaired by nitrates and pathogens (E. Coli). No TMDLs have been developed.

3.11.1.5 Waters of the U.S. including Wetlands

Thousands of named and unnamed streams that could qualify as Waters of the U.S. lie within the Action area. This analysis did not formally delineate potentially jurisdictional waters for the entire Action area. The United States Army Corps of Engineers (USACE) has determined that Nationwide Permit (NWP) No. 3 would apply to the Proposed Action. This NWP authorizes the repair, rehabilitation, or replacement of any previously authorized structure. Based on NWP No. 3, pre-construction notification to the district engineer is required prior to removal of accumulated sediments and debris in the vicinity of existing structures and/or the placement of new or additional riprap to protect the structure. All dredged or excavated materials must be deposited and retained in an area that has no waters of the United States unless otherwise specifically approved by the district engineer.

3.11.1.6 Groundwater

The Action area is generally hot and dry, and groundwater resources are used extensively to provide water for both urban and agricultural uses. Many of the groundwater basins within the Action area are in overdraft conditions, and most of the basins are actively managed to ensure the continued and sustainable use of the available resources.

Within Arizona, the Action area is underlain by 20 groundwater basins, including: Agua Fria, Big Sandy, Bill Williams, Butler Valley, Cienega Creek, Hualapai Valley, Lake Havasu, Lake Mojave, Lower Gila, McMullen Valley, Parker, Phoenix AMA, Pinal AMA, Prescott AMA, Sacramento Valley, Tucson AMA, Upper San Pedro, Verde River, Wilcox, and Yuma (ADWR 2013). Within California, the Action area is underlain by 11 groundwater basins, including: Amos Valley, Arroyo Seco Valley, Calzona Valley, Needles Valley, Ogilby Valley, Palo Verde Mesa, Palo Verde Valley, Quien Sabe Point Valley, Rice Valley, Vidal Valley, and Yuma Valley (CDWR 2012). Within Nevada, the Action area is underlain by four groundwater basins, including: Black Mountains Area, Colorado Valley, Eldorado Valley, and Las Vegas Valley (NDWR 2010).

3.11.2 Environmental Consequences from the Proposed Action

Potential impacts to water resources were evaluated based on a comparison of the baseline condition of the affected environment and the likely effects of the Proposed Action.

3.11.2.1 Floodplains and Drainages

No impacts to floodplains or drainages would occur under the Proposed Action. New structures, such as transmission poles and towers, would only be installed to replace damaged structures. These new structures would be designed and located so as not to impede floodwaters or impact the functionality of existing flood control structures or otherwise alter the natural drainage pattern. Western would consult with the USACE and other agencies with floodplain responsibility as needed prior to the relocation of any structure or access road. All fill or riprap placed within a stream or river channel would be limited to the minimum area required for access or protection of existing facilities.

3.11.2.2 Surface Water Quality

The Proposed Action would include soil-disturbing activities, such as grading and improvement of existing access roads, relocation or stabilization of existing transmission poles or towers, repair or replacement of existing culverts, and mechanical removal of vegetation. This soil disturbance could lead to increased erosion and sedimentation. Additionally, potentially hazardous materials such as fuel, engine oil, and lubricants could be leaked or accidentally spilled onto the ground or into waterways during inspection and maintenance activities associated with the Proposed Action. Improper storage or application of herbicides could contaminate surface waters through direct contact or transport via runoff.

The Action area is crossed in several places by waters that are listed as impaired. It is possible that these waters could be impacted adversely by activities associated with the Proposed Action. However, the potential for impacts to these waters would be the same as that for all other waters within the Action area, and would be negligible.

As described in Appendix A, Western would minimize any potential impacts to surface water quality and would ensure that any potential impacts would be negligible. Western practices, procedures, and conservation measures related to the protection of water quality include: avoidance of wet soils and areas recently subjected to heavy rains, restoration and/or re-vegetation of disturbed areas to minimize erosion and ensure proper drainage, proper selection, handling and application of herbicides to minimize the potential for surface water contamination (including avoidance of identified wetlands), minimization of grading and other soil disturbing activities, appropriate reporting and cleanup of accidental releases of hazardous materials, prohibition of discharge of contaminants to surface waters, installation of erosion control devices and compliance with a Storm Water Pollution Prevention Plan (SWPPP), and the maintenance of adequate buffer zones around jurisdictional waters, including wetlands.

3.11.2.3 Waters of the U.S. including Wetlands

Jurisdictional waters may be found throughout the Action area. Western would maintain an appropriate buffer around wetlands, seeps, springs, ponds, lakes, rivers, streams, marshes, and their associated habitats. When feasible, all maintenance activities would be routed around wet areas. In-stream work would be conducted during no-flow or low-flow conditions. Prior to activities within or near jurisdictional waters, Western would perform an impact assessment, which would identify and quantify the acreage of each jurisdictional area, and would provide creation, restoration, or preservation mitigation consistent with permitting requirements.

3.11.2.4 Groundwater

Impacts to groundwater could occur if an accidental release of hazardous materials infiltrates into the subsurface aquifer, or if shallow or perched groundwater is intercepted during construction and dewatering activities are required. Several proposed activities would require motorized vehicles and equipment that use potentially hazardous materials. These activities include ground inspections, integrated vegetation management, access and ROW road maintenance, transmission system maintenance and upgrades, and emergency repairs. Excavation for replacement tower installation or other construction activity may intercept shallow groundwater and require pumping to continue to work. If improperly conducted, these dewatering activities could introduce contaminants into the groundwater.

All releases or discharges of hazardous materials within the Action area in connection with Proposed Action activities would be cleaned up and/or remediated, in accordance with applicable federal, state, and local regulations. Accidental discharges of hazardous materials would be reported to Western's dispatch and Environmental Affairs Department immediately. There would be no storage of hazardous materials within the Action area without approval from the authorized officer. All herbicide spill requirements would be followed in the rare case of an herbicide spill, including containment, cleanup, and notification procedures. Contractors would submit a spill response plan that is approved by Western. Dewatering work would be performed in compliance with CWA Section 401, and contaminated water would not be discharged to either surface waters or groundwater. Western would ensure that potential impacts to groundwater would be negligible.

3.11.3 Environmental Consequences from the No Action Alternative

Under the No Action Alternative, Western would continue to conduct routine maintenance activities along the Project ROW and at substations. Potential impacts associated with water resources from O&M activities would be the same as those described above for the Proposed Action.

Vegetation management under the No Action Alternative would continue to be need-driven where vegetation control needs are identified through periodic line patrols. Therefore, vegetation management under the Proposed Action is more aggressive than the No Action Alternative. The potential for soil disturbance, increased erosion and sedimentation, disturbance of jurisdictional waters, and accidental release of hazardous materials may be less under the No Action Alternative.

3.12 Geology/Soils/Mineral Resources

This section characterizes the environmental setting for the Project area for geology, soils, and mineral resources. It discusses in general terms the geology, soils, and mineral resources near Western's transmission lines, communication facilities, and access roads.

3.12.1 Affected Environment

The affected environment discussion is split into four Project areas, based on the geographical and geological context: California/Southwest Arizona, South Central Arizona, West/Central Arizona, and Nevada.

3.12.1.1 California/Southwest Arizona

Geology

This section of the Project area is the most geologically diverse, exhibiting a mixture of geological units. The southernmost part of this area is mostly Quaternary deposits, including older alluvium, lake, playa, and terrace deposits on the California side, while the Arizona side includes mixtures of younger alluvium. Many pockets of Tertiary volcanic flow rocks, undivided Tertiary sedimentary rock, undivided pre-Cenozoic metasedimentary and metavolcanic rocks of great variety, schist of various types, and Mesozoic granite mixtures are present.

The northernmost part of this area is less dominated by Quaternary deposits, and contains a more diverse mix of various geologic units, including undivided Tertiary sedimentary rock, complexes of Precambrian igneous and metamorphic rocks, Tertiary volcanic flow rocks, mixed Tertiary sedimentary rocks, undivided pre-Cenozoic metasedimentary and metavolcanic rocks, and undated granitic rocks.

The central parts of this area cross large areas of Quaternary deposits, with similar geologic units found in the north and south mixed in, but to a lesser degree (CGS 2010a; AZGS 2013).

Seismicity

The Project ROW appears to cross several faults on the Arizona side, though these faults are not recently active (AZGS 2013; USGS 2012). There are no known active faults that underlie the Project ROW on the California side (CGS 2010).

Soils

The sole general soil type on the southwest Arizona side are aridisols[2], while the California side includes aridisols, entisols[3], and miscellaneous areas (USDA NRCS 2013). The miscellaneous areas are large regions of rock outcrops.

Mineral Resources

On the California side, the main mineral resources found within the area are gypsum, gold, and construction sand and gravel (USGS 2009a). The southwest Arizona side contains construction sand and gravel as the main mineral resource (USGS 2009).

3.12.1.2 Nevada

Geology

The Nevada project area is the smallest of the four, and therefore one of the least geologically diverse. Quaternary deposits containing older alluvium are present for most of the area, with granite deposits of various ages and Tertiary intrusive rocks in smaller pockets throughout (SWReGAP 1996).

Seismicity

A total of eight faults underlie the Project ROW within the Nevada project area (USGS 2012a). These faults do not appear to be recently active (USGS 2012).

Soils

The only two general soil types within the Nevada portion of the Project include entisols and aridisols (USDA NRCS 2013).

Mineral Resources

Titanium, dimension stone, and construction sand and gravel are the main mineral resources found within this area (USGS 2008).

[2] Aridsols are a soil order that contains a very low concentration of organic matter and is water deficient. These soils form in an arid or semi-arid climate and are common in desert regions.

[3] Entisols are a soil order that contains weakly developed soils, typically not showing profile development beyond the A horizon. These soils are essentially unaltered from their parent material.

3.12.1.3 South Central Arizona

Geology

The Project area south of Tucson is a repeating, sequential pattern of Quaternary deposits, with younger and older alluvium, mixtures of volcanic rock, carbonate-dominated formations, and shale-dominated formations. North of Tucson to the Phoenix area, the geologic deposition is much simpler, largely dominated by Quaternary deposits containing younger alluvium, with smaller pockets containing mixtures of volcanic rocks (AZGS 2013).

Seismicity

The Project ROW appears to cross a detachment fault, just north of Tucson, though this fault does not appear to be recently active (AZGS 2013; USGS 2012).

Soils

The dominant general soil type are aridisols, with small areas of entisols mixed throughout, as well as one large patch of inceptisols[4] (USDA NRCS 2013).

Mineral Resources

Crushed stone, clay, construction sand and gravel, copper, gypsum, perlite, vermiculite, and salt are the main mineral resources found within this area (USGS 2009).

3.12.1.4 North/Central Arizona

Geology

The more centrally located area, northwest of Phoenix, contains a large percentage of Quaternary deposits, with younger alluvium, and numerous pockets of more diverse geologic units, specifically on the far western edge. These pockets include mixtures of volcanic rock, including Precambrian units and carbonate-dominated formations. The western end contains Quaternary volcanic rock flows, symbolizing relatively recent volcanic activity.

The area north of Phoenix and traveling west to the Nevada state line is a much larger region, though it does not display much diversity. It is mainly composed of Quaternary deposits containing younger and older alluvium, numerous complexes of Precambrian igneous and metamorphic rocks, Tertiary volcanic flow rocks, as well as Quaternary volcanic rock flows, symbolizing relatively recent volcanic activity (AZGS 2013).

Seismicity

There are no known active faults that underlie the Project ROW for the North/Central Arizona project area (AZGS 2013).

[4] Inceptisols are a soil order having the weakest appearance of horizons and alteration of parent material. These soils are a step further in development from Entisols.

Soils

The more centrally located area, northwest of Phoenix, is dominated by the general soil type aridisols, with small inclusions of entisols mixed throughout. The area north of Phoenix, and traveling west to the Nevada state line, is much more diverse, including aridisols, inceptisols, vertisols,[5] entisols, alfisols,[6] and a small miscellaneous area, which is a rock outcrop.

Mineral Resources

Crushed stone, construction sand and gravel, gypsum, dimension sandstone, and clay are the main mineral resources found within this area (USGS 2009).

3.12.2 Environmental Consequences from the Proposed Action

3.12.2.1 Geology

Impacts associated with geology could occur if construction is performed on steeper, unstable slopes, disturbing the subsurface and causing slope failure, slumps, or landslides of rock. Activities may also occur in seismically active areas, and Project activities may therefore be subject to hazards associated with seismic activity. Such activities would not differ from ongoing operations and maintenance along the transmission line and ROW.

Western would ensure that a certified professional geotechnical engineer would be on site to evaluate the potential for geotechnical hazards and unstable slopes, if a structure needs to be relocated or modified, as well as avoiding work on slopes over 35 percent, unless the threat of erosion is minimal.

3.12.2.2 Soils

Adverse impacts to soils could occur if the overall soil structure is affected. This can arise from heavy machinery compacting soils, destroying composition and inhibiting future plant growth. Excavation for construction activities disturbs soils, elevating soil erosion and sediment transport rates. Vegetation removal destabilizes soils and slopes, also leading to elevated erosion and sediment transport rates. A variety of proposed operations involve the use of major equipment that may disturb and erode soils. These activities include ground inspections, integrated vegetation management, access and ROW road maintenance, transmission system maintenance and upgrades, and emergency repairs. Vegetation clearance is a major component of the Project, and would occur along the access roads and transmission line ROWs as needed. Installment of new towers and transmission upgrades may also occur, involving excavation and digging.

Western would ensure that impacts would be minimized or avoided by preventing soil erosion, ensuring soil conditions are left to facilitate proper vegetation regrowth, and minimizing disturbance and removal of soils and vegetation as much as possible. In addition, mastication machinery would not be used in areas that have recently received heavy rain, to avoid rutting in wet soils.

[5] Vertisols are a soil order containing high contents of clay minerals, exhibiting darker colors and variable organic matter content. These soils shrink and swell as they change water content.

[6] Alfisols are a soil order that exhibit well developed, contrasting soil horizons, normally enriched in aluminum and iron-bearing minerals. These soils normally form under forest communities and grass savannahs.

3.12.2.3 Mineral Resources

Impacts to mineral resources may occur if the loss of availability of a mineral resource is created by Project activities such as limiting access, removing a mineral site, or using the resource for the Project, making it unavailable to the area. Due to the nature of the Project, which is comprised of continued maintenance of transmission line facilities, potential impacts to mineral resources would be temporary and site-specific, limited to potential access restrictions associated with the presences of construction vehicles and equipment on access roads.

3.12.3 Environmental Consequences from the No Action Alternative

Under the No Action Alternative, Western would continue its need-driven management approach using current methods for ROW and transmission line maintenance. Impacts associated with geology, soils, and minerals would be the same as the Proposed Action.

Vegetation management under the No Action Alternative would continue to be need-driven where vegetation control needs are identified through periodic line patrols. Therefore, vegetation management under the Proposed Action is more aggressive than the No Action Alternative. Impacts to geology, soils, and mineral resources due to vegetation management activities may be less under the No Action Alternative.

3.13 Air Quality

3.13.1 Affected Environment

The following sections describe the affected environment for air quality for each of the four study regions identified in Chapter 1 (Introduction), Figure 1-1 and described in Section 1.2. Because the Project is dispersed throughout each of the four study areas, the affected environment is presented for those air quality districts containing the transmission system.

3.13.1.1 Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Sensitive population groups include children, the elderly, the acutely ill and the chronically ill, especially those with cardio-respiratory diseases.

Residential areas are also considered to be sensitive to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to pollutants present. Recreational land uses are considered moderately sensitive to air pollution. Although exposure periods are generally short, exercise places a high demand on respiratory functions, which can be impaired by air pollution. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial and commercial areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent, as the majority of the workers tend to stay indoors most of the time. In addition, the working population is generally the healthiest segment of the public.

3.13.1.2 Air Quality Conditions

Criteria air pollutants refer to a group of pollutants for which regulatory agencies have adopted ambient air quality standards (AAQS) and region-wide pollution reduction plans. Criteria air pollutants include ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM), and lead. Toxic air contaminants (TACs) refer to a category of air pollutants that pose a present or potential

hazard to human health, but that tend to have more localized impacts than criteria air pollutants. Reactive organic gasses (ROG) and nitrogen oxides (NOx) are also regulated as criteria pollutants because they are precursors to ozone formation. Certain ROGs may also qualify as TACs. Two subsets of particulate matter are: inhalable particulate matter less than 10 microns in diameter (PM10) and fine particulate matter less than 2.5 microns in diameter (PM2.5). Several of the gaseous criteria pollutants (nitrogen oxides [NOx], ROG, sulfur oxides [SOx]) and other pollutants such as ammonia also react together in the atmosphere to create fine aerosol secondary particulate matter.

The quality of surface air (air quality) is evaluated by measuring ambient concentrations of pollutants that are known to have deleterious effects on public health. The degree of air quality degradation is then compared to the ambient air quality standards. The Action area crosses air basins within three states: Arizona, California, and Nevada. Applicable AAQS include the National, California, and Nevada Ambient Air Quality Standards (NAAQS, CAAQS, and Nevada AAQS). The applicable AAQS relevant to the Project are provided in Table 3.13-1. As shown, Arizona only uses the NAAQS, with both the NAAQS and the state specific AAQS applying in California and Nevada.

Table 3.13-1. National, California, and Nevada Ambient Air Quality Standards

Pollutant	Averaging Time	National Standards[1]	California Standards	Nevada Standards	Health Effects
Ozone (O_3)	1-hour	—	0.09 ppm	0.12 ppm	Breathing difficulties, lung tissue damage
	8-hour	0.075 ppm	0.07 ppm	—	
Respirable particulate matter (PM10)	24-hour	150 µg/m3	50 µg/m3	150 µg/m3	Increased respiratory disease, lung damage, cancer, premature death
	Annual	—	20 µg/m3	50 µg/m3	
Fine particulate matter (PM2.5)	24-hour	35 µg/m3	—	—	Increased respiratory disease, lung damage, cancer, premature death
	Annual	12 µg/m3	12 µg/m3	—	
Carbon monoxide (CO)	1-hour	35 ppm	20 µg/m3	—	Chest pain in heart patients, headaches, reduced mental alertness
	8-hour	9.0 ppm	9.0 ppm	▪ <5,000' above mean sea level = 9 ppm ▪ >5,000' = 6 ppm ▪ elevation = 35 ppm	
Nitrogen dioxide (NO_2)	1-hour	0.100 ppm	0.18 ppm	—	Lung irritation and damage
	Annual	0.053 ppm	0.03 ppm	0.053 ppm	
Sulfur dioxide (SO_2)	1-hour	0.075 ppb	0.25 ppm	—	Increases lung disease and breathing problems and asthmatics
	3-hour	—	—	0.5 ppm	
	24-hour	0.14 ppm	0.04 ppm	0.14 pm	
	Annual	0.03 ppm	—	0.03 ppm	

ppm = parts per million; µg/m3 = micrograms per cubic meter; "—" = no standard

1 - Arizona uses the NAAQS and has no separate AAQS, while California and Nevada are subject to the NAAQS and the separate state AAQS shown.

Source: ADEQ 2014a; CARB 2014a; BAQP 2014a.

The Project crosses the jurisdictions of the following regional and local air quality districts within the four study regions (refer to Chapter 1, Figure 1-1):

- **Nevada Study Region:** Nevada Bureau of Air Quality Planning (BAQP), Clark County Department of Air Quality

- **Arizona Study Regions:** Arizona Department of Environmental Quality (ADEQ), Maricopa County Air Quality Department, Pinal County Air Quality Control District, and Pima County Department of Environmental Quality
- **California Study Region:** California Air Resources Board (CARB), Mojave Desert Air Quality Management District (MDAQMD), and Imperial Air Pollution Control District (IAPCD)

The USEPA, ADEQ, CARB, BAQP, and local air districts classify an area as being in attainment, unclassified, or nonattainment depending on whether or not the monitored ambient air quality data shows compliance, insufficient data available, or non-compliance with the ambient air quality standards presented in Table 3.13-1, respectively. Table 3.13-2 identifies the most currently available attainment status for the Project area. For the portion of the system within Arizona, segment names are provided for those in nonattainment areas (refer to Chapter 1, Table 1-1 and Figure 1-1).

Table 3.13-2. Attainment Status for Parker-Davis System Study Regions

ARIZONA STUDY REGIONS		
Pollutant		State and Federal
Ozone	1-hour	—
	8-hour	*Marginal Nonattainment:* Phoenix-Mesa Region (Maricopa and Pinal Counties) *Unclassifiable/Attainment*: All other areas
PM10		*Serious Nonattainment:* Phoenix Planning Area (Maricopa and Pinal Counties) *Moderate Nonattainment:* West Pinal Planning Area (Pinal County), Rillito Planning Area(Pima County), Ajo Planning Area (Pima County), Yuma Planning Area (Yuma County) *Attainment/Maintenance:* Bullhead City (Mohave County) *Unclassifiable/Attainment:* All other areas
PM2.5		*Nonattainment:* West Central Pinal Region (Pinal County) *Unclassifiable/Attainment:* All other areas
CO		*Attainment/Maintenance:* Phoenix Region (Maricopa County), Tucson Region (Pima County) *Unclassifiable/Attainment*: All other areas
NO_2		Unclassifiable/Attainment
SO_2		Unclassifiable/Attainment

CALIFORNIA STUDY REGION			
MDAQMD			
Pollutant		State	Federal
Ozone	1-hour	Moderate Nonattainment	—
	8-hour	Nonattainment	Unclassifiable/Attainment
PM10		Nonattainment	*Moderate Nonattainment:* San Bernardino County *Unclassifiable/Attainment:* All other areas
PM2.5		Unclassified	Unclassifiable/Attainment
CO		Unclassified	Unclassifiable/Attainment
NO_2		Attainment	Unclassifiable/Attainment
SO_2		Attainment	Unclassified

Table 3.13-2. Attainment Status for Parker-Davis System Study Regions

IAPCD			
Pollutant		State	Federal
Ozone	1-hour	Moderate Nonattainment	—
	8-hour	Nonattainment	Marginal Nonattainment
PM10		Nonattainment	Serious Nonattainment: Imperial Valley Planning Area Unclassifiable/Attainment: All other areas
PM2.5		Attainment	Unclassifiable/Attainment
CO		Attainment	Unclassifiable/Attainment
NO_2		Attainment	Unclassifiable/Attainment
SO_2		Attainment	Unclassified
NEVADA STUDY REGION			
Pollutant		State	Federal
Ozone	1-hour	Attainment	—
	8-hour	—	Attainment (Maintenance)
PM10		Serious Nonattainment	Attainment and Serious Nonattainment
PM2.5		Unclassified	Unclassifiable/Attainment
CO		Attainment	Attainment and Attainment (Maintenance)
NO_2		Attainment	Unclassifiable/Attainment
SO_2		Unclassified	Unclassified

"—" = no standard
Source: USEPA 2014; ADEQ 2014b; CARB 2014b; Clark County 2014a.

3.13.1.3 Valley Fever

Coccidioidomycosis, often referred to as San Joaquin Valley Fever or Valley Fever, is one of the most studied and oldest known fungal infections. Valley Fever most commonly affects people who live in hot dry areas with alkaline soil and varies with the season. This disease, which affects both humans and animals, is caused by inhalation of *arthroconidia* (spores) of the fungus *Coccidioides immitis* (CI). CI spores are found in the top few inches of soil and the existence of the fungus in most soil areas is temporary. The cocci fungus lives as a saprophyte (an organism, especially a fungus or bacterium, which grows on and derives its nourishment from dead or decaying organic matter) in dry, alkaline soil. When weather and moisture conditions are favorable, the fungus "blooms" and forms many tiny spores that lie dormant in the soil until they are stirred up by wind, vehicles, excavation, or other ground-moving activities and become airborne.

The Project is located entirely within areas designated as endemic for Valley Fever, as follows (CDC 2014):

- **Nevada Study Region:** Suspected Endemic within this entire area.
- **North/Central Arizona Study Region:** Mildly Endemic to the north and along the western boundary, Moderately Endemic within the central portion, and Highly Endemic within the south central portion of this study region.
- **South Arizona Study Region:** Mildly Endemic along the western boundary and Highly Endemic within the central and eastern portions of this study region.
- **California Study Region:** Suspected Endemic within this entire area.

Agricultural workers, construction workers, and other people who are outdoors and are exposed to wind, dust, and disturbed topsoil are at an elevated risk of contracting Valley Fever.

3.13.2 Environmental Consequences from the Proposed Action

In general, air quality impacts from the Proposed Action would be minimal. Maintenance activities would be temporary, intermittent, of short duration, and dispersed along the Project ROW. The Proposed Action would not involve the installation of significant stationary source of air pollution. Western would ensure mobile source emissions and ground disturbance would be minimal and localized, and would not cause air basin or district-wide changes to air quality. Western's activities toward decreasing air quality impacts include:

- Western would adhere to requirements of agencies having jurisdiction over air quality, and would obtain required permits.
- Machinery and vehicles would be kept in good operating condition and as equipment ages, it would be replaced with equipment meeting the most recent emission standards; required emissions-control equipment would be maintained for vehicles and equipment, per applicable EPA, Arizona, California, and Nevada standards.
- Idle equipment would be shut down when not in use; visible emissions from stationary generators would be controlled.
- Dust-control measures would be implemented during ground disturbing activities, road construction and maintenance, and as needed during other activities. Trucks transporting loose material would be covered or maintain at least 2 feet of freeboard and would not create visible dust emissions.
- Grading activities would cease during periods of high winds (as determined by local air quality management districts).
- Major operations would be avoided on days when the local Air Quality Index (AQI) is expected to exceed 150.[7]

3.13.2.1 Category A – Inspection and Minor Maintenance

Some examples of Category A activities that could affect air quality include ground and aerial patrols; emergency manual removal and pruning of danger trees or vegetation; and maintenance and inspection of towers, conductors, and insulators. The primary cause of air quality impacts associated with these activities is exhaust from vehicles and fugitive dust emissions from vehicle travel over transmission line ROW unpaved roads. Removal of vegetation could also lead to the localized emission of fugitive dust when bare ground is disturbed.

Potential emission impacts would be avoided or minimized through implementation of the air quality SOPs (as identified above and in Appendix A). While all SOPs are applicable, those most relevant for Category A activities include: (1) adhere to all daily emission thresholds for agencies having jurisdiction over the work area; (2) the requirement that all equipment be kept in good operating condition to reduce exhaust emissions for all machinery and vehicles (such as chainsaws, trucks, and graders); (3) the

[7] The AQI is an index for reporting daily air quality. The AQI measures from 0-500, with higher AQI values indicating greater levels of air pollution. For example, an AQI value of 50 represents good air quality with little potential to affect public health, while an AQI value over 150 represents unhealthy air quality for all population, with members of sensitive groups possibly experiencing more serious effects.

prohibition against idling equipment that is not in active use; and (4) the requirement that vehicles and equipment maintain emissions-control equipment and be permitted as required.

3.13.2.2 Category B – Routine Maintenance

The Category B activity that would be most likely to cause air quality effects is emissions from equipment use and fugitive dust from ground disturbing activities.

The increased exhaust emissions and potential for dust emissions during Category B activities would be avoided or minimized by: (1) adhering to all daily emission thresholds for agencies having jurisdiction over the work area (as identified above in Section 3.13.1.2); (2) utilizing dust-control measures such as water or chemical suppressants for road construction activities; (3) re-seeding of ground surfaces that have been significantly disturbed to prevent wind erosion; (4) regular watering of exposed soils and unpaved access roads during maintenance activities; and (5) cessation of grading activities during periods of high wind.

3.13.2.3 Category C – New Infrastructure

Category C activities have the largest potential to cause air quality impacts. This is due to increased emissions from potential use of large equipment, use of more pieces of equipment, and the potential for larger disturbance areas. Dust emissions would also be increased with the addition of new access roads. Similar to grading an existing access road, new road construction could cause fugitive dust emissions (possibly of greater magnitude than simple grading). Construction of a new access road would require the use of heavy machinery that would emit exhaust that could adversely affect air quality. The relocation or realignment of towers or poles under Category C could also produce similar air quality impacts; both through fugitive dust emissions and equipment emissions.

Western would avoid or minimize the effects of the activities under Category C by using reasonably practicable methods and devices to control, prevent, and minimize atmospheric emissions of air contaminants. To further reduce local impacts of Project activities, Western would avoid major operations on days when the local AQI is expected to exceed 150 (see footnote 7). However, as shown in Table 3.13-2, the Project ROW crosses areas of nonattainment with criteria pollutants. To ensure major projects do not result in noncompliance with general conformity, Mitigation Measure 3.13-1 is proposed.

MM 3.13-1 Major operation and maintenance activities occurring in nonattainment and attainment/ maintenance areas shall first conduct emission estimates to ensure compliance with applicable general conformity regulations.

3.13.3 Environmental Consequences from the No Action Alternative

Under the No Action Alternative, Western would continue routine maintenance activities along the Project ROW, requiring negotiations documented in a categorical exclusion for each particular maintenance task. The activities conducted under the No Action Alternative would be the same as those conducted under the Proposed Action. Therefore, impacts to air quality under the No Action Alternative would be similar to impacts under the Proposed Action.

Vegetation management under the No Action Alternative would continue to be need-driven where vegetation control needs are identified through periodic line patrols. Therefore, because vegetation management under the Proposed Action is more aggressive than the No Action Alternative, potential air quality impacts due to vegetation management activities may be less under the No Action Alternative.

3.14 Hazardous Materials

3.14.1 Affected Environment

The following section describes the affected environment for hazardous materials used currently within the Project area. Hazardous substances are defined by federal and state regulations to protect public health and the environment. Hazardous materials have certain chemical, physical, or infectious properties that cause them to be considered hazardous. Hazardous substances are defined in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 101(14).

3.14.1.1 Herbicides

Western's "Transmission Vegetation Management" used under current maintenance activities was created in response to new federal standards, and was subsequently approved on May 28, 2013. The vegetation management program focuses on the removal of vegetation to protect facilities from fire, control the spread of noxious weeds to protect environmental quality, establish and maintain stable, low-growing plant communities in the ROW, and establish activities to protect public and worker safety around transmission lines and other facilities. A main aspect of current vegetation management with respect to hazardous materials is the use and application of herbicides.

Current Western maintenance practices within the Project ROW include the use of herbicides for vegetation management. All herbicides currently used by Western are registered for use by the USEPA, California Department of Pesticide Regulation, Arizona Department of Agriculture, and Nevada Department of Agriculture. Other local agencies and land managers may have additional requirements or restrictions to follow. Special restrictions may also be set forth on federally owned land.

3.14.1.2 Miscellaneous Fuel

Equipment currently employed in the operation and maintenance activities require fuel (such as diesel fuel and gasoline) and other general substances for upkeep of equipment (such as oil and grease). This equipment includes several different types of trucks, dozers, ATVs, chainsaws, and other brush-cutting tools. California Department of Toxic Substances, ADEQ, and Nevada Division of Environmental Protection serve as the main state regulatory agencies for toxic substances control. These agencies are only involved if a substantial spill of these substances occurs and contaminates soil, water and other resources. These substances are used as necessary within the ROW and maintenance staging areas.

3.14.2 Environmental Consequences from the Proposed Action

3.14.2.1 Herbicides

For a detailed description on Western's herbicide application procedures, see Section 2.2.2. Herbicide use under the Proposed Action would be limited to within the ROW and access road boundaries. Herbicide applicators and other maintenance workers would be those exposed to herbicides during normal application and use. If a spill were to occur, herbicide applicators and maintenance workers would be exposed to a more substantial level of herbicide. Direct and indirect exposure to the public is possible, but limited to either touching or consuming plants that have been treated with herbicide, eating animals that have consumed herbicide-treated plants, drinking water that may have been contaminated by herbicide runoff or spills, or airborne drift. The potential for public exposure is considered very low. Both the ROW and access roads are private, restricting and prohibiting public access, thereby minimizing or avoiding public exposure to these potential hazards.

As discussed in Sections 3.11.2.2 (Surface Water Quality) and 3.11.2.4 (Groundwater), impacts to surface water could occur if an accidental release of herbicides drifts or flows into surface water. Vegetation management may affect water quality by decreasing the natural buffer and filtration capabilities that vegetation provides within the ROW where herbicide would be applied. This may cause surface water runoff and sediment loading in surface water. Western would minimize or avoid these effects through compliance with the SWRCB runoff control measures and compliance with the SWPPP. Western would further provide proper management of herbicides to avoid overspray and potential contamination of surface water or land outside the ROW and application area. Compliance with federal agency regulations listed in Chapter 5.0 also would minimize or reduce impacts from use of herbicides. Western also requires training and licensing of herbicide applicators, compliance with herbicide label and material safety data sheet instructions, assessment of climate, geology, and soil types before selecting and applying herbicide, herbicide spill cleanup requirements, and several other measures. BLM-approved herbicides listed under Appendix B would be applied only on BLM land, ensuring use of unapproved herbicides does not occur.

3.14.2.2 Miscellaneous Fuel

Maintenance workers may be exposed to fuels, greases, and other hazardous materials during maintenance activities included under the Proposed Action. If an accidental spill occurs, maintenance workers would be responsible for the cleanup and proper disposal of contaminated soil spoils. As discussed in Sections 3.11.2.2 (Surface Water Quality) and 3.11.2.4 (Groundwater), impacts would be minimized or avoided. For hazardous materials and stormwater runoff, Western would conduct daily vehicle inspections for fluid leaks, compliance with the SWRCB runoff control measures, and compliance with the SWPPP. Western would further provide proper management of hazardous materials to avoid contaminating surface water by hazardous materials, and would place fill and riprap and use bridges at stream crossings whenever possible. Western prohibits some activities within 100 feet from surface waters, and requires culvert or other in-stream work to be done during no-flow or low-flow season.

Western's spill response plans and measures for providing training to all crews and workers, including hazardous materials pre-maintenance awareness training and annual awareness training related to hazardous materials, and general cleanup/remediation of all hazardous materials in accordance with applicable federal, state, and local regulations help further reduce impacts.

3.14.2.3 Other Hazardous Waste

Other hazardous wastes, such as contaminated soil spoils and treated wood poles, may be generated during Proposed Action activities. Western would ensure that hazardous wastes be properly disposed of consistent with all applicable regulations, thereby minimizing or avoiding impacts associated with miscellaneous hazardous waste.

3.14.3 Environmental Consequences from the No Action Alternative

Under the No Action Alternative, Western would continue its need-driven management approach using current methods for ROW, transmission line, and substation maintenance.

Vegetation management under the No Action Alternative would continue to be need-driven where vegetation control needs are identified through periodic line patrols. Therefore, vegetation management under the Proposed Action is more aggressive than the No Action Alternative. The increase in activities as a result of the IVM program may result in the potential for increased use of herbicides and other fuels under the Proposed Action in comparison to the No Action Alternative.

3.15 Intentional Destructive Acts

3.15.1 Affected Environment

The U.S. Department of Energy Office of NEPA Policy and Compliance issued guidance on the need to consider intentional acts of destruction (e.g., terrorism, vandalism) in NEPA documents (DOE 2006). Power transmission facilities are part of America's critical infrastructure and are considered to be possible targets of intentional acts of destruction. Potential aggressors include terrorists hoping to cause disruption, or activists targeting facilities for other reasons. A more likely occurrence is acts of opportunity, such as individuals shooting at or vandalizing insulators or structures.

3.15.2 Environmental Consequences from the Proposed Action

Similar to other overhead electrical transmission and substation infrastructure, intentional destructive acts may be directed at Western's transmissions system and facilities within the Project area. Destroying a tower or equipment could disrupt the supply of electricity, in turn affecting utility customers and end users. The extent and duration of this impact would depend upon the specific role and relationship of damaged or destroyed equipment to and within the overall infrastructure network (i.e., the potential for cascading effects), as well as upon the degree of damage. However, as opposed to acts of terrorism, vandalism and theft are more likely forms of destruction. Although potentially costly, such acts do not usually disrupt the provision of electricity or have significant environmental effects.

The incidence of an intentional destructive act is speculative, and could occur at any location along the 1,534-mile ROW or at substations. Based on past occurrences, if an act were to take place, it would likely result in minor or negligible environmental impacts.

3.15.3 Environmental Consequences from the No Action Alternative

Impacts for the No Action Alternative would be the same as those described in the Proposed Action.

4.0 Cumulative Effects

As defined by Council on Environmental Quality (CEQ) Regulations at 40 CFR Part 1508.7, cumulative impacts are those that "*result from the incremental impact of the Proposed Action when added to other past, present, and reasonably foreseeable future actions, without regard to the agency (Federal or non-Federal) or individual who undertakes such other actions*." Therefore, a cumulative impact analysis captures the effects that result from the Proposed Action in combination with the effects of other actions in the Proposed Action's region of influence.

4.1 Cumulative Impact Analysis

The cumulative analysis is based on the recommended methodology for the assessment of cumulative impacts, which was developed jointly by the U.S. Environmental Protection Agency (EPA), Federal Highway Administration (FHWA), and the California Department of Transportation within "*Defining Cumulative Impact, Approach and Guidance*" (EPA, FHWA, and California Department of Transportation, 2005). This methodology identifies eight steps for a cumulative impact analysis, as utilized within this section:

1. **Identify resources to consider in the cumulative impact analysis**. Chapter 4 addresses the Proposed Action's impacts on the following resources: Land Use and Aviation, Recreation, Human Health and Safety, Visual/Aesthetics, Noise, Cultural Resources, Wildlife, Special-Status Species, Vegetation, Water Resources/Floodplains/Waters of the U.S., Geology/Soils/Mineral Resources, Air Quality, Hazardous Materials, and Intentional Destructive Acts.
2. **Define the study area for each resource**. Defining the study area for each resource is a critical step in the cumulative impact analysis and is not always the same for each environmental resource. The geographic boundary for each resource is described under the Affected Environment subsections in Chapter 3 (Affected Environment and Environmental Consequences) for each resource area.
3. **Describe the current health and historical context for each resource**. Chapter 3, Affected Environment and Environmental Consequences, describes the current status of the resources along with a background of the resource on how it reached its current condition. The current status of the resource takes into account past and present projects within each resource's study area. Table 4-1 lists the cumulative projects considered in the cumulative impact analysis. This table contains past, present, and reasonably foreseeable actions.
4. **Describe direct and indirect impacts of the proposed project that might contribute to a cumulative impact**. The individual impacts of the Proposed Action are described in Chapter 3. The results of Proposed Action impacts are brought forward into this chapter for the discussion of cumulative impacts.
5. **Identify other reasonably foreseeable actions that affect each resource**. As described under Step 3, Table 4-1 lists cumulative projects considered in the cumulative impact analysis for the Proposed Action. This table includes past, present, and reasonably foreseeable future actions in the study area defined for each resource listed in Step 1. Due to the ongoing timeframe of Operation and Maintenance activities defined in the Proposed Action, reasonably foreseeable actions will include projects anticipated to be completed by 2025.

6. **Assess potential cumulative impacts**. The cumulative impact analysis is primarily qualitative due to the absence of detail for most of the reasonably foreseeable future projects in the study area. The assessment discussion indicates whether the Proposed Actions could have additional cumulative impact, when considered in conjunction with the listed cumulative projects, and describes the anticipated extent of the Proposed Action's contribution to the cumulative impact expected to result from past, present, and reasonably foreseeable future actions. Because ROWs are linear in nature, relatively narrow, and spread out over a large geographic area, a ROW maintenance program would only be expected to contribute relatively minor impacts when considered together with other actions in a Project area.
7. **Report the results**. The cumulative impact assessment results are presented for each resource in Section 4.3.
8. **Assess the need for mitigation**. Western policy is to avoid impacts when possible and reduce impacts when avoidance is not possible. Mitigation measures to avoid or reduce impacts are listed in Chapter 3 by resource area. In addition to avoiding or reducing impacts resulting from the Proposed Action, these mitigation measures would avoid or reduce cumulative impacts.

4.2 Cumulative Projects

Table 4-1 lists cumulative projects that were identified in the study area based on readily available information. A search was conducted within each county and federal regulatory agency jurisdiction encompassing the study area. The number of search results obtained and the amount of detail acquired about each project varies due to the extent of information made available by each information source. Current status of these cumulative projects may change and proposals for new projects may be developed. Table 4-1 provides cumulative projects as divided by the Parker-Davis Transmission System (as discussed in Section 1.2, Table 1-1) by Nevada, North/Central Arizona, South Arizona, and California. The table indicates the responsible agency, name, location, description, and timeframe for each project.

Table 4-1. Cumulative Project List					
Responsible Agency	Project Name	Location	Status	Description	Timeframe
NEVADA					
Bureau of Land Management/ Clark County	Techren Boulder City Solar Project	15 miles southeast of Las Vegas and 7 miles southwest of Boulder City, Clark County	Approved, Record of Decision 3/21/13.	Construction and maintenance of a new 300 MW photo-voltaic solar facility on 2,200 acres of Boulder City Land with 104 acres of Federal Transmission Corridor	Present
Bureau of Land Management	Copper Mountain Solar North Project	Mobile Valley, 8 miles west of Maricopa, Maricopa County	Operation and Maintenance	Construction and maintenance of a new 300 MW photo-voltaic solar facility on 1,730 acres.	Present
Bureau of Land Management	Copper Mountain III Transmission Project	Copper Mountain Solar North Project to the existing Merchant and McCullough Substations Boulder City, Clark County	Operation and Maintenance	Construction and maintenance of a 230-kV generation power line from the Copper Mountain Solar North Project to the Merchant and McCullough Substations.	Present
Bureau of Land Management	Ivanpah to El Dorado Transmission Project	Ivanpah substation in eastern San Bernardino, County to the Eldorado Substation in Boulder City, Clark County	Operation and Maintenance	Construction, maintenance, and upgrade of 35-mile double-circuit 220-kV transmission line and construction of the new Ivanpah 220/115-kV substation.	Present
Bureau of Land Management	Southwest Intertie Project-Southern Portion	Harry Allen Substation in Las Vegas, Clark County, to the Thirtymile Substation in Ely, White Pine County	Operation and Maintenance	Construction and maintenance of 235 miles of new 500-kV transmission line and associated facilities.	Present
Bureau of Land Management	One Nevada Transmission Line Project	Harry Allen Substation in Las Vegas, Clark County, Nevada to a new substation in Robinson Summit, White Pine County	Operation and Maintenance	Construction and maintenance of 236 miles of new 500-kV transmission line and associated facilities.	Present
Nevada Public Utilities Commission	Townsite Solar Project	Boulder City, Clark County	Approved 6/2013; Environmental review	Construction and maintenance of a 180 MW photovoltaic solar facility, 2.45 gen-tie line, and associated facilities.	Reasonably Foreseeable
Nevada Public Utilities Commission	Dry Lake Bed South	Boulder City, Clark County	Approved 6/2013; Environmental review	Construction and maintenance of a 350-MW photovoltaic solar facility, generation line, and associated facilities	Reasonably Foreseeable

Table 4-1. Cumulative Project List

Responsible Agency	Project Name	Location	Status	Description	Timeframe
NORTH/CENTRAL ARIZONA					
Bureau of Reclamation/ Central Arizona Water Conservation District	Central Arizona Project	Colorado River at Lake Havasu on Arizona's western border to agricultural land in Maricopa, Pinal, and Pima Counties, and to several Arizona communities, including the metropolitan areas of Phoenix and Tucson.	Operation and Maintenance	Existing 336-mile-long water delivery system including 14 pumping plants and 1 pump/generating plant, 10 siphons carrying water under riverbeds and large washes, 3 tunnels, more than 45 turnouts connecting the CAP aqueduct with customers' delivery systems, and a large storage reservoir.	Present
Bureau of Land Management	Sonoran Solar Project	Southwest of Phoenix in the Little Rainbow Valley, and south of Buckeye, Maricopa County.	Approved; Record of Decision 12/19/11. Under construction.	Construction and maintenance of a new 300 MW photo-voltaic solar facility on 2,013 acres.	Present
Bureau of Land Management	Quartzsite Project	10 miles north of Quartzsite and adjacent to Arizona State Route 95, La Paz County.	Approved; Record of Decision 5/2013. Under Construction.	Construction and maintenance of a 100-MW-concentrated solar power tower on 1,675 acres.	Present
Bureau of Land Management	Maricopa Solar Park	8 miles west of the Maricopa, Maricopa County.	Environmental review; Draft EIS expected in summer 2014.	Construction and maintenance of a new 300-MW photo-voltaic solar facility on 1730 acres.	Reasonably Foreseeable
Bureau of Land Management	Hyder Valley Solar Project	Hyder Valley, north of Interstate 8, east Hyder, Maricopa County.	Environmental review; Record of Decision anticipated in spring 2014.	Construction and maintenance of a new 325-MW concentrated solar thermal facility. Two phases of construction planned; Phase 1 plans call for a 200-MW power plant, with a 28-month estimated construction period. Phase 2 would be a 125-MW power plant to be built over 24 months.	Reasonably Foreseeable
Bureau of Land Management	Mojave County Wind Farm	40 miles northwest of Kingman, Arizona.	Approved; Record of Decision 6/28/13	Construction and maintenance of a 500-MW wind farm on 35,329 acres.	Reasonably Foreseeable
Bureau of Land Management	Searchlight Wind Energy Project	Searchlight, Clark County, Nevada.	Approved; Record of Decision 5/16/13	Construction and maintenance of a 200-MW wind farm on 9,300 acres.	Reasonable Foreseeable
National Forest Service	Prescott-Poland-Childs P-25-0 APS 69kV Sub-transmission Line Permit Reissue	Prescott to Poland Junction to Childs, Arizona.	Approved 4/13/12	Reissuing of a 50-year permit for Arizona Public Service to continue operation and maintenance of 23-mile 69-kV sub-transmission line.	Reasonably Foreseeable

Table 4-1. Cumulative Project List

Responsible Agency	Project Name	Location	Status	Description	Timeframe
SOUTH ARIZONA					
Bureau of Reclamation	Yuma TS-8 to San Luis 69kV Transmission Project	TS-8 Substation in Yuma, Arizona to San Luis Substation in San Luis, Arizona, Yuma County.	Operation and Maintenance	Construction and maintenance of 19.5 miles of new 69kV transmission line and 12/69kV substation.	Present
Bureau of Land Management	Sun Valley to Morgan Transmission Project	Sun Valley Substation in Buckeye, Arizona to the Morgan Substation in Peoria, Arizona.	Record of Decision 01/2014, Pre-construction.	Construction and maintenance of 38-mile electric transmission system, consisting of a single series of tower structures holding two high-voltage circuits – a single-circuit 500-kV transmission line and a single-circuit 230-kV line.	Reasonably Foreseeable
Bureau of Land Management	SunZia Southwest Transmission Project	New SunZia East substation in Corona, Lincoln County to the Pinal Central Substation in Coolidge, Pinal County.	FEIS published in 6/14/13. Record of Decision on hold until 3rd party independent study is completed.	Construction and operation of 515 miles of new 500-kV transmission line.	Reasonably Foreseeable.
Bureau of Land Management	Southline Transmission Project	Las Cruces, New Mexico to Tucson, Arizona.	Draft EIS published 4/11/14	Construction or re-build of 360 miles of new or rebuilt 345-kV transmission line.	Reasonably Foreseeable
Western Area Power Administration	Gila to North Gila Transmission Line Rebuild and Upgrade Project	Gila to North Gila Substations, Yuma, Yuma County.	FONSI signed 3/21/2014	Rebuild and upgrade of two parallel, 4.8-mile-long transmission lines.	Reasonably Foreseeable
CALIFORNIA					
California Public Utilities Commission/Bureau of Land Management	Devers- Palo Verde No.2 Transmission Project	Devers substation in North Palm Springs, Riverside County to Valley substation in the unincorporated portion of Riverside County.	Approved Petition for Modification 11/20/09. Under construction.	Construction and maintenance of 153 miles of new 500-kV transmission line and expansion of the Colorado River Substation.	Present
Bureau of Land Management	Desert Sunlight Solar Energy Project	Six miles north of Desert Center, Riverside County.	Approved; Record of Decision 8/8/11. Under Construction	Construction and maintenance of a new 550-MW photovoltaic solar facility.	Present

Table 4-1. Cumulative Project List

Responsible Agency	Project Name	Location	Status	Description	Timeframe
Bureau of Land Management/ California Energy Commission	Genesis Solar Energy Project	25 miles west of Blythe, Riverside County.	Under construction, partially energized	Construction and maintenance of a new 370-MW solar-power tower facility.	Present
Bureau of Land Management	Ivanpah Solar Electric Generating System	4.5 miles southwest of Primm, Nevada in San Bernardino County, California.	Operation and maintenance	Construction and maintenance of a new 370-MW solar power tower facility.	Present
Bureau of Land Management	Desert Harvest Solar Energy Project	Six miles north of Desert Center, Riverside County.	Approved; Record of Decision 3/13/13.	Construction and maintenance of a new 150-MW photovoltaic solar facility.	Reasonably Foreseeable
California Energy Commission	Blythe Solar Energy Project	Two miles north of U.S. Interstate-10 and eight miles west of the City of Blythe, Riverside County.	Presiding Member's Proposed Decision and petition to amend 1/15/14 (change in ownership and technology).	Construction and maintenance of a new 500-MW photovoltaic solar facility.	Reasonably Foreseeable
Bureau of Land Management	McCoy Solar Energy Project	13 miles northwest of the city of Blythe, Riverside County.	Petition to amend approval on hold (change of ownership)	Construction and maintenance of a new 750-MW photovoltaic solar facility.	Reasonably Foreseeable
Bureau of Land Management	Palen Solar Energy Project	10 miles east of Desert Center	Presiding Member's Proposed Decision12/13/13	Construction and maintenance of a new 500-MW parabolic-trough solar facility.	Reasonably Foreseeable

4.2.1 Past Actions

The effects of past actions may warrant consideration in the analysis of the cumulative effects of a proposal for agency action. CEQ interprets NEPA and CEQ's NEPA regulations on cumulative effects as requiring analysis and a concise description of the identifiable present effects of past actions to the extent that they are relevant and useful in analyzing whether the reasonably foreseeable effects of the agency proposal for action and its alternatives may have a continuing, additive and significant relationship to those effects. However, NEPA analyses are not required to routinely list and separately analyze all individual past actions within the cumulative effects analysis area. Only those past actions that are relevant and useful because of their cause and effect relationship with the resources of concern should be included. Generally, an adequate cumulative effects analysis can be focused on the aggregate effects of past actions without delving into the historical details of individual past actions.

For this programmatic analysis, the following is a general description of the past actions that could combine with the Proposed Action to result in cumulative effects. In recent years (i.e., 2005 through early 2014), the Salt River Project (SRP) has completed construction of three major transmission lines in western Arizona, and Southern California Edison (SCE) has completed construction of one transmission line (adjacent to its Devers-Palo Verde #1 Transmission Line built in the 1980s) in southeastern California. These transmission line projects are conducting ongoing operation and maintenance activities that may result in similar temporary effects as the Proposed Action. In particular, temporary nuisance impacts, such as increased dust, noise, or traffic levels, would result from maintenance activities. However, all of these past actions have plans and mitigation measures in place to help minimize or avoid potential nuisance impacts of operations and maintenance activities. In addition, it would be difficult to predict overlapping schedules of the Proposed Action with the operations and maintenance activities of these past projects.

4.3 Cumulative Effects of the Proposed Action

The following sections discuss the cumulative effects that could occur from the Proposed Action when considered with past, present, and reasonably foreseeable future actions. However, all ROW maintenance activities would occur within a narrow corridor crossing Arizona, Nevada, and California.

4.3.1 Land Use and Aviation

Cumulative impacts to land use and aviation could occur when impacts of the Proposed Action are combined with impacts from other projects adjacent to the Project. There are several proposed projects and existing aviation facilities (see Tables 3.2-2 and 4-1) near the Project area that could increase cumulative effects on land use and aviation. Cumulative effects on federal, state, tribal, and military lands could involve conflicts with existing land use plans and policies, and the disruption of access to private properties and public areas. In addition, potential cumulative impacts to land use and aviation could include the generation of noise, dust, and odors that could affect landowners, business owners, patrons, recreationists, and other land uses that are near the Proposed Action. However, the proposed ROW maintenance would occur for short periods and would not change land use outside of, and adjacent to, the ROW. Furthermore, Western BMPs, PCMs, and SOPs would avoid or minimize any impacts to land uses, aviation activities, and conflicts with land use plans and policies.

4.3.2 Recreation

Cumulative effects of the Proposed Action could occur if program activities combine with impacts from other projects adjacent to the Project area and disturb or displace recreation experiences. Cumulative impacts associated with the Proposed Action may also include increased noise levels, aesthetic impacts, impacts to human health and safety, or other environmental impacts that could conflict with recreation activities. However, due to the nature of program activities included in the Proposed Action, cumulative impacts are expected to be brief, local, and infrequent. In addition, Western would implement BMPs, PCMs, and SOPs for recreation, noise, aesthetics, and human health and safety, which would avoid or minimize cumulative impacts.

4.3.3 Human Health and Safety

Cumulative effects on human health and safety could result from physical hazards, fire hazards, and electric and magnetic fields from the Project, as well as other current or reasonably foreseeable future projects in the area. With regards to fire hazards, the Project lowers the potential for fires by maintaining vegetation within the ROW and ensuring operational safety. Therefore, the contribution to cumulative effects regarding fire hazards from the Project is actually a reduction. Overall hazards associated with the proposed Project will be localized, and no other current projects are located immediately adjacent to the ROW. Therefore, cumulative impacts regarding human health and safety are minimal. In addition, with the implementation of BMPs, PCMs, and SOPs, the contribution of Western's actions to cumulative effects on human health and safety would be minimized or avoided.

4.3.4 Visual/Aesthetics

Aesthetic impacts from the Proposed Action are primarily limited to temporary visual interruption from equipment and workers and permanent changes to the visual quality and viewsheds where new infrastructure, access roads, and vegetation clearance would occur. Such changes in visual contrasts and landscape appearances would primarily be visible in the foreground and slightly visible in the middleground, most notably in any areas with high to moderate visual quality. While Proposed Action activities could cause minor impacts to aesthetics in the work area; Parker-Davis Transmission System infrastructure has been in place for many years within an established ROW and is an existing component of the visual quality at any proximate viewshed. Cumulative aesthetic impacts could occur if projects identified in Table 4-1 were to combine with Proposed Action activities and further degrade the visual quality of any sensitive viewsheds. When reviewing the locations of cumulative projects identified in Table 4-1, many cumulative development projects are a considerable distance from the Parker-Davis Transmission System.

The greatest concern for potential adverse visual impacts would be in public viewsheds with high to moderate sensitivity where new access roads, new large culverts, transmission structure realignment (placement of structures in locations not currently occupied by a pole/tower), and larger installations of rip rap would result in a permanent increase to visual contrast. However, Western would implement BMPs, PCMs, and SOPs and Mitigation Measure 3.5-1 to minimize adverse aesthetic impacts to the extent feasible. As identified in Appendix A, Western will incorporate visual screening and other design techniques, to the maximum extent feasible, to reduce visual contrast of new or altered facilities where public viewsheds are impacted. Therefore, while some activities would generate visual contrast over existing conditions, because these locations are expected within or near an established and developed utility corridor, cumulative effects on aesthetic resources are not considered adverse.

4.3.5 Noise

Cumulative effects to noise could result from project activities, but would be limited to future projects identified in Table 4-1 that would occur proximate and simultaneous to maintenance work locations. Land uses near maintenance work locations would also dictate what cumulative noise levels would be considered acceptable or unacceptable. Temporary noise disturbance from the Proposed Action could occur in sensitive wildlife areas such as national parks and forests. Some residential communities could also be impacted by short-term noise disturbances. However, when reviewing the locations of cumulative projects identified in Table 4-1, it is unlikely overlapping cumulative noise effects would occur. This is due to the distance between most projects identified in Table 4-1 and the Parker-Davis Transmission System. Furthermore, Western would implement BMPs, PCMs, and SOPs to reduce noise at maintenance work areas, thereby reducing the Proposed Action's localized contribution to cumulative noise effects.

4.3.6 Cultural Resources

Cultural resources are non-renewable. Individually minor but collectively significant actions (usually in the form of ground disturbance) may have adverse effects on cultural resources. These impacts may result in a substantially adverse change in the significance of a resource, potentially jeopardizing its eligibility for listing on the NRHP. The total number of cultural resources within the proposed Project ROW and associated cultural resources study area is unknown. However, previous research in the vicinity suggests that there is a high potential to discover previously unknown resources within the study area. In addition, Western considers the Parker-Davis Transmission Line itself to be a historic district, components of which are eligible for the NRHP. With the implementation of the three PAs, BMPs, and SOPs, the contribution of Western's actions to cumulative effects on cultural resources would be minimized or avoided. Cultural resources that could not be avoided would be evaluated for significance, and significant resource would be subject to research and analysis to mitigate impacts. Although these measures would reduce most individual impacts, research and analysis cannot recover all the information value of a resource. Furthermore, some impacts, particularly impacts to resources with cultural and spiritual significance (such as sacred sites and traditional cultural properties), cannot be mitigated. The Proposed Action O&M and vegetation management impacts, when combined with impacts from past, present, and reasonably foreseeable projects, may contribute in a small but substantial way to the cumulative adverse impacts for cultural resources.

4.3.7 Wildlife

The geographic scope for potential cumulative impacts to wildlife include the entire Project area, as described in Section 3.8.1. Potential cumulative effects to wildlife could include harassment, injury, and mortality; and habitat loss, modification, and degradation. These cumulative effects could occur when vegetation and other wildlife habitats are permanently or temporarily affected by multiple projects, and when multiple projects are implemented in the same general area at the same time increasing the magnitude of noise, general disturbance, and other effects. The effects of the Proposed Action, along with other construction projects in the Project area, could increase the displacement of wildlife due to habitat loss and disturbance from construction activities. Additional impacts could result from disruption of breeding and consequent loss of eggs, young animals, fledglings, or breeding adults through noise or human disturbance, collision mortality on roads, increased predation and competition due to loss of cover or increase in opportunistic predators that use the altered habitat or its edges, or direct or indirect contact with herbicides and mechanical equipment. However, Western's SOPs and PCMs, identified in Tables 2 and 3 of Appendix A and described in Section 3.8, minimize the Proposed Action's potential to result in these adverse impacts, and the contribution of Western's actions to cumulative effects is not adverse.

4.3.8 Special-Status Species

The geographic scope for potential cumulative impacts to special-status species includes the entire Project area, as described in Section 3.9.1. Potential cumulative effects to special-status species could include harassment, injury, and mortality; and habitat loss, modification, and degradation. These cumulative effects could occur when suitable special-status species habitats are affected, either short-term or long-term, by multiple projects. They could also occur when multiple projects are implemented in the same general area at the same time increasing the magnitude of noise, general disturbance, and other effects. The effects of the Proposed Action, along with other construction projects in the Project area, could increase the displacement of special-status species due to habitat loss and disturbance from construction activities. Additional impacts could result from disruption of breeding and consequent loss of eggs, young animals, fledglings, or breeding adults through noise or human disturbance, collision mortality on roads, increased predation and competition due to loss of cover or increase in opportunistic predators that use the altered habitat or its edges, or direct or indirect contact with herbicides and mechanical equipment. However, Western's SOPs and PCMs, identified in Tables 2 and 3 of Appendix A and described in Section 3.9, minimize the Proposed Action's potential to result in these adverse impacts, and the contribution of Western's actions to cumulative effects is not adverse.

4.3.9 Vegetation

The geographic scope for potential cumulative impacts to vegetation include the entire Project area, as described in Section 3.10.1. Potential cumulative effects to vegetation could include removal, type conversion, or degradation. These cumulative effects could occur when vegetation are permanently or temporarily affected by multiple projects, and when multiple projects are implemented in the same general area at the same time increasing the magnitude of noise, general disturbance, and other effects. The effects of the Proposed Action, along with other construction projects in the Project area, could increase the loss or degradation of vegetation. Implementation of Western's SOPs and PCMs, identified in Tables 2 and 3 of Appendix A and described in Section 3.10, will minimize the Proposed Action's potential to result in these adverse impacts, and the contribution of Western's actions to cumulative effects is not adverse.

4.3.10 Water Resources/Floodplains/Waters of the U.S.

Cumulative effects to water resources may occur if other projects located within the same geographic and temporal scope of the Project include activities that could result in similar impacts as the Project. These activities may include soil disturbance, substantial alternation of drainage patterns, and accidental release of hazardous materials. Resulting cumulative impacts could include modification channel flow, increased erosion and sedimentation, and impedance or re-directions floodwaters, disturbance of jurisdictional waters, or contamination of surface waters. In addition, an accidental release of hazardous materials from cumulative projects that is allowed to infiltrate into a groundwater aquifer could result in cumulative impacts to the aquifer. The probability of these impacts occurring in unison is low, and several of the identified impacts associated with the Project are localized. Furthermore, with the implementation of BMPs, PCMS, and SOPs, the contribution of Western's actions to cumulative adverse effects on water resources would be negligible.

4.3.11 Geology/Soils/Minerals

Cumulative effects to geology, soils, and minerals may occur if numerous projects have similar operations, which may involve construction on steeper slopes, resulting in landslides of rock,

construction activities that may increase soil erosion or compact soils, and/or operations which may limit access to minerals. In order for these effects to occur and result in a substantial cumulative effect, these impacts would need to occur in close proximity in location and time. The nature of these impacts is temporary, and with the implementation of BMPs, PCMs, and SOPs, the contribution of Western's actions to cumulative effects on geology, soils, and minerals would be minimized or avoided.

4.3.12 Air Quality

Cumulative development within the Project area could result in cumulative air quality impacts. As shown in Table 3.13-2, portions of each study region within Arizona, California, and Nevada are in nonattainment for ozone and PM10. Additionally, portions of Arizona are in nonattainment for PM2.5 and CO. There is a possibility that pollutant emissions from Proposed Action maintenance activities could overlap with other projects in the work area resulting in an adverse cumulative impact on ambient air quality.

The Proposed Action could result in short-term and localized dust and exhaust emissions temporarily increasing criteria pollutant emissions, thus reducing air quality in nonattainment areas. However, the project alone would not result in any permanent impacts to air quality in the Project area. There would be no substantial permanent sources of emissions from the Proposed Action. The implementation of SOPs and proposed Mitigation Measure 3.13-1 would ensure maintenance activities do not have a direct adverse impact on ambient air quality. Furthermore, it should also be noted that transmission system improvements, including those that would improve access/use of renewable energy sources identified in Table 4-1 would likely reduce air pollutant emissions from the energy generation sector within the study area as a whole. Therefore, incremental cumulative effects to air quality would not be adverse.

4.3.13 Hazardous Materials

Cumulative effects from hazardous materials may occur if a large abundance of hazardous materials, such as herbicide, gasoline, engine oil, and other toxic pollutants, were spilled or not handled appropriately. Any potential spills associated with the Project would be localized, and no other current projects are located immediately adjacent to the ROW. Therefore, cumulative impacts regarding hazardous materials are minimal. In addition, with the implementation of SOPs, the contribution of Western's actions to cumulative effects associated with hazardous materials would be minimized or avoided.

4.3.14 Intentional Destructive Acts

As opposed to acts of terrorism, vandalism and theft are more likely forms of destruction. The likelihood of multiple and simultaneous destructive acts affecting public infrastructure are highly unlikely. Although potentially costly, such acts do not usually disrupt the provision of public services and utilities (i.e., water, electricity, etc.) or have substantial environmental effects. Therefore, cumulative effects would be minimal.

5.0 Compliance with Environmental Laws and Regulations

Table 5-1 summarizes laws, regulations, and guidelines that apply to the Project. Table 5-2 summarizes the required permits and authorizations for the Project.

Table 5-1. Summary of Applicable Federal Laws, Regulations, Executive Orders, and Policies

Law/Regulation	Applicability
FEDERAL	
Aeronautics and Space Title 14 Code of Federal Regulations (CFR), part 77 Objects Affecting Navigable Airspace (14 CFR 77)	Activities affecting federal airspace and aviation
American Indian Religious Freedom Act of 1978 (42 USC 1996)	Archaeological resources and tribal consultation
Archaeological Resources Protection Act, as amended (ARPA; 16 USC 470aa et seq.)	Archaeological resources and tribal consultation
Bald and Golden Eagle Protection Act	Protection of bald and golden eagles
Canal Act of 1890 (43 USC 945)	Federal Canals
Clean Air Act (42 USC 7401 et seq.)	Air pollution prevention and control emission levels of regulated pollutants
Clean Air Act General Conformity Requirements	Conformity requirements, the conformity review process, and the conformity determination process
Clean Air Act General Conformity Requirements and the National Environmental Policy Act Process (DOE)	
Clean Water Act (CWA; Sections 401, 402, 404; 33 USC 1251 et seq.)	Surface water quality; discharge or dredge or fill materials into jurisdictional waters (including wetlands) of the U.S.
Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)	Use of hazardous materials
Consultation and Coordination with Indian Tribal Governments (EO 13175)	Tribal consultation
DOE Environmental Justice Strategy	Establish/maintain integrated approach for identifying, tracking, and monitoring environmental justice
DOE Floodplain and Wetland Environmental Review Requirements (10 CFR Parts 1021 and 1022)	Revised floodplain and wetland environmental review requirements to add flexibility and remove unnecessary procedural burdens
DOE Land and Facility Use Policy	DOE policy to manage all of its land and facilities as valuable national resources
DOE NEPA Implementing Procedures	Revised regulations intended to improve DOE's efficiency in implementing NEPA requirements
DOE Policy 450.2A, Identifying, Implementing and Complying with Environment, Safety and Health Requirements, dated 05/15/96	Framework for identifying, implementing, and complying with environment, safety, and health requirements
DOE Policy 141.1: Management of Cultural Resources	Ensure programs and field elements integrate cultural resources management into their missions and activities. Raise level of awareness and accountability concerning the importance of DOE's cultural resource-related legal and trust responsibilities.
DOE Order 5400.1, General Environmental Protection Program, dated 11/09/88	Environmental-protection program requirements, authorities, and responsibilities

Table 5-1. Summary of Applicable Federal Laws, Regulations, Executive Orders, and Policies

Law/Regulation	Applicability
DOE Order 5480.4, Environmental Protection, Safety, and Health Protection Standards, dated 05/15/84	Requirements for the application of mandatory environmental protection standards
Endangered Species Act (ESA; 16 USC 1531 et seq.)	Threatened and endangered species, and critical habitat
Actions to Expedite Energy-Related Projects (EO 13212)	Energy-related projects
Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-income Populations	Disproportionately high and adverse human health or environmental effects of federal programs, policies, and activities on minority and low-income populations-
Executive Order 13007, Indian Sacred Sites	Protection and preservation of Tribal religious practices
Federal Aviation Administration (FAR Part 77)	Safe, efficient use, and preservation of the navigable airspace
Federal Compliance with Pollution Control Standards (EO 12088)	Prevention, control, and abatement of environmental pollution
Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), As described in 40 CFR parts 150-180	Regulates the manufacture, use, storage, and disposal of chemicals, including herbicides
Federal Land Policy and Management Act	Governs management of public lands administered by the BLM and U.S. Forest Service
Invasive Species (EO 13112)	Management of noxious weeds
Federal Occupational Safety and Health Act (OSHA; 29 USC 651 et seq.)	Health and safety standards
Fish and Wildlife Coordination Act	Protection of wildlife
Floodplain Management (42 USC 4321; EO 11988)	Impacts to floodplains
Hazardous Materials Transportation Act	Transport of hazardous materials (herbicides) in significant quantities
Migratory Bird Treaty Act (MBTA; 16 USC 703-711; EO 13186)	Protection of bird species
National Environmental Policy Act (NEPA) (42 USC 4321 et seq.; CEQ, 40 CFR 1500-1508)	Federal Undertakings
National Historic Preservation Act (NHPA) (EO 11593)	Protection and enhancement of the cultural environment
National Historic Preservation Act of 1966, as amended (NHPA; 16 USC 470 et seq.; 36 CFR 800)	Historic and traditional cultural properties
Native American Graves Protection and Repatriation Act of 1990 (NAGPRA; 25 USC 3001-30013 et seq.; 43 CFR 10)	Archaeological resources and tribal consultation
Noise Control Act of 1972 (NCA; 42 USC 4901 et seq.)	Noise protection
Presidential Memorandum Dated April 26, 1994 for the Heads of Executive Departments and Agencies (60 FR 40837)	Landscaping, pollution-prevention and water-conservation guidance
Occupational Safety and Health Act of 1970 (OSHA; 29 USC 651 et seq.)	Health and safety standards
Pollution Prevention Act of 1990 (PPA; 42 USC 13101 et seq.)	Reducing potential for pollution sources

Table 5-1. Summary of Applicable Federal Laws, Regulations, Executive Orders, and Policies

Law/Regulation	Applicability
Protection of Wetlands (42 USC 4321; EO 11990)	Impacts to wetlands
U.S. Department of Energy, NEPA implementing procedures (10 CFR 1021)	NEPA compliance for Department of Energy undertakings
Western Area Power Administration (WAPA) Order 430.1, Right-of-Way Management Guidance for Vegetation, Encroachments, and Access Routes, dated 03/18/08	Maintenance and safe operation of Western ROWs
WAPA Order 450.3A, Transmission Vegetation Management Program, dated 03/13/08	Western approach to transmission vegetation management
STATE	
Nevada*	Nevada Administrative Code, Chapter 503 – Hunting, Fishing and Trapping; Miscellaneous Protective Measures
Arizona*	Arizona Native Plant Law; Arizona Revised Statutes Title 17 (Game and Fish)
California*	California Environmental Quality Act; California Endangered Species Act; California Public Resources Code Section 21083.4 (oak woodlands conservation); California Code of Regulations, Title 14, section 460 (protected furbearing mammals); Fish and Game Code sections 3511, 4700, 5050, and 5515 (fully protected species); Fish and Game Code sections 3503, 3503.5, and 3513 (birds, raptors, and their nests); Fish and Game Code section 4150 (nongame mammals); Fish and Game Code section 1900 et seq. (California Native Plant Protection Act); California Food and Agriculture Code section 80001 et seq. (California Desert Native Plants Act)
Federal and State Water Quality Regulations and Programs	Streambed Alteration (Fish and Game Code sections 1600-1616); Porter-Cologne Water Quality Control Act

*For lands outside of Western ROW only
CEQ – Council on Environmental Quality
CFR – Code of Federal Regulations
USC – United States Code
EO – Executive Order
et seq.– and the following
FR – Federal Register

Table 5-2. Summary of Permits and Authorizations

Permitting Agency	Permit / Authorization
Arizona Department of Agriculture	Arizona Native Plant Law compliance
Arizona State Historic Preservation Office	Section 106 compliance; review and approve potential disturbance to cultural resources on State Trust Land
Arizona Department of Environmental Quality	Compliance with Sections 401 of the Clean Water Act
Arizona State Land Department	Right-of-way permit for construction of transmission line on State Trust Land

Table 5-2. Summary of Permits and Authorizations

Permitting Agency	Permit / Authorization
California Air Resources Board	Portable Equipment Registration Program (PERP) permits for portable, not self-propelled, stationary fossil-fueled equipment to ensure compliance with California State and local air quality regulations
Arizona Department of Environmental Quality: Maricopa County Air Quality Department Pima County Department of Environmental Quality Pinal County Air Quality Control District	Applicable State and local air quality permits to ensure compliance with the federal Clean Air Act, and State/local air quality regulations
California Air Resources Board: Mojave Desert Air Quality Management District Imperial Air Pollution Control District Nevada Bureau of Air Quality Planning: Clark County Department of Air Quality	Fugitive dust control plans as necessary based on local/State regulations for construction projects.
California Department of Fish and Wildlife	California Endangered Species Act compliance; Fish and Game Code Section 1600-1603 compliance
California State Historic Preservation Office	Section 106 compliance; review and approve potential disturbance to cultural resources on State Trust Land
California State Water Resources Control Board	Compliance with Sections 401 of the Clean Water Act
Federal Aviation Administration	Submittal of FAA Form 7460-1 is required for new infrastructure or construction equipment exceeding 200-feet in height or meeting 7460-1 standards. Replacement or addition of marker balls and aviation hazards lights shall be conducted in conjunction with FAA Advisory Circular 70/7460-1K: Obstruction Marking and Lighting.
Federal Highway Administration	Permit to cross Federal Aid Highway; 4(f) compliance
Nevada Department of Wildlife	Permit to move protected species out of harm's way during construction (CGR 399)
Nevada Division of Environmental Protection	Compliance with Sections 401 of the Clean Water Act Temporary Permit for Working in Waterways
Nevada State Historic Preservation Office	Section 106 compliance; review and approve potential disturbance to cultural resources on State Trust Land
U.S. Army Corp of Engineers	Individual, Nationwide, and Regional General Permit(s) for Compliance with Section 404 of the Clean Water Act
U.S. Bureau of Land Management	Visual Resource Management System compliance for ensuring that the scenic values of BLM administered public lands are considered before allowing uses that may have negative visual impacts
U.S. Bureau of Reclamation	Easement or right-of-way use authorization for construction, operation, and maintenance of a transmission line across Reclamation-administered land
U.S. Environmental Protection Agency	Floodplain use permit
U.S. Fish and Wildlife Service	ESA compliance
U.S. Forest Service	Scenery Management System compliance for ensuring that the scenic values of USFS administered public lands are considered before allowing uses that may have negative visual impacts

6.0 Monitoring and Adaptive Management

The monitoring and adaptive management plan is intended to ensure the success of the Project while minimizing impacts. Western's 2007 IVM Program requires monitoring of O&M activities to ensure that the desired results are produced including reliable operation of Western's electric transmission system. To this end, Western continuously monitors its vegetation management practices to achieve the following IVM performance objectives:

- Protect public and worker safety;
- Prevent operational hazards, such as tall-growing trees on transmission line ROWs;
- Maintain unimpaired access to transmission facilities and ROWs;
- Protect substations, switchyards, and microwave stations from fire hazards;
- Control the spread of noxious weeds and invasive plants in compliance with state and county regulations;
- Manage vegetation growth in a technical and efficient manner;
- Protect environmental quality of water, wildlife, and aesthetic resources;
- Establish stable, low-growing plant communities native to the local area on transmission line ROWs;
- Use integrated vegetation management methods to meet objectives;
- Adhere to principles of Western's Integrated Vegetation Management Program (including WAPA Order 430.1A Right-of-Way Management Guidance for Vegetation, Encroachments, and Access Routes, WAPA Order 450.3A Transmission Vegetation Management Program, and Western's Integrated Vegetation Management Guidance Manual);
- Maintain sound relationships with landowners and managers; and
- Streamline regulatory permitting activities.

Where an O&M activity does not meet the performance objectives, adaptive management practices are implemented to modify the activity to be in compliance. This is achieved by implementing the following program objectives, in concert with the standard operating procedures and project conservation measures presented in Appendices A and B:

- Clearly delegate responsibility for monitoring reports;
- Delineate clear vegetation management objectives;
- Maintain schedules that are consistent with vegetation growth cycles and vegetation control management activities;
- Provide for groundwater and surface-water monitoring; and
- Meet guidelines for processing information and feedback.

7.0 Terms and Acronyms

AAQS	Ambient Air Quality Standards
ADEQ	Arizona Department of Environmental Quality
APE	Area of Potential Effect
AQI	Air Quality Index
ARPA	Archaeological Resources Protection Act of 1979
ATV	All-Terrain Vehicle
BA	Biological Assessment
BAQP	Bureau of Air Quality Planning
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BMPs	Best Management Practices
BOR	Bureau of Reclamation
CARB	California Air Resources Board
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CI	Coccidioides Immitis
CO	Carbon Monoxide
CWA	Clean Water Act
EA	Environmental Assessment
ECOS	Environmental Conservation Online System
EIS	Environmental Impact Statement
EMF	Electric and Magnetic fields
EO	Executive Order
EPA	Environmental Protection Agency
ERO	Electric Reliability Organization
ESA	Endangered Species Act
FERC	Federal Energy Regulatory Commission
FHWA	Federal Highway Administration
FIFRA	Federal Insecticide, Fungicide and Rodenticide Act
FONSI	finding of no significant impact
HR	Hydrologic Regions
HSR	Hydrologic Subregions
HUC	Hydrologic Unit Code
IAPCD	Imperial Air Pollution Control District
IVM	Integrated Vegetation Management
MDAQMD	Mojave Desert Air Quality Management District
NAGPRA	Native American Graves Protection and Repatriation Act

NCA	National Conservation Area
NDOW	Nevada Department of Wildlife
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Corporation
NF	National Forest
NHD	National Hydrologic Dataset
NHPA	National Historic Preservation Act
NO2	Nitrogen Dioxide
NPS	National Park Service
NRA	National Recreation Area
NRHP	National Register of Historic Places
NWR	National Wildlife Refuge
O3	Ozone
PCMs	Project Conservation Measures
PERP	Portable Equipment Registration Program
PM	Particulate Matter
PM10	Inhalable Particulate Matter
PM2.5	Fine Particulate Matter
ROD	Record of Decision
ROG	Reactive Organic Gases
ROW	Right-of-Way
SHPO	State Historic Preservation Office
SO2	Sulfur Dioxide
SOPs	Standard Operating Procedures
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TACs	Toxic Air Contaminants
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
VRM	Visual Resource Management
WA	Wilderness Areas
WAPA	Western Area Power Administration
WEAP	Workers Environmental Awareness Program

8.0 List of Preparers and Persons Consulted

This section lists the preparers of this environmental assessment (EA) and the persons and organizations consulted. Table 8-1 lists the team members from Western and their respective roles. Table 8-2 lists Aspen Environmental Group's (Western's NEPA contractor) EA section authors and their project roles, education/certifications, and years of experience. Table 8-3 lists the agencies and/or persons consulted when preparing the EA.

Table 8-1. Western Area Power Administration, Desert Southwest Region

Name	Role
Sean Heath	NEPA Document Manager, Project Description
Johnida Dockens	Environmental Planner, Biological Resources
Jill Jensen	Regional Historic Preservation Officer, Cultural Resources
Linda Marianito	Environmental Manager
Scott Paulson	Vegetation Manager

Table 8-2. Aspen Environmental Group, Contractor to Western

Name	Project Role	Education/Certifications	Years of Experience
Negar Vahidi	Project Manager: Land Use and Aviation	B.A. Political Science (with Highest Honors) Master of Public Administration (MPA)	18
William Walters, P.E.	Air Quality	B.S. Chemical Engineering, Professional Engineer (P.E.)	25
Scott D. White	Wildlife	B.A. Biology M.A. Biology	24
Elizabeth Bagwell, Ph.D.	Cultural Resources	Ph.D. Archaeology (Anthropology) M.A. Archaeology (Anthropology) Certificate – Archaeological Technology B.A. Anthropology and Creative Writing	23
Scott Debauche, CEP	Project Description, Human Health and Safety, Visual/Aesthetics Noise, Air Quality, Hazardous Materials	B.S. Urban Planning Board Certified Environmental Planner (CEP) #12040973	18
Justin Wood	Special-Status Species, Vegetation	M.S., Biology B.S., Biology	13
Jared Varonin	Floodplains, Waters of the U.S.	B.S. Ecology and Systematic Biology, Certified Fisheries Professional	12
Matthew Long	Water Resources, Floodplains, Waters of the U.S.; Geology/Soils/Mineral Resources	Master of Public Policy (MPP) Master of Environmental Science (MESc) B.A., Comparative Literature	8
Aubrey Mescher	Water Resources, Geology/Soils/Mineral Resources	B.A. Environmental Studies MESM Water Resources	8
Susanne Huerta, AICP	Land Use and Aviation, Recreation	B.A. Geography Masters of Urban Planning American Institute of Certified Planners (AICP)	7
Jennifer Lancaster	Wildlife	B.S. Biology M.S. Biology	7
Moselle DiPane	Land Use and Aviation, Recreation	B.A. Geography and Natural Resource Management	2

Table 8-2. Aspen Environmental Group, Contractor to Western

Name	Project Role	Education/Certifications	Years of Experience
Emily Chitiea	Document Production, Editor	B.A. English Literature	2
Mark Tangard	Document Production	B.A. Geography	40

Table 8-3. Agencies/Persons Consulted

Name	Title	Agency	Issue Area
Federal			
Patricia L. McQueary	Senior Regulatory Project Manager	U.S. Army Corps of Engineers (USACE), St. George Regulatory Office	Waters of the U.S.; Clean Water Act (CWA) Section 404 compliance
Therese Bradford	South Coast Branch Chief, Carlsbad Field Office	USACE Regulatory Office, Los Angeles District	Waters of the U.S.; CWA Section 404 compliance
Sallie Diebolt	Regulatory Branch Chief	USACE Arizona Regulatory Office	Waters of the U.S.; CWA Section 404 compliance
Marcy Leavitt	Regulatory Branch Chief	USACE New Mexico Regulatory Office	Waters of the U.S.; CWA Section 404 compliance
Nevada			
Jean Stone	Environmental Scientist III	Nevada Division of Environmental Protection	Waters of the U.S.; CWA Section 401 compliance
California			
Jay Mirpour	Region Program Manager	State Water Resources Control Board, Colorado River Basin Region	Waters of the U.S.; CWA Section 401 compliance
Arizona			
Robert Scalamera	Project Manager	Arizona Department of Environmental Quality	Waters of the U.S.; CWA Section 401 compliance
New Mexico			
Abe Franklin	Program Manager	New Mexico Environment Department Surface Water Quality Bureau	Waters of the U.S.; CWA Section 401 compliance

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10.0 Appendices

Appendix A

Western BMPs, SOPs, and PCMs

Table 1. Summary of Best Management Practices (BMPs) from Applicable Western Programmatic Agreements with the Advisory Council on Historic Preservation (ACHP) and State Historic Preservation Officers (SHPOs) from AZ, CA, and NV

Table 2. Summary of Standard Operating Procedures (SOPs)

Table 3. Summary of General Plant and Wildlife Project Conservation Measures (PCMs)

Table 4. Summary of Water Project Conservation Measures (PCMs)

Appendix B

Herbicides Approved for Use on BLM Lands in Accordance with the 17 Western States PEIS ROD and Oregon EIS ROD

Appendix C

Scoping Summary

Appendix D

Western's Programmatic Agreements

Appendix E

Biological Opinion

Appendix A

Western BMPs, SOPs, and PCMs

Appendix A, Table 1.	**Summary of Best Management Practices (BMPs) from Applicable Western Programmatic Agreements with the Advisory Council on Historic Preservation (ACHP) and State Historic Preservation Officers (SHPOs) from AZ, CA, and NV**
State/ Program/ Date	BMPs
Arizona/ Maintenance and Minor Construction Activities at Existing Western Transmission Lines, Facilities and Properties/ 2013/ Appendix D	Best Management Practices 1) Where the RPO or FPO determines that extremely dense vegetation prevents a Class III survey or where vegetation coverage provides low ground visibility <20% or where vegetation becomes a concern for crew safety such as dense areas of cacti, mesquite, tamarisk, etc., or poison oak –areas within this exclusion will be subject to close reconnaissance from surrounding areas. Areas >1 acre or >0.25 mile long that cannot be surveyed due to vegetation coverage, the RPO or FPO will consult with the land managing agency to discuss monitoring, or post-activity survey or other options if the proposed project cannot be redesigned to avoid these areas per Stipulation IV.B(2). 2) Where due to the scale of the project removal of vegetation using hand tools is not feasible, and where mechanical means of vegetation removal will use mastication machinery, the following requirements for BMP are in place: A: Mastication equipment will not be used within historic properties. B: A qualified archaeologist will monitor mastication activities in areas that cannot be surveyed to be available for discovery situations and to conduct post activity survey to identify the presence of historic properties 3) Maintenance vehicles will stay on established access roads which may be within or outside the transmission line ROW. In the event of overland travel by anything other than an off-road vehicle the incident will be reported to the Environmental Manager per Stipulation VII of the PA.
California/ Routine Operation and Maintenance Activities and Other Routine Activities at Western Facilities in California/ 2010/ Appendix C	For project areas where dense vegetation prevents a Class III survey and where due to the scale of the project area vegetation removal by hand is not feasible, mechanical means of vegetation removal using mastication machinery as defined in Appendix A may be used provided the following requirements for best management practices (BMP) are in place: 1) Western will require mastication operators to prevent blading devices from removing vegetation at ground level to avoid soil disturbance. Mowed vegetation will not be cut below 6 inches. 2) Mastication equipment will not be used within area recently subjected to heavy rains to prevent rutting in wet soils from equipment tires. 3) A qualified archaeologist will be on site during mastication activities to monitor survey areas being cleared of vegetation. If cultural resources are found, ground disturbing activities will cease in the area until an assessment and the significance of the find is made. Results of the monitoring and survey activities will be provided in the annual report.
Nevada/ Maintenance and Minor Construction Activities at Existing Western Transmission Lines, Facilities, and Properties in Nevada/2014/Appendix E	Best Management Practices 1) Where the RPO or FPO determines that extremely dense vegetation prevents a Class III survey or where vegetation coverage provides low ground visibility <20% or where vegetation becomes a concern for crew safety such as dense areas of cacti, mesquite, tamarisk, etc., or poison oak –areas within this exclusion will be subject to close reconnaissance from surrounding areas. Areas >1 acre or >0.25 mile long that cannot be surveyed due to vegetation coverage, the RPO or FPO will consult with the land managing agency to discuss monitoring, or post-activity survey or other options if the proposed project cannot be redesigned to avoid these areas per Stipulation IV.B(2). 2) Where the scale of vegetation removal with hand tools is not feasible, and where mechanical vegetation removal will use mastication machinery, the following requirements for BMP are in place: A: Mastication equipment will not be used within historic properties. B: A qualified archaeologist will monitor mastication activities in areas that cannot be surveyed to be available for discovery situations and to conduct post activity survey to identify the presence of historic properties. 3) Western's historic property avoidance measures for all non-exempt undertakings covered under this PA are as follows: • Western, whenever possible will redesign undertakings to avoid historic properties. In addition, archaeological monitoring will occur to ensure avoidance of historic properties present within the APE. In addition to archaeological monitoring, tribal

Appendix A, Table 1.	**Summary of Best Management Practices (BMPs) from Applicable Western Programmatic Agreements with the Advisory Council on Historic Preservation (ACHP) and State Historic Preservation Officers (SHPOs) from AZ, CA, and NV**
State/ Program/ Date	BMPs
Nevada/ Maintenance and Minor Construction Activities at Existing Western Transmission Lines, Facilities, and Properties in Nevada/2014/Appendix E (cont.)	cultural monitoring may occur in certain circumstances, determined appropriate during tribal consultation. Archaeological monitors will coordinate with the crew supervisor or maintenance inspector assigned by Western as the point of contact regarding scheduled training and monitoring. Coordination with the supervisor or inspector is necessary to evaluate the location and condition of historic properties recommended for monitoring. • Prior to maintenance activities, Western's archaeologist or contractor monitoring archaeologist will complete background research on any historic property scheduled for monitoring. Research will provide information concerning the type of resource, location of artifacts and/or feature(s), and past investigations, including any previous monitoring, testing, or data recovery. Documentation of historic properties by the archaeological monitor before maintenance activities begin will consist of a boundary evaluation, photographic documentation of the current conditions, and field checking of relevant features near the maintenance activity. • Blue and white flagging, recognized by Western as demarcating sensitive areas, will be used to mark the boundary and a 30-meter buffer. Prior to ground disturbing activities, the monitor will document artifacts/features within the proposed maintenance work area, but no collections will occur. Flagging and other markings shall be removed as soon as possible to avoid calling undue attention to historic properties. • Western's archaeologist or contractor will at times also monitor within the boundaries of known historic properties, where Western determined that the undertaking is a type that would not affect the qualities that make the property eligible to the NRHP. • As part of continued coordination with Western's supervisor or inspector, the supervisor will contact the monitoring archaeologist when the project is completed. The monitoring archaeologist will then examine the monitored historic properties to take final photographs, assess condition, and remove the flagging, staking and signage within 2 weeks of project completion. • Maintenance vehicles will stay on established access roads which may be within or outside the transmission line ROW, In the event of overland travel by anything other than an off road vehicle the incident will be reported to the Environmental Manager per Stipulation VI of the PA.

Appendix A, Table 2. Summary of Standard Operating Procedures (SOPs)	
Issue Area[1]	SOPs
Aesthetics	• Select material storage and staging areas to minimize views from public roads, trails, and nearby residences, to the extent feasible. During O&M, the work site will be kept clean of debris and construction waste. For areas where excavated materials will be visible from sensitive viewing locations, excavated materials will be disposed of in a manner that is not visually evident, in coordination with the land owner (as appropriate), and in compliance with applicable regulations. • Replacement structures and hardware (e.g., conductors and insulators) will be replaced in kind, to the extent feasible, while ensuring that structures and hardware that are visible from sensitive viewing locations will have colors, finishes, and textures to most effectively blend into the visible landscape. If structures are visible from more than one sensitive viewing location, and backdrops are substantially different from different vantage points, the darker color will be selected, because dark colors tend to blend into landscape backdrops. • Maintenance operations would not unnecessarily scar or deface the natural surroundings and will preserve the natural landscape to the extent possible. To preserve vegetative screening from public areas, tree removal and vegetation clearing will be minimized along state highways and near recreation sites, and wherever possible along scenic roadways. • Western will incorporate visual screening and other design techniques, to the maximum extent feasible, to reduce visual contrast of new or altered facilities where public viewsheds with moderate to high sensitivity are impacted.
Air Quality	• Grading activities will cease during periods of high winds (as determined by local air quality management districts). • Major operations will be avoided on days when the local Air Quality Index is expected to exceed 150.
Biological and Vegetation Resources	• Mortalities or injuries to wildlife that occur from project- or maintenance-related actions will be reported immediately to the Western Environmental Affairs or other designated point of contact, who will instruct O&M personnel on the appropriate action, and who will contact the appropriate agency if the species is listed. The phone number for Western Environmental Affairs or designated point of contact will be provided to maintenance supervisors and to the appropriate agencies. • To protect nesting birds (birds not specifically protected by PCMs but protected by the Migratory Bird Treaty Act), whose nests could occur within the ROW, Western and its subcontractors will perform Category B&C O&M activities outside the nesting season, which runs from February 15 to July 31 in the Basin and Range region and from April 15 to August 31 in the Central Highlands and Colorado Plateau regions. Southern Nevada's breeding bird season runs from February 15 to August 31. Alternatively, if work will occur during this avoidance period, a qualified biologist will conduct nesting-bird surveys prior to project activities. For special-status birds, see specific PCMs. • If an active nest is discovered, the qualified biologist will establish a buffer zone (in which O&M activity is not allowed) to avoid disturbance in the vicinity of the nest. Maintenance activities will not take place until the biologist has determined that the nestlings have fledged or that maintenance activities will not adversely affect adults or newly fledged young. • Alternatively, the qualified biologist will develop a monitoring/mitigation plan that permits the maintenance activity to continue in the vicinity of the nest while monitoring nesting activities to ensure that the nesting birds are not disturbed. • When Western finalizes an avian protection plan, Western will follow the guidance in that document. • Measures described in the Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006 (Avian Power Line Interaction Committee 2006) and Reducing Avian Collisions with

[1] SOPs have been grouped together by primary issue area to which they are applicable. However, many SOPs are applicable to multiple issue areas and would be implemented by Western, as applicable.

Appendix A, Table 2. Summary of Standard Operating Procedures (SOPs)	
Issue Area[1]	SOPs
Biological Resources (cont.)	Power Lines: The State the Art in 2012 (Avian Power Line Interaction Committee 2012) will be implemented during O&M activities to minimize bird mortality and injury. When Western finalizes an avian protection plan, Western will follow the guidance provided therein. Bio • O&M activities must conform to Western's Integrated Vegetation Management Environmental Guidance Manual. • The spread of noxious weeds will be minimized. Western will clean seeds from ground-disturbing equipment before moving between work sites. • All incompatible/non-desirable vegetation will be removed a minimum of 30 feet from tower center and conductors or as required by federal requirements, and to ensure access to towers. • To protect roosting bats within the ROW, Western and its subcontractors will minimize activities around caves, mine tunnels, and rock outcrops and will avoid removal of vegetation in these areas.
Cultural Resources	• Contract crews will complete cultural resources pre-maintenance awareness training to ensure they are aware of the locations of cultural resource sites; maintenance methods to be used in areas with sensitive cultural resources; and restrictions required in cultural resources areas (i.e., SOPs and PCMs). Crews will be educated on the Archaeological Resources Protection Act, which makes it a federal offense to willfully damage or remove artifacts or materials from an archaeological site. Supervisors and field personnel will have on file a signed agreement that they have completed the training, and understood and agreed to the terms. SOPs and applicable PCMs will be written into the contract for O&M work, and contractors will be held responsible for compliance. • Western crews will complete annual awareness training to ensure they are familiar with sensitive cultural resources and associated SOPs and PCMs. Supervisors and field personnel will have on file a signed agreement that they have completed the training, and understood and agreed to the terms. Further, Western crews will have access to the O&M GIS database in the field to be able to identify sensitive resources and associated PCMs. • Operation of vehicles or heavy construction equipment will be avoided in areas that are not designated transmission line and legal access road ROWs or other established transportation routes. This measure will minimize the possibility of disturbing unmapped cultural resources. • Upon discovery of potential buried cultural materials, work within 50 feet of the find will be halted and the discovery will be reported immediately to the Western Natural Resources Department or other designated point of contact. Western will comply with provisions in the National Historic Preservation Act and consult with the Arizona, Nevada and California State Historic Preservation Officers and tribes to determine measures to avoid the resource or mitigate during maintenance activities. • Upon inadvertent discovery of potential buried human remains, work within 50 feet of the find will be halted and the discovery will be reported immediately to the Western Natural Resources Department or other designated point of contact. Western will comply with provisions in the NHPA and the Native American Graves Protection and Repatriation Act (NAGPRA; 43 CFR Part 10) and consult with the SHPO and tribes to determine measures to avoid the resource or mitigate during maintenance activities.
Geology and Soils	• If Western needs to modify or relocate a structure, Western will have a certified professional geotechnical engineer evaluate the potential for geotechnical hazards and unstable slopes. • Upon completing ground-disturbing work, work areas will be left in a condition that facilitates natural and appropriate vegetation regrowth, provides for proper drainage, and prevents erosion. • Wet areas will be avoided to the extent practicable and activity will be minimized during winter and other wet periods to prevent damage (e.g., rutting, erosion, soil compaction). If wet areas cannot be avoided, Western will use wide-track or balloon tire vehicles and equipment or timber mats.

Appendix A, Table 2. Summary of Standard Operating Procedures (SOPs)	
Issue Area[1]	SOPs
Geology and Soils (cont.)	• Use of ground-disturbing mechanical equipment to remove vegetation will be avoided on continuous slopes over 35 percent, unless the threat of erosion was minimal because of bedrock, or reseeding will be performed. Short distances on slopes up to 40 percent will be allowable. • Where soil has been severely disturbed and the establishment of vegetation will be needed to minimize erosion, measures, as approved by the federal land manager, will be implemented to establish an adequate cover of native grass or other native vegetation as needed. Perennial vegetation is preferred to annual vegetation. Mulch and seed will be certified weed-free to prevent the spread of noxious weeds. Soil preparation, seeding, mulching, and fertilizing will be repeated as necessary to insure soil stabilization and revegetation acceptable to the federal land manager. • Disturbance and removal of soils and vegetation will be limited to the minimum area necessary for access and O&M activities. Grading will be minimized to the extent possible. When required, grading will be conducted such that run-off waters flow predominantly away from watercourses/washes to reduce the potential for material to enter the watercourse/wash. • At completion of work and at the request of the land owner/manager, work areas except access roads will be left in a condition that will facilitate natural or appropriate vegetation, provide for proper drainage, and prevent erosion.
Land Use	• Damage (e.g., to fences and gates) during maintenance activities will be repaired or replaced, and restored to their preconstruction condition. • Western will notify affected land owners for vegetation management and encroachment activities, as appropriate. Western will post proper signage in areas requiring temporary closure or limited access due to O&M activities. • Western will coordinate, as necessary, with federal, state, and local land use authorities, for each proposed activity to ensure Western's activities are consistent with land use plans and policies.
Noise	• All vehicles and equipment will have required exhaust-noise-abatement devices. • For long-term O&M activities confined to a specific area, Western's Environmental Affairs Department will be contacted to evaluate local thresholds and all requirements of those agencies having jurisdiction over noise matters.
Public Health and Hazardous Materials	• Contractors must submit a spill response plan that is approved by Western. Clean-up actions and costs resulting from contractor misconduct will be the responsibility of the contractor and approved by Western's Natural Resources Department. • All contract crews will complete hazardous materials pre-maintenance awareness training to ensure they are aware of SOPs and PCMs, as wells as pertinent regulations and the consequences for non-compliance. All supervisors and field personnel will have on file a signed agreement that they have completed the training, and understood and agreed to the terms. SOPs and applicable PCMs will be written into the contract for O&M work, and contractors will be held responsible for compliance. • All hazardous wastes will be properly disposed of consistent with all applicable regulations. • Discovery of, or the accidental discharge of hazardous materials will be immediately reported to Western's dispatch and Environmental Affairs Department. • There will be no storage of hazardous materials in the project area without approval from the authorized officer. • Upon termination of the permit, a report will be submitted to determine whether there had been site contamination and if so, that the remediation met compliance with applicable laws.

Appendix A, Table 2. Summary of Standard Operating Procedures (SOPs)	
Issue Area[1]	SOPs
Public Health and Hazardous Materials (cont.)	• Climate, geology, and soil types will be considered (including rainfall, wind, depth of aquifer, and soil permeability) in selecting the herbicide with lowest relative risk of migrating to water resources. • There will be no aerial application of herbicides. • All herbicide spill requirements will be followed in the rare case of an herbicide spill, including containment, cleanup, and notification procedures. • Western will adhere to all pesticide use permit conditions, if such authorization is required by Native American Tribes, USFS, USFWS, DOD, BLM, or other landowner. • O&M excavations greater than 1 foot deep will be fenced, covered, or filled at the end of each working day, or have escape ramps provided to prevent injury of the public and workers. • If an herbicide label stipulates a buffer zone width for protection of natural resources that differs from that specified in a PCM, the buffer zone width that offers the greatest protection will be applied. • Hazardous materials will not be drained onto the ground, into streams, or into drainage areas. • All releases, or discharges of hazardous materials within the project area in connection with project activities will be cleaned up and/or remediated, in accordance with applicable federal, state, and local regulations. • All flammable vegetation will be removed a minimum of 30 feet from tower center and conductors or as required by Federal requirements, and to ensure access to towers. • All herbicide applicators will have received training and be licensed in application categories. • Herbicide-free buffer zones will be maintained per label instructions. • All herbicide label and material safety data sheet instructions will be followed regarding mixing and application standards and equipment-cleaning standards to reduce potential exposure to the public through drift and misapplication. • Western will ensure that areas treated with herbicides will be posted and re-entry intervals specified and enforced in accordance with label instructions. Herbicides and equipment will never be left unattended in areas with unrestricted access. • All construction waste, including trash and litter, other solid waste, petroleum products, and other potentially hazardous material will be removed in accordance with applicable federal, state, and local regulations. • Western will contact the appropriate regional notification center at least two days prior to proposed excavation. This will result in an Underground Service Alert notifying the utilities that have buried lines within 1,000 feet of the proposed maintenance activities. Representatives of the utilities are required to mark the specific location of their facilities within the work area prior to the start of project activities in the area. All underground electric, water, gas, cable, or telecommunications lines within the vicinity of the proposed excavation will be marked. Western will avoid impacts to marked utility locations, and will coordinate with utility owners, to avoid impacts from project activities.
Recreation	• Western will direct members of the public to alternate trails or recreation areas if blocked by machinery or for safety purposes. Western will coordinate such re-direction with the land management agency(ies).
Transportation	• All lane closures or obstructions on major roadways associated with maintenance activities will be restricted to off-peak periods to minimize traffic congestion and delays, and will be coordinated with authorities (e.g., ADOT, Caltrans). • For identified locations, structures and/or shield wire will be marked with highly visible devices (e.g., lights and marker balls) where required by governmental agencies (e.g., Federal Aviation Administration) with jurisdiction.

Appendix A, Table 2. Summary of Standard Operating Procedures (SOPs)	
Issue Area[1]	SOPs
Water Quality	• If Western needs to relocate a structure or access road, Western will consult with the USACE, as needed. Bridges will be used at new stream crossings wherever possible. Discharges of material (displaced soils and, in certain circumstances, vegetation debris) within waters of the United States may be subject to USACE regulations under the Clean Water Act, and could require a permit. Western Natural Resources Department will be contacted. • Sediment-control devices, such as placement of native rock, will be used at all dry wash crossings. • Run-off from the maintenance site will be controlled and will meet the State Water Resources Control Board storm water requirements in the Storm Water Pollution Prevention Plan. • Impacts to areas under the jurisdiction of the USACE will be avoided to the extent feasible. Where avoidance of jurisdictional areas is not feasible and the action is not covered under nationwide or other permits, Western will obtain 404/401 permits applicable to the action, as necessary. Western will perform an impact assessment for the O&M activity, which will identify and quantify the acreage of each jurisdictional area (wetland, riparian, etc.). Western will provide creation, restoration, or preservation mitigation consistent with the 404/401 permitting requirements. • All contaminated discharge water created by O&M activities (e.g., concrete washout, pumping for work-area isolation, vehicle wash water, drilling fluids) will be contained and disposed of in accordance with applicable federal, state, and local regulations. • All fill or rip-rap placed within a stream or river channel will be limited to the minimum area required for access or protection of existing Western facilities. • Vehicles will be inspected daily for fluid leaks before leaving the staging area. • Run-off control structures, diversion ditches, erosion-control structures, and energy dissipaters will be cleaned, maintained, repaired, and replaced to meet the standards set by applicable permits and the Storm Water Pollution Prevention Plan, or where such a plan is inapplicable, similar standards set by Western or the applicable federal land manager. • Excavated soil will be backfilled and tamped at the location of excavation and used to provide positive drainage, or will be hauled off site to an area appropriate for disposal of excavated material, in accordance with federal, state, and local regulations and in coordination with the land owner. • Non-biodegradable debris will not be deposited in the ROW.

Appendix A, Table 3. Summary of General Plant and Wildlife Project Conservation Measures (PCMs)		
Issue Area	Activity Category	PCM
Special Status Plant Species	A	• Follow SOPs.
	B	• If special status plant species are present, vehicle access will be permitted only on established roads until the site has been cleared by a qualified biologist. Off-road travel will be avoided to the extent possible. • A qualified biologist will mark plant populations (including appropriate buffer zone) prior to O&M activity. • Herbicide use will be prohibited at all times in the vicinity of this species with the exception of direct application to target vegetation. • Ground disturbing activities require a survey by a qualified biologist to mark existing plant populations or clear the site. Ground disturbance will be prohibited within the flagged boundary unless otherwise directed by the qualified biologist. • Standard erosion- and sediment-control measures will be installed for all ground-disturbing activities in compliance with best management practices adopted by Western to prevent impacts to plants. • A description of the O&M activity, including location and duration, will be kept on file at Western's Environmental Affairs Department in support of USFWS reporting requirements.
	C	• Follow all measures listed for A and B. • Prior to site mobilization, Western will provide notification of the O&M activity to the federal land manager, land owner, or agency.
Special Status Wildlife and Fish Species (See conservation measures in Programmatic Biological Opinion)	A, B and C	• Follow SOPs at all times • If a special-status species habitat cannot be avoided, the following will be implemented. • Protocol-level preconstruction surveys will be required or species presence will be assumed. • For Category B and C activities, a description of the O&M activity, including location and duration, will be kept on file at Western's Environmental Affairs Department in support of USFWS reporting requirements. • Off-road travel will be minimized. Vehicle speeds will not exceed 25 mph on access and maintenance roads and 20 mph on unimproved access routes.
Wetlands	A	• Vehicle access will be permitted only on well-established roads unless soils are dry. Soils will be considered sufficiently dry for vehicle access when they resist compaction or as determined by qualified personnel based on personal observation of the soils.

Appendix A, Table 4. Summary of Water Project Conservation Measures (PCMs)		
Issue Area	Activity Category	PCM
Wetlands (cont.)	B and C	• Vehicle access will be permitted only on well-established roads unless soils are dry. Soils will be considered sufficiently dry for vehicle access when they resist compaction, or as determined by a qualified biologist based on personal observation of the soils). • If vegetation-management activities are proposed within 250 feet of a seasonal wetland, a qualified biologist will be present at all times to ensure the protection of the work-area limits below OR qualified personnel will clearly fence the limits of the work area, according to limits presented in the following, prior to the maintenance activity. (The herbicide restriction measures described above supersede those below where they are different.) - Mixing or application of pesticides, herbicides, or other potentially toxic chemicals will be prohibited. - Herbicide application to target vegetation by direct application methods (e.g. injection or cut-stump treatment) will be prohibited within 50 feet in the monsoon (generally July 1 to September 15) or winter rainy season (December 1 to January 31). - Herbicide application by basal spray and foliage spray methods will be prohibited within 100 feet in all seasons. - Manual clearing of vegetation (chainsaw, axe, clippers) will be allowed up to the edge of the pool or seasonal wetland in the wet seasons; a buffer will not be necessary in the dry seasons. • Mechanical clearing of vegetation (heavy-duty mowers, crawler tractors, or chippers) will be prohibited within 100 feet in the wet seasons; a buffer will not necessary in the dry season. • All equipment will be stored, fueled, and maintained in a vehicle staging area 300 feet or the maximum distance possible from a grassland, or seasonal wetland, and no closer than 200 feet unless a bermed (no ground disturbance) and lined refueling area is constructed and hazardous-material absorbent pads are available in the event of a spill. Vehicles will be inspected daily for fluid leaks before leaving the staging area. • When feasible, all maintenance activities will be routed around wet areas while ensuring that the route does not cross sensitive resource areas. • For ground-disturbing activities, a 100-foot (wet season) or 50-foot (dry season) buffer zone from the edge of the wetland will be maintained and the wetland will be protected from siltation and contaminant run-off by use of erosion control. Erosion-control materials will be of a tightly woven natural fiber netting or similar material that will not entrap wildlife. Erosion-control measures will be placed between the outer edge of the buffer and the activity area. All fiber rolls and hay bales used for erosion control will be certified as free of noxious weed seed. - When feasible, ground-disturbing activities, such as installation or repair of underground components (water, power, communication, or ground electrical line) or soil borings, will maintain a 250-foot buffer zone.
	A	• The following activities will be prohibited at all times within 100 feet of a seep, spring, pond, lake, river, stream, or marsh, and their associated habitats: - vehicle access, except on existing access and maintenance roads - dumping, stockpiling, or burying of material - mixing of pesticides, herbicides, or other potentially toxic chemicals

Appendix A, Table 4. Summary of Water Project Conservation Measures (PCMs)		
Issue Area	Activity Category	PCM
		- open petroleum products • All equipment will be stored, fueled, and maintained in a vehicle staging area 300 feet or the maximum distance possible from a seep, spring, pond, lake, river, stream, marsh, or their associated habitats. Vehicles will be inspected daily for fluid leaks before leaving the staging area. • When feasible, all maintenance activities will be routed around wet areas while ensuring that the route does not cross sensitive resource areas.
Seep, Spring, Pond, Lake, River, Stream, and Marsh	B and C	• The following activities will be prohibited at all times within 100 feet of a seep, spring, pond, lake, river, stream, or marsh, and their associated habitats: - vehicle access, except on existing access and maintenance roads - dumping, stockpiling, or burying of any material, except as required for specific O&M activities (e.g., rip-rap) - mixing of pesticides, herbicides, or other potentially toxic chemicals - open petroleum products • Equipment will be stored, fueled, and maintained in a vehicle staging area 300 feet or the maximum distance possible from a seep, spring, pond, lake, river, stream, marsh, or their associated habitats. Vehicles will be inspected daily for fluid leaks before leaving the staging area. • When feasible, all maintenance activities will be routed around wet areas while ensuring that the route does not cross sensitive resource areas. • For vegetation management or maintenance within 100 feet of a seep, spring, pond, lake, river, stream, or marsh, or their associated habitats, the following work-area limits will be provided (the herbicide restriction measures generated by the PRESCRIBE database supersede those below where they are different): - Only manual-clearing of vegetation will be permitted - Basal and foliar application of herbicides will be prohibited. Only direct application treatments (e.g. injection and cut-stump) of target vegetation will be allowed using herbicide approved for aquatic use by the U.S. EPA and in coordination with the federal land manager. • In-stream work, such as culvert replacement or installation, bank re-contouring, or placement of bank protection below the high-water line, will be conducted during no-flow or low-flow conditions to avoid impacts to water flow, and will be restricted to the minimum area necessary for completion of the work. • Equipment used below the ordinary high-water mark will be free of exterior contamination (i.e., grass clumps, mud, etc.). • For ground-disturbing activities, a 100-foot buffer zone will be maintained from the edge of the seep, spring, pond, lake, river, stream, marsh, or their associated habitats for protection from siltation and run-off of contaminants by use of erosion-control measures. • Erosion-control materials will be of a tightly woven natural fiber netting or similar material that will not entrap reptiles and amphibians (e.g., coconut coir matting). No monofilament plastics will be used for erosion control near seasonal wetlands. Erosion-control measures will be placed between the outer edge of the buffer and the activity area. Fiber rolls and hay bales used for erosion control will be certified as free of noxious weed seed.

Appendix A, Table 4. Summary of Water Project Conservation Measures (PCMs)		
Issue Area	Activity Category	PCM
		• Seed mixtures applied for erosion control and restoration will be certified as free of noxious weed seed, and will be composed of native species or sterile nonnative species. • Western will obtain 404 discharge and 401 water-quality permits prior to maintenance activities that must take place within jurisdictional wetlands or other waters of the US. These will be coordinated with USACE, Nevada Division of Environmental Protection, California State Water Resources Control Board, and Arizona Department of Environmental Quality, as needed. • Dewatering work for maintenance operations adjacent to or encroaching on seeps, springs, ponds, lakes, rivers, streams, or marshes will be conducted to prevent muddy water and eroded materials from entering the water or marsh. • Stream crossings will be constructed such that they permit fish to pass and reduce the potential for stream flows to increase scour, washout, or disruption of water flow. Wherever possible, stream crossings will be located in stream segments without riparian vegetation, and structure footings will be installed outside of stream banks. If Western needs to modify existing access roads or install new access roads, they will be built at right angles to streams and washes to the extent practicable. • Trees providing shade to water bodies will be trimmed only to the extent necessary and will not be removed unless they present a specific safety concern. Trees that must be removed will be felled to avoid damaging riparian habitat. They will be felled out of and away from the stream maintenance zone and riparian habitat, including springs, seeps, bogs, and other wet or saturated areas. Trees will not be felled into streams in a way that will obstruct or impair the flow of water, unless instructed otherwise. Tree removal that could cause stream-bank erosion or increase water temperatures will not be conducted in and around streams. Tree removal in riparian or wetland areas will be done only by manual methods.

Appendix B

Herbicides Approved for Use on BLM Lands in Accordance with the 17 Western States PEIS ROD and Oregon EIS ROD

*Herbicides Approved for Use on BLM Lands in Accordance with the 17 Western States PEIS ROD and Oregon EIS ROD**

Update September 25, 2012

ACTIVE INGREDIENT	STATES WITH APPROVAL BASED UPON CURRENT EIS/ROD	TRADE NAME	MANUFACTURER	EPA REG. NUMBER	CA REG. **
Bromacil	AK, AZ, CA, CO, ID, MT, ND,	Bromacil 80DF	Alligare, LLC	81927-4	Y
	NE, NM, NV, OK, OR-East, SD,	Hyvar X	DuPont Crop Protection	352-287	Y
	TX, UT, WA, WY	Hyvar XL	DuPont Crop Protection	352-346	Y
Bromacil +	AK, AZ, CA, CO, ID, MT, ND,	Bromacil/Diuron 40/40	Alligare, LLC	81927-3	Y
Diuron	NE, NM, NV, OK, OR-East, SD,	Krovar I DF	DuPont Crop Protection	352-505	Y
	TX, UT, WA, WY	Weed Blast Res. Weed Cont.	Loveland Products Inc.	34704-576	N
		DiBro 2+2	Nufarm Americas Inc.	228-227	Y
		DiBro 4+4	Nufarm Americas Inc.	228-235	N
		DiBro 4+2	Nufarm Americas Inc.	228-386	N
		Weed Blast 4G	SSI Maxim	34913-19	N
Chlorsulfuron	AK, AZ, CA, CO, ID, MT, ND,	Alligare Chlorsulfuron	Alligare, LLC	81927-43	N
	NE, NM, NV, OK, OR-East, SD,	Telar DF	DuPont Crop Protection	352-522	Y
	TX, UT, WA, WY	Telar XP	DuPont Crop Protection	352-654	Y
		Nufarm Chlorsulf SPC 75 WDG Herbicide	Nufarm Americas Inc.	228-672	N
		Chlorsulfuron E-Pro 75 WDG	Nufarm Americas Inc.	79676-72	N
Clopyralid	AK, AZ, CA, CO, ID, MT, ND,	Spur	Albaugh, Inc.	42750-89	Y
	NE, NM, NV, OK, OR, SD, TX,	Pyramid R&P	Albaugh, Inc.	42750-94	N
	UT, WA, WY	Clopyralid 3	Alligare, LLC	42750-94-81927	Y
		Cody Herbicide	Alligare, LLC	81927-28	Y
		Reclaim	Dow AgroSciences	62719-83	N
		Stinger	Dow AgroSciences	62719-73	Y
		Transline	Dow AgroSciences	62719-259	Y
		CleanSlate	Nufarm Americas Inc.	228-491	Y

	STATES WITH APPROVAL				
ACTIVE	BASED UPON CURRENT			EPA REG.	CA
INGREDIENT	EIS/ROD	TRADE NAME	MANUFACTURER	NUMBER	REG. **
Clopyralid +	AK, AZ, CA, CO, ID, MT, ND,	Commando	Albaugh, Inc.	42750-92	N
2,4-D	NE, NM, NV, OK, OR, SD, TX,	Curtail	Dow AgroSciences	62719-48	N
	UT, WA, WY	Cutback	Nufarm Americas Inc.	71368-72	N
2,4-D	AK, AZ, CA, CO, ID, MT, ND,	Agrisolution 2,4-D LV6	Agriliance, L.L.C.	1381-101	N
	NE, NM, NV, OK, OR, SD, TX,	Agrisolution 2,4-D Amine 4	Agriliance, L.L.C.	1381-103	N
	UT, WA, WY	Agrisolution 2,4-D LV4	Agriliance, L.L.C.	1381-102	N
		2,4-D Amine 4	Albaugh, Inc./Agri Star	42750-19	Y
		2,4-D LV 4	Albaugh, Inc./Agri Star	42750-15	Y
		Solve 2,4-D	Albaugh, Inc./Agri Star	42750-22	Y
		2,4-D LV 6	Albaugh, Inc./Agri Star	42750-20	N
		Five Star	Albaugh, Inc./Agri Star	42750-49	N
		D-638	Albaugh, Inc./Agri Star	42750-36	N
		Alligare 2,4-D Amine	Alligare, LLC	81927-38	N
		2,4-D LV6	Helena Chemical Company	4275-20-5905	N
		2,4-D Amine	Helena Chemical Company	5905-72	N
		2,4-D Amine 4	Helena Chemical Company	42750-19-5905	N
		Opti-Amine	Helena Chemical Company	5905-501	N
		Barrage HF	Helena Chemical Company	5905-529	N
		HardBall	Helena Chemical Company	5905-549	N
		Unison	Helena Chemical Company	5905-542	N
		Clean Amine	Loveland Products Inc.	34704-120	N
		Low Vol 4 Ester Weed Killer	Loveland Products Inc.	34704-124	N
		Low Vol 6 Ester Weed Killer	Loveland Products Inc.	34704-125	N
		Saber	Loveland Products Inc.	34704-803	N
		Salvo	Loveland Products Inc.	34704-609	N
		Savage DS	Loveland Products Inc.	34704-606	Y
		Aqua-Kleen	Nufarm Americas Inc.	71368-4	N
		Aqua-Kleen	Nufarm Americas Inc.	228-378	N
		Esteron 99C	Nufarm Americas Inc.	62719-9-71368	N
		Weedar 64	Nufarm Americas Inc.	71368-1	Y
		Weedone LV-4	Nufarm Americas Inc.	228-139-71368	Y
		Weedone LV-4 Solventless	Nufarm Americas Inc.	71368-14	Y

	STATES WITH APPROVAL				
ACTIVE	**BASED UPON CURRENT**			**EPA REG.**	**CA**
INGREDIENT	**EIS/ROD**	**TRADE NAME**	**MANUFACTURER**	**NUMBER**	**REG. ****
2,4-D - cont.	AK, AZ, CA, CO, ID, MT, ND,	Weedone LV-6	Nufarm Americas Inc.	71368-11	Y
	NE, NM, NV, OK, OR, SD, TX,	Formula 40	Nufarm Americas Inc.	228-357	Y
	UT, WA, WY	2,4-D LV 6 Ester	Nufarm Americas Inc.	228-95	Y
		Platoon	Nufarm Americas Inc.	228-145	N
		WEEDstroy AM-40	Nufarm Americas Inc.	228-145	Y
		Hi-Dep	PBI Gordon Corp.	2217-703	N
		2,4-D Amine	Setre (Helena)	5905-72	N
		Barrage LV Ester	Setre (Helena)	5905-504	N
		2,4-D LV4	Setre (Helena)	5905-90	N
		2,4-D LV6	Setre (Helena)	5905-93	N
		Clean Crop Amine 4	UAP-Platte Chem. Co.	34704-5 CA	Y
		Clean Crop Low Vol 6 Ester	UAP-Platte Chem. Co.	34704-125	N
		Salvo LV Ester	UAP-Platte Chem. Co.	34704-609	N
		2,4-D 4# Amine Weed Killer	UAP-Platte Chem. Co.	34704-120	N
		Clean Crop LV-4 ES	UAP-Platte Chem. Co.	34704-124	N
		Savage DS	UAP-Platte Chem. Co.	34704-606	Y
		Cornbelt 4 lb. Amine	Van Diest Supply Co.	11773-2	N
		Cornbelt 4# LoVol Ester	Van Diest Supply Co.	11773-3	N
		Cornbelt 6# LoVol Ester	Van Diest Supply Co.	11773-4	N
		Amine 4	Wilbur-Ellis Co.	2935-512	N
		Lo Vol-4	Wilbur-Ellis Co.	228-139-2935	N
		Lo Vol-6 Ester	Wilbur-Ellis Co.	228-95-2935	N
		Base Camp Amine 4	Wilbur-Ellis Co.	71368-1-2935	N
		Base Camp LV6	Wilbur-Ellis Co.	2935-553	N
		Broadrange 55	Wilbur-Ellis Co.	2217-813-2935	N
		Agrisolution 2,4-D LV6	Winflied Solutions, LLC	1381-101	N
		Agrisolution 2,4-D Amine 4	Winfield Solutions, LLC	1381-103	N
		Agrisolution 2,4-D LV4	Winfield Solutions, LLC	1381-102	N
		Phenoxy 088	Winfield Solutions, LLC	42750-36-9779	N
		Rugged	Winfield Solutions, LLC	1381-247	N
		Shredder E-99	Winfield Solutions, LLC	1381-195	N

	STATES WITH APPROVAL				
ACTIVE	**BASED UPON CURRENT**			**EPA REG.**	**CA**
INGREDIENT	**EIS/ROD**	**TRADE NAME**	**MANUFACTURER**	**NUMBER**	**REG. ****
Dicamba	AK, AZ, CA, CO, ID, MT, ND,	Dicamba DMA	Albaugh, Inc./Agri Star	42750-40	N
	NE, NM, NV, OK, OR, SD, TX,	Vision	Albaugh, Inc.	42750-98	N
	UT, WA, WY	Cruise Control	Alligare, LLC	42750-40-81927	N
		Banvel	Arysta LifeScience N.A. Corp.	66330-276	Y
		Clarity	BASF Corporation	7969-137	Y
		Vision	Helena Chemical Company	5905-576	Y
		Rifle	Loveland Products Inc.	34704-861	Y
		Banvel	Micro Flo Company	51036-289	Y
		Diablo	Nufarm Americas Inc.	228-379	Y
		Vanquish Herbicide	Nufarm Americas Inc.	228-397	Y
		Vanquish	Syngenta	100-884	N
		Sterling Blue	Winfield Solutions, LLC	7969-137-1381	Y
Dicamba +	AK, AZ, CA, CO, ID, MT, ND,	Range Star	Albaugh, Inc./Agri Star	42750-55	N
2,4-D	NE, NM, NV, OK, OR, SD, TX,	Weedmaster	BASF Ag. Products	7969-133	Y
	UT, WA, WY	Brush-Rhap	Helena Chemical Company	5905-568	N
		Latigo	Helena Chemical Company	5905-564	N
		Outlaw	Helena Chemical Company	5905-574	N
		Rifle-D	Loveland Products Inc.	34704-869	N
		KambaMaster	Nufarm Americas Inc.	71368-34	N
		Veteran 720	Nufarm Americas Inc.	228-295	Y
		Weedmaster	Nufarm Americas Inc.	71368-34	Y
		Brash	Winfield Solutions, LLC	1381-202	N
Dicamba +	AZ, CO, ID, MT, ND, NE, NM,	Distinct	BASF Corporation	7969-150	Y
Diflufenzopyr	NV, OK, OR, SD, TX, UT,	Overdrive	BASF Corporation	7969-150	N
	WA, WY				

NOTE: In accordance with the Record of Decision for the *Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement* (PEIS), the aerial application of this herbicide is prohibited.

	STATES WITH APPROVAL				
ACTIVE	**BASED UPON CURRENT**			**EPA REG.**	**CA**
INGREDIENT	**EIS/ROD**	**TRADE NAME**	**MANUFACTURER**	**NUMBER**	**REG. ****
Diquat	AK, AZ, CA, CO, ID, MT, ND,	Alligare Diquat	Alligare, LLC	81927-35	Y
	NE, NM, NV, OK, SD, TX, UT,	NuFarm Diquat SPC 2 L Herbicide	Nufarm Americas Inc.	228-675	N
	WA, WY	Diquat SPC 2 L Herbicide	Nufarm Americas Inc.	79676-75	Y
		Diquat E-Ag 2L	Nufarm Americas Inc.	79676-75	Y
		Reward	Syngena Professional Products	100-1091	Y
Diuron	AK, AZ, CA, CO, ID, MT, ND,	Diuron 80DF	Agriliance, L.L.C.	9779-318	N
	NE, NM, NV, OK, OR, SD, TX,	Diuron 80DF	Alligare, LLC	81927-12	Y
	UT, WA, WY	Karmex DF	DuPont Crop Protection	352-692	Y
		Karmex XP	DuPont Crop Protection	352-692	Y
		Karmex IWC	DuPont Crop Protection	352-692	Y
		Direx 4L	DuPont Crop Protection	352-678	Y
		Direx 80DF	Griffin Company	1812-362	Y
		Direx 4L	Griffin Company	1812-257	Y
		Diuron 4L	Loveland Products Inc.	34704-854	Y
		Diuron 80 WDG	Loveland Products Inc.	34704-648	N
		Diuron 4L	Makteshim Agan of N.A.	66222-54	N
		Diuron 80WDG	UAP-Platte Chem. Co.	34704-648	N
		Vegetation Man. Diuron 80 DF	Vegetation Man., LLC	66222-51-74477	N
		Diuron-DF	Wilbur-Ellis	00352-00-508-02935	N
		Diuron 80DF	Winfield Solutions, LLC	9779-318	N
Fluridone	AK, AZ, CA, CO, ID, MT, ND,	Avast!	SePRO	67690-30	Y
	NE, NM, NV, OK, OR, SD, TX,	Sonar AS	SePRO	67690-4	Y
	UT, WA, WY	Sonar Precision Release	SePRO	67690-12	Y
		Sonar Q	SePRO	67690-3	Y
		Sonar SRP	SePRO	67690-3	Y
Glyphosate	AK, AZ, CA, CO, ID, MT, ND,	Aqua Star	Albaugh, Inc./Agri Star	42750-59	Y
	NE, NM, NV, OK, OR, SD, TX,	Forest Star	Albaugh, Inc./Agri Star	42570-61	Y
	UT, WA, WY	GlyStar Gold	Albaugh, Inc./Agri Star	42750-61	Y
		Gly Star Original	Albaugh, Inc./Agri Star	42750-60	Y
		Gly Star Plus	Albaugh, Inc./Agri Star	42750-61	Y
		Gly Star Pro	Albaugh, Inc./Agri Star	42750-61	Y

	STATES WITH APPROVAL				
ACTIVE	**BASED UPON CURRENT**			**EPA REG.**	**CA**
INGREDIENT	**EIS/ROD**	**TRADE NAME**	**MANUFACTURER**	**NUMBER**	**REG. ****
Glyphosate - cont.	AK, AZ, CA, CO, ID, MT, ND,	Glyphosate 4 PLUS	Alligare, LLC	81927-9	Y
	NE, NM, NV, OK, OR, SD, TX,	Glyphosate 5.4	Alligare, LLC	81927-8	Y
	UT, WA, WY	Glyfos	Cheminova	4787-31	Y
		Glyfos PRO	Cheminova	67760-57	Y
		Glyfos Aquatic	Cheminova	4787-34	Y
		ClearOut 41 Plus	Chem. Prod. Tech., LLC	70829-3	N
		Accord Concentrate	Dow AgroSciences	62719-324	Y
		Accord SP	Dow AgroSciences	62719-322	Y
		Accord XRT	Dow AgroSciences	62719-517	Y
		Accord XRT II	Dow AgroSciences	62719-556	Y
		Glypro	Dow AgroSciences	62719-324	Y
		Glypro Plus	Dow AgroSciences	62719-322	Y
		Rodeo	Dow AgroSciences	62719-324	Y
		Showdown	Helena Chemical Company	71368-25-5905	Y
		Mirage	Loveland Products Inc.	34704-889	Y
		Mirage Plus	Loveland Products Inc.	34704-890	Y
		Aquamaster	Monsanto	524-343	Y
		Roundup Original	Monsanto	524-445	Y
		Roundup Original II	Monsanto	524-454	Y
		Roundup Original II CA	Monsanto	524-475	Y
		Honcho	Monsanto	524-445	Y
		Honcho Plus	Monsanto	524-454	Y
		Roundup PRO	Monsanto	524-475	Y
		Roundup PRO Concentrate	Monsanto	524-529	Y
		Roundup PRO Dry	Monsanto	524-505	Y
		Roundup PROMAX	Monsanto	524-579	Y
		Aqua Neat	Nufarm Americas Inc.	228-365	Y
		Credit Xtreme	Nufarm Americas Inc.	71368-81	Y
		Foresters	Nufarm Americas Inc.	228-381	Y
		Razor	Nufarm Americas Inc.	228-366	Y
		Razor Pro	Nufarm Americas Inc.	228-366	Y
		GlyphoMate 41	PBI/Gordon Corporation	2217-847	Y
		AquaPro Aquatic Herbicide	SePRO Corporation	62719-324-67690	Y
		Rattler	Setre (Helena)	524-445-5905	Y

ACTIVE INGREDIENT	STATES WITH APPROVAL BASED UPON CURRENT EIS/ROD	TRADE NAME	MANUFACTURER	EPA REG. NUMBER	CA REG. **
Glyphosate - cont.	AK, AZ, CA, CO, ID, MT, ND,	Buccaneer	Tenkoz	55467-10	Y
	NE, NM, NV, OK, OR, SD, TX,	Buccaneer Plus	Tenkoz	55467-9	Y
	UT, WA, WY	Mirage Herbicide	UAP-Platte Chem. Co.	524-445-34704	Y
		Mirage Plus Herbicide	UAP-Platte Chem. Co.	524-454-34704	Y
		Gly-4 Plus	Universal Crop Protection Alliance, LLC	72693-1	Y
		Gly-4 Plus	Universal Crop Protection Alliance, LLC	42750-61-72693	Y
		Gly-4	Universal Crop Protection Alliance, LLC	42750-60-72693	Y
		Glyphosate 4	Vegetation Man., LLC	73220-6-74477	Y
		Agrisolutions Cornerstone	Winfield Solutions, LLC	1381-191	Y
		Agrisolutions Cornerstone Plus	Winfield Solutions, LLC	1381-192	Y
		Agrisolutions Rascal	Winfield Solutions, LLC	1381-191	N
		Agrisolutions Rascal Plus	Winfield Solutions, LLC	1381-192	N
		Cornerstone 5 Plus	Winfield Solutions, LLC	1381-241	Y
Glyphosate +	AK, AZ, CA, CO, ID, MT, ND,	Landmaster BW	Albaugh, Inc./Agri Star	42570-62	N
2,4-D	NE, NM, NV, OK, OR, SD, TX,	Campaign	Monsanto	524-351	N
	UT, WA, WY	Landmaster BW	Monsanto	524-351	N
Hexazinone	AK, AZ, CA, CO, ID, MT, ND,	Velpar ULW	DuPont Crop Protection	352-450	N
	NE, NM, NV, OK, OR, SD, TX,	Velpar L	DuPont Crop Protection	352-392	Y
	UT, WA, WY	Velpar DF	DuPont Crop Protection	352-581	Y
		Velossa	Helena Chemical Company	5905-579	Y
		Pronone MG	Pro-Serve	33560-21	N
		Pronone 10G	Pro-Serve	33560-21	Y
		Pronone 25G	Pro-Serve	33560-45	N
Hexazinone +	AK, AZ, CA, CO, ID, MT, ND, NE,	Westar	DuPont Crop Protection	352-626	Y
Sulfometuron methyl	NM, NV, OK, OR, SD, TX, UT,	Oustar	DuPont Crop Protection	352-603	Y
	WA, WY				
NOTE: In accordance with the Record of Decision for the *Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement* (PEIS), the aerial application of this herbicide (sulfometuron methyl) is prohibited.					

	STATES WITH APPROVAL				
ACTIVE	BASED UPON CURRENT			EPA REG.	CA
INGREDIENT	EIS/ROD	TRADE NAME	MANUFACTURER	NUMBER	REG. **
Imazapic	AZ, CO, ID, MT, ND, NE, NM,	Panoramic 2SL	Alligare, LLC	66222-141-81927	N
	NV, OK, OR, SD, TX, UT, WA,	Plateau	BASF	241-365	N
	WY	Nufarm Imazapic 2SL	Nufarm Americas Inc.	71368-99	N
Imazapic +	AZ, CO, ID, MT, ND, NE, NM,	Journey	BASF	241-417	N
Glyphosate	NV, OK, OR, SD, TX, UT, WA,				
	WY				
Imazapyr	AK, AZ, CA, CO, ID, MT, ND,	Imazapyr 2SL	Alligare, LLC	81927-23	N
	OR, NE, NM, NV, OK, SD, TX,	Imazapyr 4SL	Alligare, LLC	81927-24	N
	UT, WA, WY	Ecomazapyr 2SL	Alligare, LLC	81927-22	N
		Arsenal Railroad Herbicide	BASF	241-273	N
		Chopper	BASF	241-296	Y
		Arsenal Applicators Conc.	BASF	241-299	N
		Arsenal	BASF	241-346	N
		Arsenal PowerLine	BASF	241-431	N
		Stalker	BASF	241-398	N
		Habitat	BASF	241-426	Y
		Polaris	Nufarm Americas Inc.	228-534	Y
		Polaris AC	Nufarm Americas Inc.	241-299-228	Y
		Polaris AC	Nufarm Americas Inc.	228-480	Y
		Polaris AC Complete	Nufarm Americas Inc.	228-570	Y
		Polaris AQ	Nufarm Americas Inc.	241-426-228	Y
		Polaris RR	Nufarm Americas Inc.	241-273-228	N
		Polaris SP	Nufarm Americas Inc.	228-536	Y
		Polaris SP	Nufarm Americas Inc.	241-296-228	Y
		Polaris Herbicide	Nufarm Americas Inc.	241-346-228	N
		Habitat Herbicide	SePRO	241-426-67690	Y
		SSI Maxim Arsenal 0.5G	SSI Maxim Co., Inc.	34913-23	N
		Ecomazapyr 2 SL	Vegetation Man., LLC	74477-6	N
		Imazapyr 2 SL	Vegetation Man., LLC	74477-4	N
		Imazapyr 4 SL	Vegetation Man., LLC	74477-5	N

	STATES WITH APPROVAL				
ACTIVE	**BASED UPON CURRENT**			**EPA REG.**	**CA**
INGREDIENT	**EIS/ROD**	**TRADE NAME**	**MANUFACTURER**	**NUMBER**	**REG. ****
Imazapyr +	AK, AZ, CA, CO, ID, MT, ND,	Mojave 70 EG	Alligare, LLC	74477-9-81927	N
Diuron	OR, NE, NM, NV, OK, SD, TX,	Sahara DG	BASF	241-372	N
	UT, WA, WY	Imazuron E-Pro	Etigra, LLC	79676-54	N
		SSI Maxim Topsite 2.5G	SSI Maxim Co., Inc.	34913-22	N
Imazapyr +	AK, AZ, CA, CO, ID, MT, ND,	Lineage Clearstand	DuPont Crop Protection	352-766	N
Metsulfuron methyl	OR, NE, NM, NV, OK, SD, TX,				
	UT, WA, WY				
Imazapyr +	AK, AZ, CA, CO, ID, MT, ND,	Lineage HWC	DuPont Crop Protection	352-765	N
Sulfometuron methyl +	OR, NE, NM, NV, OK, SD, TX,	Lineage Prep	DuPont Crop Protection	352-767	N
Metsulfuron methyl	UT, WA, WY				
NOTE: In accordance with the Record of Decision for the *Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement* (PEIS), the aerial application of this herbicide (sulfometuron methyl) is prohibited.					
Metsulfuron methyl	AK, AZ, CO, ID, MT, ND, OR,	MSM 60	Alligare, LLC	81927-7	N
	NE, NM, NV, OK, SD, TX, UT,	AmTide MSM 60DF Herbicide	AmTide, LLC	83851-3	N
	WA, WY	Escort DF	DuPont Crop Protection	352-439	N
		Escort XP	DuPont Crop Protection	352-439	N
		MSM E-Pro 60 EG Herbicide	Etigra, LLC	81959-14	N
		MSM E-AG 60 EG Herbicide	Etigra, LLC	81959-14	N
		Patriot	Nufarm Americas Inc.	228-391	N
		PureStand	Nufarm Americas Inc.	71368-38	N
		Metsulfuron Methyl DF	Vegetation Man., L.L.C.	74477-2	N
Metsulfuron methyl +	AK, AZ, CO, ID, MT, ND,	Cimarron X-tra	DuPont Crop Protection	352-669	N
Chlorsulfuron	NE, NM, NV, OK, OR-East, SD,	Cimarron Plus	DuPont Crop Protection	352-670	N
	TX, UT, WA, WY				

	STATES WITH APPROVAL				
ACTIVE	**BASED UPON CURRENT**			**EPA REG.**	**CA**
INGREDIENT	**EIS/ROD**	**TRADE NAME**	**MANUFACTURER**	**NUMBER**	**REG. ****
Metsulfuron methyl +	AK, AZ, CO, ID, MT, ND,	Cimarron MAX	DuPont Crop Protection	352-615	N
Dicamba + 2,4-D	NE, NM, NV, OK, OR, SD, TX,				
	UT, WA, WY				
Picloram	AZ, CO, ID, MT, ND, NE, NM,	Triumph K	Albaugh, Inc.	42750-81	N
	NV, OK, OR, SD, TX, UT, WA,	Triumph 22K	Albaugh, Inc.	42750-79	N
	WY	Picloram K	Alligare, LLC	42750-81-81927	N
		Picloram K	Alligare, LLC	81927-17	N
		Picloram 22K	Alligare, LLC	42750-79-81927	N
		Picloram 22K	Alligare, LLC	81927-18	N
		Grazon PC	Dow AgroSciences	62719-181	N
		OutPost 22K	Dow AgroSciences	62719-6	N
		Tordon K	Dow AgroSciences	62719-17	N
		Tordon 22K	Dow AgroSciences	62719-6	N
		Trooper 22K	Nufarm Americas Inc.	228-535	N
Picloram +	AZ, CO, ID, MT, ND, NE, NM,	GunSlinger	Albaugh, Inc.	42750-80	N
2,4-D	NV, OK, OR, SD, TX, UT, WA,	Picloram + D	Alligare, LLC	42750-80-81927	N
	WY	Picloram + D	Alligare, LLC	81927-16	N
		Tordon 101M	Dow AgroSciences	62719-5	N
		Tordon 101 R Forestry	Dow AgroSciences	62719-31	N
		Tordon RTU	Dow AgroSciences	62719-31	N
		Grazon P+D	Dow AgroSciences	62719-182	N
		HiredHand P+D	Dow AgroSciences	62719-182	N
		Pathway	Dow AgroSciences	62719-31	N
		Trooper 101	Nufarm Americas Inc.	228-561	N
		Trooper P + D	Nufarm Americas Inc.	228-530	N
Picloram +	AZ, CO, ID, MT, ND, NE, NM,	Trooper Extra	Nufarm Americas Inc.	228-586	N
2,4-D +	NV, OK, OR, SD, TX, UT, WA,				
Dicamba	WY				

ACTIVE INGREDIENT	STATES WITH APPROVAL BASED UPON CURRENT EIS/ROD	TRADE NAME	MANUFACTURER	EPA REG. NUMBER	CA REG. **
Sulfometuron methyl	AK, AZ, CA, CO, ID, MT, ND,	SFM 75	Alligare, LLC	81927-26	Y
	OR, NE, NM, NV, OK, SD, TX,	Oust DF	DuPont Crop Protection	352-401	N
	UT, WA, WY	Oust XP	DuPont Crop Protection	352-601	Y
		SFM E-Pro 75EG	Etigra, LLC	79676-16	Y
		Spyder	Nufarm Americas Inc.	228-408	Y
		SFM 75	Vegetation Man., L.L.C.	72167-11-74477	Y
NOTE: In accordance with the Record of Decision for the *Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement* (PEIS), the aerial application of this herbicide (sulfometuron methyl) is prohibited.					
Sulfometuron methyl +	AK, AZ, CA, CO, ID, MT, ND,	Landmark XP	DuPont Crop Protection	352-645	Y
Chlorsulfuron	NE, NM, NV, OK, OR-East, SD,				
	TX, UT, WA, WY				
NOTE: In accordance with the Record of Decision for the *Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement* (PEIS), the aerial application of this herbicide (sulfometuron methyl) is prohibited.					
Sulfometuron methyl +	AK, AZ, CA, CO, ID, MT, ND,	Oust Extra	DuPont Crop Protection	352-622	N
Metsulfuron methyl	OR, NE, NM, NV, OK, SD, TX,				
	UT, WA, WY				
NOTE: In accordance with the Record of Decision for the *Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement* (PEIS), the aerial application of this herbicide (sulfometuron methyl) is prohibited.					
Tebuthiuron	AZ, CA, CO, ID, MT, ND, NE,	Alligare Tebuthiuron 80 WG	Alligare, LLC	81927-37	Y
	NM, NV, OK, OR-East, SD, TX,	Alligare Tebuthiuron 20 P	Alligare, LLC	81927-41	Y
	UT, WA, WY	Spike 20P	Dow AgroSciences	62719-121	Y
		Spike 80DF	Dow AgroSciences	62719-107	Y
		SpraKil S-5 Granules	SSI Maxim Co., Inc.	34913-10	Y
Tebuthiuron +	AZ, CA, CO, ID, MT, ND, NE,	SpraKil SK-13 Granular	SSI Maxim Co., Inc.	34913-15	Y
Diuron	NM, NV, OK, OR-East, SD, TX,	SpraKil SK-26 Granular	SSI Maxim Co., Inc.	34913-16	Y
	UT, WA, WY				

ACTIVE INGREDIENT	STATES WITH APPROVAL BASED UPON CURRENT EIS/ROD	TRADE NAME	MANUFACTURER	EPA REG. NUMBER	CA REG. **
Triclopyr	AK, AZ, CA, CO, ID, MT, ND,	Triclopyr 4EC	Alligare, LLC	72167-53-74477	Y
	OR, NE, NM, NV, OK, SD, TX,	Triclopyr 3	Alligare, LLC	81927-13	Y
	UT, WA, WY	Triclopry 4	Alligare, LLC	81927-11	Y
		Element 3A	Dow AgroSciences	62719-37	Y
		Element 4	Dow AgroSciences	62719-40	Y
		Forestry Garlon XRT	Dow AgroSciences	62719-553	Y
		Garlon 3A	Dow AgroSciences	62719-37	Y
		Garlon 4	Dow AgroSciences	62719-40	Y
		Garlon 4 Ultra	Dow AgroSciences	62719-527	Y
		Remedy	Dow AgroSciences	62719-70	Y
		Remedy Ultra	Dow AgroSciences	62719-552	Y
		Pathfinder II	Dow AgroSciences	62719-176	Y
		Trycera	Helena Chemical Company	5905-580	Y
		Relegate	Nufarm Americas Inc.	228-521	Y
		Relegate RTU	Nufarm Americas Inc.	228-522	Y
		Tahoe 3A	Nufarm Americas Inc.	228-384	Y
		Tahoe 3A	Nufarm Americas Inc.	228-518	Y
		Tahoe 3A	Nufarm Americas Inc.	228-520	Y
		Tahoe 4E	Nufarm Americas Inc.	228-385	Y
		Tahoe 4E Herbicide	Nufarm Americas Inc.	228-517	Y
		Renovate 3	SePRO Corporation	62719-37-67690	Y
		Renovate OTF	SePRO Corporation	67690-42	Y
		Ecotriclopyr 3 SL	Vegetation Man., LLC	72167-49-74477	N
		Triclopyr 3 SL	Vegetation Man., LLC	72167-53-74477	N
Triclopyr +	AK, AZ, CA, CO, ID, MT, ND,	Everett	Alligare, LLC	81927-29	Y
2,4-D	OR, NE, NM, NV, OK, SD, TX,	Crossbow	Dow AgroSciences	62719-260	Y
	UT, WA, WY	Candor	Nufarm Americas Inc.	228-565	Y
		Aquasweep	Nufarm Americas Inc.	228-316	N
Triclopyr +	AK, AZ, CA, CO, ID, MT, ND,	Prescott Herbicide	Alligare, LLC	81927-30	Y
Clopyralid	OR, NE, NM, NV, OK, SD, TX,	Redeem R&P	Dow AgroSciences	62719-337	Y
	UT, WA, WY	Brazen	Nufarm Americas Inc.	228-564	Y

*** Refer to the complete label prior to considering the use of any herbicide formulation. Label changes can impact the intended use through, such things as,**					
creation or elimination of Special Local Need (SLN) or 24 (c) registrations, changes in application sites, rates and timing of application, county restrictions, etc.					
**** Just because a herbicide has a Federal registration, and is approved under the current EIS, it may or may not be registered for use in California. This**					
column identifies those formulations for which there is a California registration.					

Appendix C

Scoping Summary

Aspen Environmental Group

5020 Chesebro Road, Suite 200, Agoura Hills, CA 91301-2285
Tel. 818-597-3407, Fax 818-597-8001, www.aspeneg.com

PROJECT MEMORANDUM

Date: April 10, 2014
To: Sean Heath, Environmental Protection Specialist
DSW Western Area Power Administration
From: Sandra Alarcón-Lopez, Public Involvement Specialist

Re: Scoping Process for the Environmental Assessment (EA) of Western's Parker-Davis Transmission System Programmatic Operation and Maintenance and Integrated Vegetation Management Program

This memorandum summarizes the activities conducted as part of the scoping process for the Parker-Davis Transmission System Project EA. The scoping process commenced on February 28, 2014 and ended on April 4, 2014. All activities are listed with the associated dates of distribution/filing/publication, as applicable. In addition, all documents prepared as part of the scoping process are attached to this memorandum.

PROJECT MAILING LIST

The project mailing list was prepared using the lists of names and addresses included in the following sources:

- DSW Western Area Power Administration List (property owners);
- Stakeholder's Directory (2012); and
- Agencies and library contact information added by Aspen.

At the start of scoping, the mailing list included over 1,100 entries. The mailing list was updated to include addresses obtained at the public scoping meetings and to remove or correct contact names/addresses based on the Scoping Letter mailing.

SCOPING LETTER

- Western issued the Scoping Letter (Attachment #1) on February 28, 2014 (NV SCH# EA 2014-112)
- 15 copies of the Scoping Letter were sent to the Nevada State Clearinghouse via overnight mail commencing a 30-day public scoping period (February 28th through April 4th)
- The Scoping Letter was distributed via certified mail to a total of 18 addresses consisting of state and county agencies on February 28, 2014.
- Aspen distributed Scoping Letters to 501 contacts (property owners) on the mailing list.
- Western distributed Scoping Letters to the remaining contacts (616 including property owners, 10 state and federal agencies, 12 libraries, and 9 non-governmental organizations).

COOPERATING AGENCY AND CONSULTATION LETTERS

- Western sent 61 consultation letters to 36 Indian tribes and nine separate letters to Indian tribes with an invitation to be a cooperating agency.
- Six federal agencies and one county were sent cooperating agency invitation letters (USFWS, NPS, BOR, BLM, USFS, Yuma Proving Ground, and Pima County, AZ).

NOTICES

Public Scoping Meeting Notice

- The Scoping Letter described above included notice of the public meetings. See distribution above.

Newspaper Advertisement

A newspaper advertisement (Attachment #1) was published in the following newspapers on the following dates:

- Arizona Daily Star – Monday March 3rd
- Yuma Daily Sun – Monday March 3rd
- Mohave Daily News – Tuesday March 4th

PUBLIC SCOPING MEETINGS

Three public scoping meetings were conducted. The first one was held on Tuesday, March 18, 2014 6:00 pm at the Suddenlink Community Center in Bullhead City, AZ. The second one was held on Wednesday, March 19, 2014 6:00 pm at the Lounge, Yuma Civic Center in Yuma, AZ. The third and final meeting was conducted on Thursday, March 20, 2014 6:00 pm at the Double Tree Suites in Tucson, AZ. Western managed and provided staff support at all three meetings, Aspen provided support and participated in March 18 and 19 scoping meetings. The following information was part of the three public scoping meetings:

- **Meeting Sign-in Sheet** – to record contact names and addresses of all meeting attendees for use in future mailings.
- **Four poster boards** with information about the project to give attendees an opportunity to ask questions about the project.

  The boards addressed: project description, CEQA/NEPA environmental processes, project location map, and information on the purpose of scoping and how to provide comments.
- **Fact Sheet** summarizing key components of the project and provided as a handout.
- **Scoping Comment Form** provided as a handout so attendees could provide comments at the meeting or mail in their comments.

Based on the sign-in sheets at each public scoping meeting, three (3) people attended the March 18th Bullhead, AZ meeting, seven (7) people attended the March 19th Yuma, AZ meeting; and one (1) person attended the March 20th Tucson, AZ meeting.

SCOPING RELATED MATERIALS

The following scoping related documents and materials are provided in Attachment #1 to this memorandum for your records:

- Scoping Letter
- Scoping EA Notice filed with the Nevada State Clearinghouse
- Newspaper Advertisements (Proof of Publications)
- Meeting Sign-in Sheets
- Scoping Meeting Poster Boards
- Comment Form

SUMMARY OF PUBLIC COMMENTS RECEIVED

Summaries of scoping comments are provided below. A copy of the comment letters are provided in Attachment #2 to this memorandum for your records.

Comment Letters Received During Public Scoping Period

US Department of Interior, Fish and Wildlife Service

- The letter requested comprehensive discussion of potential direct and indirect impacts of the project on species listed pursuant to the Endangered Species Act. The letter also mentions that portions of the project cross creeks and rivers that support aquatic and/or riparian habitat at or downstream of the crossings. EA should include conservation measures.

Arizona Game and Fish Department

- The letter asks that two species (desert bighorn sheep and Sonoran desert tortoise) be considered in the EA and that the Department would like to be involved in the process providing input and expertise.

Nevada State Historic Preservation Office

- The letter is asking that future scoping documents address the development of Programmatic Agreements (PA) for DOE and Western compliance with Section 106 and the public's opportunity to comment unless a separate public meeting is conducted during the preparation of the PA.

Nevada Department of Conservation and Natural Resources Division of Water Resources

- The Department supports the proposal as written but does notes that certain permits or other requirements may need to be met on this project.

Nevada Department of Wildlife

- This Department provided comments and recommendations regarding migratory birds, raptors, herbicide use, the Gila monster, and federally threatened and endangered species.

Nevada Division of State Lands and the State Land Use Planning Agency

- The letter requests that the EA address cumulative visual impacts (temporary and permanent) relative to any development activities.
- The letter identified mitigation measures that should be required such as the use of "Dark Sky" lighting practices, screening of all lights, avoiding light pollution onto adjacent lands, lighting plan, and other measures.

Cooperating Agency and Consultation Letters Received During Public Scoping Period

- Four Indian Tribes submitted responses to the consultation letters with two tribes requesting additional information.
- **Coronado National Forest** and the U.S Department of the Interior **Bureau of Reclamation** submitted letters accepting the invitation to be cooperating agencies for this project. Pima County submitted a letter declining the invitation to be a cooperating agency.

Comments Received via mail

Mr. James Lucas, Property Owner

- Mr. Lucas shares Western's concern with overgrown vegetation and stated that no vegetation control or road maintenance has occurred since 1996.

Comments Received via Email

Mr. Dale Kemper, Property Owner

- Property owner would like a 48-hour advance notice from Western for gate access to be unlocked and a party present if necessary. Preferred method of contact would be via email or a telephone call.

Mr. Gary Turley, Property Owner

- Property owner is asking that safe access be a priority for all current and future transmission line ROW's with consideration given so that vegetation and surrounding plant life is not compromised.

Comments Received at the Public Scoping Meeting

Mr. Bob Black, Yuma Property Owner

- Property owner is waiting for the EA to be published in September, 2014.

Attachment 1

Parker-Davis Transmission System Project

Scoping Related Materials

1. Scoping Letter - February 28, 2014
2. Nevada State Clearinghouse Notice (NV #SCH EA 2014-112) February 28, 2014
3. Newspaper Advertisements
4. Meeting Sign-in Sheets – March 18th, 19th & 20th, 2014
5. Scoping Meeting – Four Poster Boards
6. Comment Sheet Form

Department of Energy
Western Area Power Administration
Desert Southwest Customer Service Region
P.O. Box 6457
Phoenix, AZ 85005-6457

February 28, 2014

SUBJECT: **Scoping Letter for Environmental Assessment of Western's Parker-Davis Transmission System Programmatic Operation and Maintenance and Integrated Vegetation Management Project (DOE/EA-1982)**

Dear Interested Party:

This letter invites you to be involved in and provide input on environmental issues associated with the above-mentioned Federal action, which is further described below.

Western Area Power Administration (Western) is a Federal power-marketing agency within the U.S. Department of Energy that operates and maintains transmission lines and associated facilities. Western proposes Operations and Maintenance (O&M) activities and the implementation of an integrated vegetation management program on the Parker-Davis Transmission System, in the Desert Southwest Region (see attached map).

The Parker-Davis Transmission System currently consists of 53 substations, 9,993 structures (i.e., poles, towers), and 1,534 miles of transmission line. These actions would occur within existing, legal rights-of-way (ROW) on existing transmission line and access roads, as well as at substations / maintenance facilities associated with the power system. The proposed O&M activities would consist of aerial and ground patrols to locate and correct problems, regular and preventive maintenance, inspections and repairs to protect against operational hazards, and road repair to provide access for maintenance and emergencies. The integrated vegetation management program would manage vegetation to protect facilities from fire, control the spread of noxious weeds to protect environmental quality, and establish and maintain stable, low-growing plant communities in the ROW.

Western proposes these actions to maintain existing transmission line and access road ROWs, to ensure system reliability, and to establish and maintain safe all-weather access to transmission line structures and appurtenant facilities. Western will serve as Lead Federal Agency in the preparation of an environmental assessment for this project.

We would like to know of any issues, concerns, and suggestions you may have regarding the proposed actions. Your comments will help define issues and alternatives for consideration in the environmental review process. Comments can be provided in writing (via U.S. mail or e-mail), by phone, or in person at the public open house meetings (information below).

Please submit your comments by April 4, 2014.

Mail: Western Area Power Administration
ATTN.: Sean Heath, Environmental Protection Specialist
Desert Southwest Region
615 S. 43rd Avenue
Phoenix, AZ 85009
Email: DSW-ParkerDavisProEA@wapa.gov
Phone: (602) 605-2592

Western will host three public open house meetings to allow the public and interested parties an opportunity to learn about the proposed project, the NEPA process, ask questions, and provide comments. The meetings will be held at the following dates, times, and locations:

Tuesday, March 18, 2014, 6:00-8:00 pm
Suddenlink Community Center
2380 3rd Street
Bullhead City, AZ 86442

Wednesday, March 19, 2014, 6:00–8:00 pm
The Lounge, Yuma Civic Center
1440 West Desert Hills Drive
Yuma, AZ 85365

Thursday, March 20, 2014, 6:00-8:00 pm
DoubleTree Suites
7051 S. Tucson Blvd.
Tucson, AZ, 85756

We look forward to receiving your comments on this project and hope that you will be able to attend one of the public open house meetings.

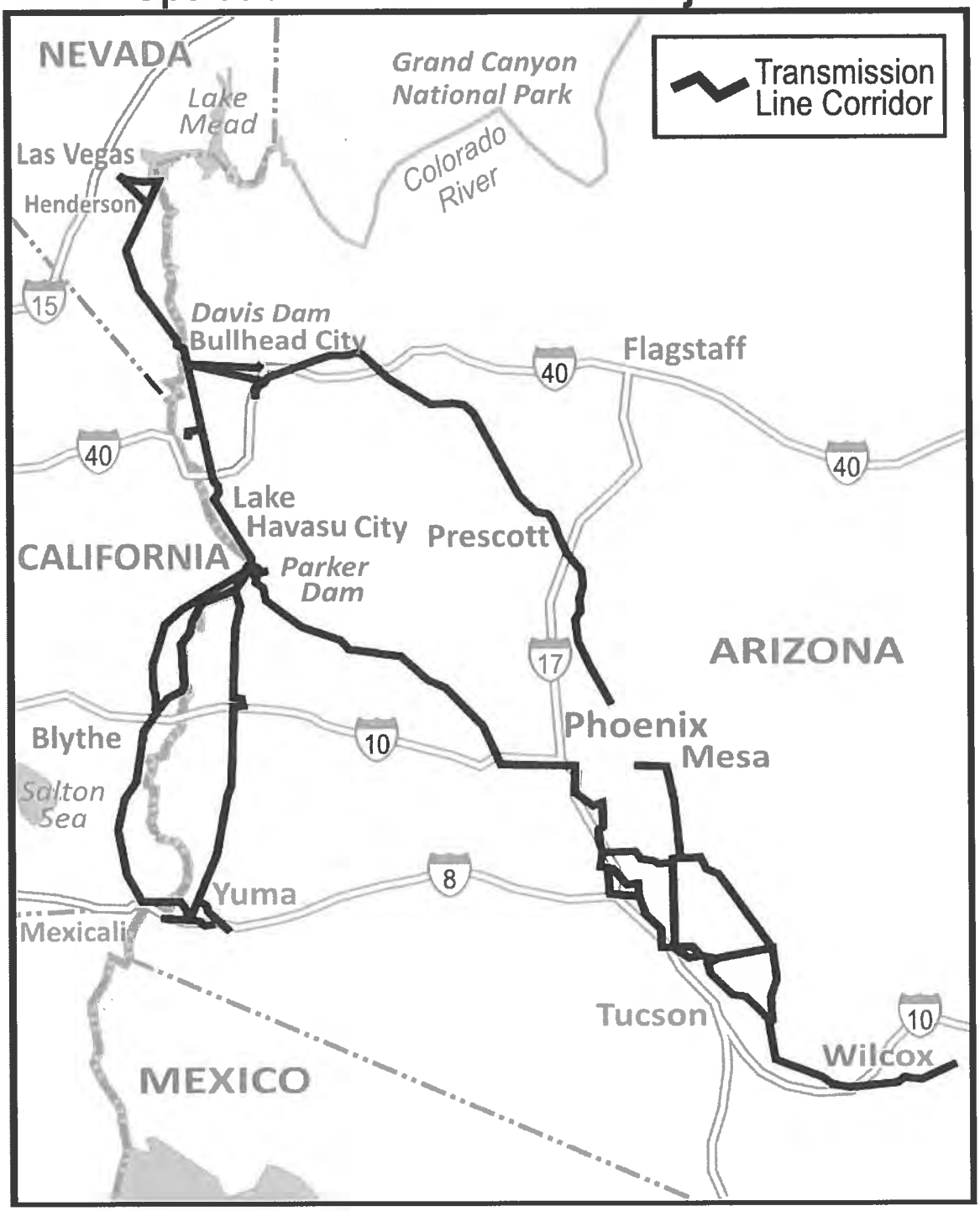
Sincerely,

Linda Marianito

Linda Marianito, Environmental Manager

Enclosure (map)

Parker-Davis Transmission System Operation and Maintenance Project Area



FW: Nevada State Clearinghouse Notice E2014-112 (Scoping - EA Western's Parker-Davis Transmission System)

Heath, Sean <heath@wapa.gov> on behalf of
DSW-ParkerDavisProEA <DSW-ParkerDavisProEA@wapa.gov>

Tue 3/18/2014 6:35 AM

To:parker- Davis Project <parker-davis@aspeneg.com>;

Sean Heath
Environmental Protection Specialist
Desert Southwest Region
Western Area Power Administration
615 S. 43rd Avenue
Phoenix, AZ 85009
(602) 605-2592 | Office
(602) 329-8371 | Cell

From: Skip Canfield [mailto:scanfield@lands.nv.gov]
Sent: Friday, March 14, 2014 9:43 AM
To: DSW-ParkerDavisProEA
Subject: Nevada State Clearinghouse Notice E2014-112 (Scoping - EA Western's Parker-Davis Transmission System)

NEVADA STATE CLEARINGHOUSE
Department of Conservation and Natural Resources, Division of State Lands
901 S. Stewart St., Ste. 5003, Carson City, Nevada 89701-5246
(775) 684-2723 Fax (775) 684-2721

TRANSMISSION DATE: 03/14/2014

U.S. Department of Energy

Nevada State Clearinghouse Notice E2014-112
Project: Scoping - EA Western's Parker-Davis Transmission System

Follow the link below to find information concerning the above-mentioned project for your review and comment.
E2014-112 - http://clearinghouse.nv.gov/public/Notice/2014/E2014-112.pdf

- **Please evaluate this project's effects on your agency's plans and programs and any other issues that you are aware of that might be pertinent to applicable laws and regulations.**

- **Please reply directly from this e-mail and attach your comments.**

- **Please submit your comments no later than Thursday April 3rd, 2014.**

Clearinghouse project archive

Questions? Skip Canfield, Program Manager, (775) 684-2723 or nevadaclearinghouse@lands.nv.gov

____No comment on this project ____Proposal supported as written
AGENCY COMMENTS:

Signature:

Date:

Requested By:

Distribution:
- 99ABW Nellis
- Division of Emergency Management
Alan Jenne - Department of Wildlife, Elko
Alex Lanza -
Alisanne Maffei - Department of Administration
Bette Hartnett - State Energy Office
Bill Thompson - Department of Transportation, Aviation

Bill Whitney - Washoe County Planning
CPT Brian Brian Hunsaker - Nevada National Guard
Cory Lytle - Lincoln County
Craig Mortimore - Wild Nevada
D. Bradford Hardenbrook - Department of Wildlife, Las Vegas
Dagny Stapleton - NACO
Dave Marlow -
David David - UNR Bureau of Mines
David Mouat - Desert Research Institute
Denesa Johnston - Fire Marshal
Ed Foster - Department of Agriculture
Ed Rybold - NAS Fallon
Elizabeth A. Harrison - Tahoe Resource Team - Division of State Lands
Gary Derks - Division of Emergency Management
J Crandell - Colorado River Commission of Nevada
James D. Morefield - Natural Heritage Program
Jason Van Havel - NDOT
Jason Woodruff - PUCN
Jennifer Newmark -
Jennifer Scanland - Division of State Parks
Jered McDonald - Legislative Counsel Bureau
Jim Balderson - NDEP
John Christopherson - Nevada Division of Forestry
John Muntean - UNR Bureau of Mines
John Tull - NDOW
Jon Price - UNR Bureau of Mines
Karen Beckley - State Health Division
Kevin Hill - Nevada State Energy Office
Kirk Bausman - Hawthorne Army Depot
Linda Cohn - National Nuclear Security Administration
Lindsey Lesmeister - NDOW
Lowell Price - Commission on Minerals
Mark Enders - NDOW
Mark Freese - Department of Wildlife
Mark Harris, PE - Public Utilities Commission
Michael Visher - Division of Minerals
Mitch Ison - NDOT
Nancy Boland - Esmeralda County
Pete Anderson - Division of Forestry
Peter Lassaline - NDEP
Rebecca Palmer - State Historic Preservation Office
Rich Harvey - Division of Forestry
Rich Perry - Nevada Division of Minerals
Robert Martinez - Division of Water Resources
Sandy Quilici - Department of Conservation & Natural Resources
Sherry Rupert - Indian Commission
Shimi Mathew - Nellis AFB
Skip Canfield - Division of State Lands
Stephen Foree - NDOW

Steve Endacott - City of Fallon
Terri Compton - Department of Transportation
Terry Rubald - Nevada Department of Taxation, Local Government, Centrally Assessed Property
Tim Rubald - Nevada Sagebrush Ecosystem Team
Timothy Mueller - Department of Transportation
Tod Oppenborn - Nellis Air Force Base
Warren Turkett - Colorado River Commission of Nevada
Wes Henderson - Nevada League of Cities
Zip Upham - NAS Fallon

ARIZONA DAILY STAR

Tucson, Arizona

STATE OF ARIZONA)
COUNTY OF PIMA)

Debbie Capanear, being first duly sworn deposes and says: that she is the Advertising Representative of **TNI PARTNERS,** a General Partnership organized and existing under the laws of the State of Arizona, and that it prints and publishes the Arizona Daily Star, a daily newspaper printed and published in the City of Tucson, Pima County, State of Arizona, and having a general circulation in said City, County, State and elsewhere, and that the attached ad was printed and

Legal Notice

published correctly in the entire issue of the said Arizona Daily Star on each of the following dates, to-wit: march 3, 2014

Debbie Capanear

Subscribed and sworn to before me this 14 day of march, 2014

Lydia Fimbres
Notary Public

LYDIA FIMBRES
Notary Public - Arizona
Pima County
My Comm. Expires Oct 18, 2015

My commission expires

AD NO. 8177512

Open House

Parker-Davis Transmission System
Programmatic Operation and Maintenance Project

Western Area Power Administration

Learn more about the proposed Operations and Maintenance activities and the implementation of an integrated vegetation management program on the Parker-Davis Transmission System (map below) at a public open house meeting. The purpose of the proposed project is to maintain existing transmission lines, to ensure system reliability, and establish and maintain access to transmission line structures and facilities.

Western will analyze the environmental impacts to resources in the proposed project area. Your input is encouraged to help Western identify impacts to be analyzed in the project environmental assessment.

Come to an open house:
Tuesday, March 18, 2014, 6 – 8 pm
Suddenlink Community Center
2380 3rd Street
Bullhead City, AZ 86442

Wednesday, March 19, 2014, 6 – 8 pm
The Lounge, Yuma Civic Center
1440 W. Desert Hills Drive
Yuma, AZ 85365

Thursday, March 20, 2014, 6 – 8 pm
Doubletree Suites
7051 S. Tucson Blvd.
Tucson, AZ 85756

Send us your comments:
You may provide comments or input at the open house meetings, by phone, or by mail. Send comments by April 4, 2014 to:

Western Area Power Administration
Sean Heath, Environmental Protection Specialist
615 S. 43rd Avenue, Phoenix, AZ 85009
Email: DSW-ParkerDavisProEA@wapa.gov
Phone: 602.605.2592

For translation services, call Sandra Alarcón-Lopez at 562.947.5259 or email DSW-ParkerDavisProEA@wapa.gov.

Public Open House • Tuesday March 18 • Wednesday March 19 • Thursday March 20, 2014 • 6 – 8 pm

ARIZONA DAILY

Tucson, Arizo

STATE OF ARIZONA)
COUNTY OF PIMA)

Debbie Capanear, being first du
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March 3, 201

Debbie Capanear

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March, 2014

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Notary Public

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Public Open House • Tuesday March 18 • Wednesday March 19 • Thursday March 20, 2014 • 6 – 8 pm

AFFP
PARKER DAVIS AD

Affidavit of Publication

STATE OF ARIZONA }
COUNTY OF YUMA } SS

Joni Brooks or Kathy White, being duly sworn, says:

That she is Publisher or Business Manager of the Yuma Sun, a daily newspaper of general circulation, printed and published in Yuma, Yuma County, Arizona; that the publication, a copy of which is attached hereto, was published in the said newspaper on the following dates:

March 03, 2014

That said newspaper was regularly issued and circulated on those dates.
SIGNED:

Publisher or Business Manager

Subscribed to and sworn to me this 3rd day of March 2014.

Virgen P Perez, Notary, Yuma County, Arizona

My commission expires: May 10, 2017

OFFICIAL SEAL
VIRGEN P. PEREZ
Commission # 163644
Notary Public - State of Arizona
YUMA COUNTY
My Comm. Expires May 10, 2017

00005076 00021388

ASPEN ENVIRONMENTAL GROUP
8801 FOLSOM BLVD., SUITE 290
SACRAMENTO, CA 95826

Open House
Parker-Davis Transmission System
Programmatic Operation and Maintenance Project

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Daily March 3, 2014 - 00021388

Open House

Parker-Davis Transmission System

Programmatic Operation and Maintenance Project

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Public Open House • Tuesday March 18 • Wednesday March 19 • Thursday March 20, 2014 • 6 – 8 pm

Publish: March 4, 2014
23912

Proof of Publication

STATE OF ARIZONA)
County of Mohave) ss

Sherry Milks, being first duly sworn, says that during the publication of notice, as herein mentioned, he/she was and now is the **Legal Clerk** of the ***MOHAVE DAILY NEWS.*** Six times weekly newspaper published on Sunday, Monday, Tuesday, Wednesday, Thursday, and Friday of each and every week at the city of Bullhead City, in said County.

That said newspaper was printed and published as aforesaid on the following dates, to-wit:

March 4, 2014

That the **OPEN HOUSE** of which the annex copy is a printed and true copy, was printed and inserted in each and every copy of said newspaper printed and published on the dates aforesaid, and in the body of said newspaper and not in a supplement thereto.

Sherry Milks
Clerk

Subscribed and sworn to before me this 18

day of March, 2014

Laura J. Sullivan-Burger
Notary Public

My commission expire 10-2-2016

LAURA J SULLIVAN-BURGER
Notary Public - Arizona
Mohave County
My Comm. Expires Oct 2, 2016

March 18, 2014 Bullhead City

Parker-Davis Transmission System

Programmatic Operation and Maintenance, and Integrated Vegetation Management Program

Western AREA POWER ADMINISTRATION

Sign-in Sheet - Public Scoping Meeting for NEPA Review

Please print or write legibly. Thank you.

Name	Faye Streier	**Organization**	Bureau of Reclamation
Address	P.O. Box 61470	Boulder City, NV 89006	
Email	fstreier@usbr.gov	**Phone**	702-293-8132
Name	Anthony Miller	**Organization**	Nevada Dept of Wildlife
Address	4747 Vegas Dr	Las Vegas, NV 89108	
Email	AJMILLER@ndow.org	**Phone**	702-484-5127
Name	Rusty Lee	**Organization**	BLM - Needles Field Office
Address	1303 S. Hwy 95, Needles CA 92363		
Email	rtlee@blm.gov	**Phone**	760-326-7020
Name		**Organization**	
Address			
Email		**Phone**	
Name		**Organization**	
Address			
Email		**City**	
Name		**Organization**	
Address			
Email		**Phone**	
Name		**Organization**	
Address			
Email		**Phone**	
Name		**Organization**	
Address			
Email		**Phone**	

**This information may be released if requested under the Freedom of Information Act. Individual respondents may request that we withhold their home address from the record, which we will honor to the extent allowable by law. If you wish us to withhold your name and/or address, you must state this prominently at the beginning of your written comments. All submissions from organizations or businesses will be available for public inspection in their entirety.*

March 19, 2014 Yuma

Parker-Davis Transmission System

Programmatic Operation and Maintenance, and Integrated Vegetation Management Program

Western Area Power Administration

Sign-in Sheet - Public Scoping Meeting for NEPA Review

Please print or write legibly. Thank you.

Name	Anna Pinnell	**Organization**	U.S. Bureau of Reclamation
Address	7301 Calle Agua Salada		
Email	apinnell@usbr.gov	**Phone**	928-343-8514
Name	Cary Meister	**Organization**	Yuma Audubon Society
Address	PO Box 6395 Yuma, AZ 85366-6395		
Email	yasconservation@yahoo.com	**Phone**	928-782-3552
Name	Rod Black	**Organization**	Yuma Audubon
Address	1317 W Hillside Pl		
Email	Rod4039@Gmail.com	**Phone**	—
Name	Jim Kerley	**Organization**	KDC of Yuma
Address	6720 Missile		
Email	JvKerley@Hotmail	**Phone**	928 246-6926
Name	Nancy Meister	**Organization**	
Address	PO Box 6395		
Email		**City**	Yuma, 85366
Name	GREG FERGUSON	**Organization**	BOARD OF SUPERVISORS
Address	198 S. MAIN		YUMA CO.
Email	GREG.FERGUSON@YUMACOUNTY.GOV	**Phone**	928 373-1010
Name	RUSSELL MCCLOUD	**Organization**	BOARD OF SUPERVISORS
Address	198 S. MAIN		YUMA CO.
Email		**Phone**	
Name		**Organization**	
Address			
Email		**Phone**	

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Parker-Davis Transmission System

Programmatic Operation and Maintenance, and Integrated Vegetation Management Program

Western AREA POWER ADMINISTRATION

Sign-in Sheet - Public Scoping Meeting for NEPA Review

Please print or write legibly. Thank you.

Name Linda L. Dunlavey	Organization BLM - TFO
Address 3201 E Universal Way Tucson, AZ	
Email ldunlavey@blm.gov	Phone 520-258-7240
Name	**Organization**
Address	
Email	**Phone**
Name	**Organization**
Address	
Email	**Phone**
Name	**Organization**
Address	
Email	**Phone**
Name	**Organization**
Address	
Email	**City**
Name	**Organization**
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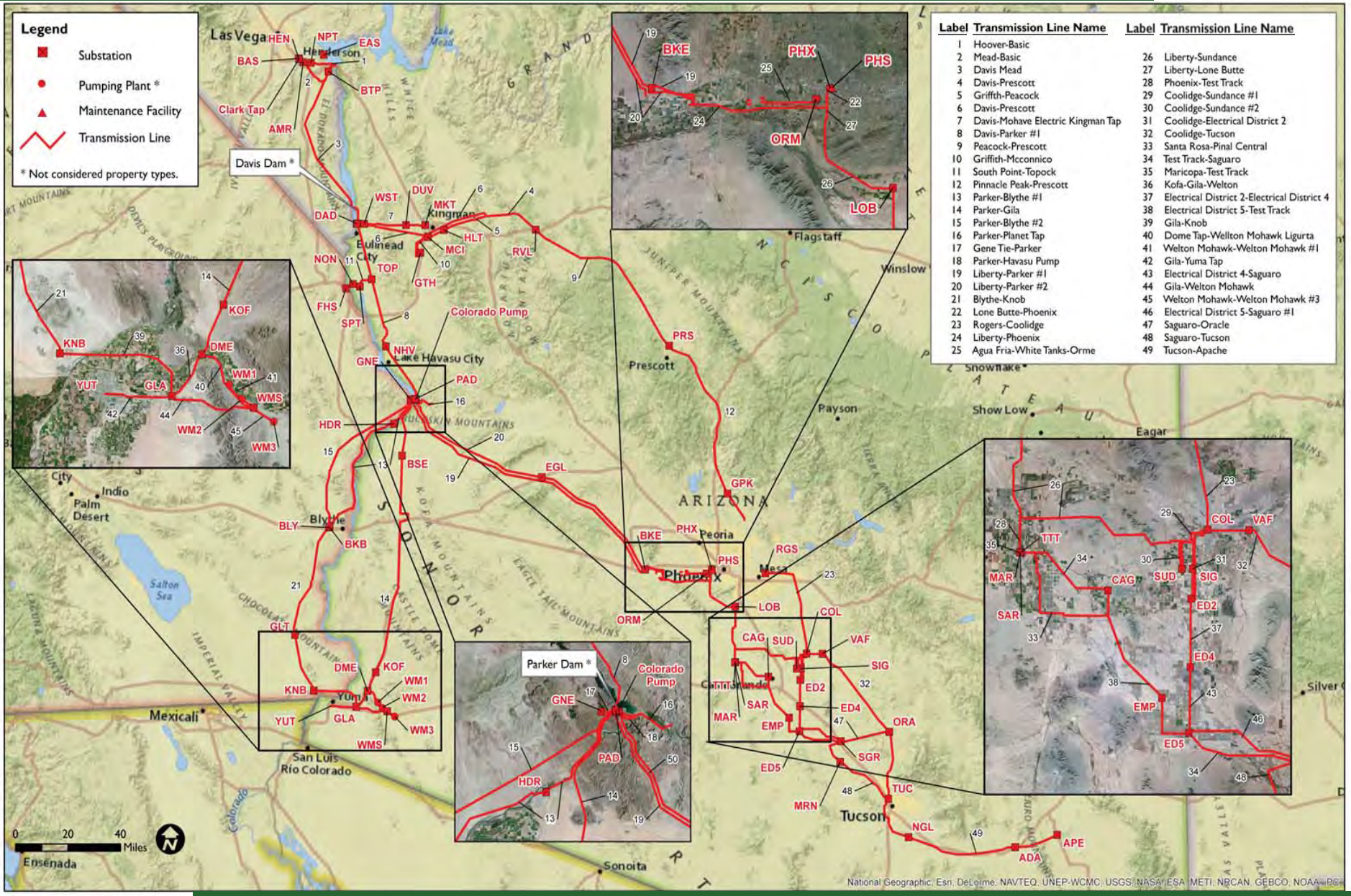
PROJECT OVERVIEW MAP



Label	Transmission Line Name	Label	Transmission Line Name
1	Hoover-Basic		
2	Mead-Basic	26	Liberty-Sundance
3	Davis Mead	27	Liberty-Lone Butte
4	Davis-Prescott	28	Phoenix-Test Track
5	Griffth-Peacock	29	Coolidge-Sundance #1
6	Davis-Prescott	30	Coolidge-Sundance #2
7	Davis-Mohave Electric Kingman Tap	31	Coolidge-Electrical District 2
8	Davis-Parker #1	32	Coolidge-Tucson
9	Peacock-Prescott	33	Santa Rosa-Pinal Central
10	Griffith-Mcconnico	34	Test Track-Saguaro
11	South Point-Topock	35	Maricopa-Test Track
12	Pinnacle Peak-Prescott	36	Kofa-Gila-Welton
13	Parker-Blythe #1	37	Electrical District 2-Electrical District 4
14	Parker-Gila	38	Electrical District 5-Test Track
15	Parker-Blythe #2	39	Gila-Knob
16	Parker-Planet Tap	40	Dome Tap-Welton Mohawk Ligurta
17	Gene Tie-Parker	41	Welton Mohawk-Welton Mohawk #1
18	Parker-Havasu Pump	42	Gila-Yuma Tap
19	Liberty-Parker #1	43	Electrical District 4-Saguaro
20	Liberty-Parker #2	44	Gila-Welton Mohawk
21	Blythe-Knob	45	Welton Mohawk-Welton Mohawk #3
22	Lone Butte-Phoenix	46	Electrical District 5-Saguaro #1
23	Rogers-Coolidge	47	Saguaro-Oracle
24	Liberty-Phoenix	48	Saguaro-Tucson
25	Agua Fria-White Tanks-Orme	49	Tucson-Apache

Parker-Davis Transmission System

Programmatic Operations and Maintenance, and Integrated Vegetation Management Program

Western AREA POWER ADMINISTRATION

NEPA PROCESS

ENVIRONMENTAL ASSESSMENT (EA) PROCESS	ANTICIPATED SCHEDULE
Determination to Prepare an EA	January 2014
Public Scoping for EA	March 2014
Conduct Environmental Studies and Prepare Draft EA	Spring 2014
Draft EA Publication	Early Summer 2014
Public Review of Draft EA	Summer 2014
Final EA Publication	Late Fall 2014
Western Decision: Finding of No Significant Impact or Determination to Prepare an EIS	Winter 2014
Project Implementation (depending on Western's Decision)	Ongoing O&M Activities

Western AREA POWER ADMINISTRATION

Parker-Davis Transmission System

Programmatic Operations and Maintenance, and Integrated Vegetation Management Program

PUBLIC INVOLVEMENT DURING SCOPING

What is Scoping?

Scoping is required to satisfy the National Environmental Policy Act (NEPA) for federal actions. The NEPA scoping process triggers the start of the environmental review process and provides the public an opportunity to become involved early in the process.

Scoping is an opportunity for the public and governments (local, state, federal, tribal) to advise Western on the scope and content of the issues to be addressed in the environmental document. Your comments can help Western:

- **Identify the people and organizations interested in the project**
- **Identify the issues to be analyzed in the environmental document**
- **Identify gaps in data and information needs**

Suggestions for Effective Participation in Scoping

1. **Review project information available at the scoping meeting, and on the project web site: http://www.wapa.gov/dsw/environment/DOEEA1982.htm**
2. **Ask questions at the scoping meetings to understand the project and the NEPA environmental review process.**
3. **Suggest reasonable alternatives to the project that meet the purpose and need and measures that may help avoid or minimize possible impacts to the human environment.**
4. **Submit written comments to explain important issues that the environmental document should address or analyze.**

The following is a list of resource topics that will be analyzed during the NEPA process. The list might be revised based on public input. Let us know which issues you think are important and which may not need to be studied.

Land Use/Aviation
Agriculture/Prime Farmland
Recreation
Human Health and Safety
Visual/Aesthetics
Noise
Wildlife
Cultural Resources
Water Resources/Floodplains/Waters of the U.S.
Air Quality
Climate Change
Socio Economic/Environmental
Transportation
Intentional Destruction Acts
Geology/Soils
Mineral Resources
Hazardous Materials

How to Get Involved

Public scoping comments will be accepted through April 4, 2014. You can submit comments by filling out a comment card at tonight's meeting; by sending a letter, fax or email; or by calling Western.

Email: DSW-ParkerDavisProEA@wapa.gov
Phone: (602) 605-2592
Fax: (602) 605-2589
Mail: Western Area Power Administration
Sean Heath, Environmental Protection Specialist
615 S. 43rd Avenue
Phoenix, AZ 85009

You will also have an opportunity to comment on the Draft Environmental Assessment when it is available in Summer 2014.

Western AREA POWER ADMINISTRATION

Parker-Davis Transmission System

Programmatic Operations and Maintenance, and Integrated Vegetation Management Program

PROPOSED ACTION

Operations and Maintenance (O&M) activities and the implementation of an integrated vegetation management program on the Parker-Davis Transmission System.

Purpose and Need

Western proposes to maintain existing right-of-ways (ROW) to ensure system reliability and to establish and maintain safe all-weather access to transmission line structures and facilities.

Activities Under the Proposed Action

- O&M activities at the existing 53 substations, 9,993 structures, and 1,534 miles of transmission line
  - Regular aerial and ground patrols
  - Integrated vegetation management
  - Repair access roads
- Climbing inspections to identify deterioration in hardware
- Herbicide control methods
- Transmission system maintenance including replacing insulators; tightening, replacing, or repairing towers/poles or hardware; and looking for ROW encroachments
- Equipment/system updates including new conductors, capacitor banks, transformers, breakers, small solar power arrays, and other electrical equipment

Western AREA POWER ADMINISTRATION

Parker-Davis Transmission System

Programmatic Operations and Maintenance, and Integrated Vegetation Management Program

Scoping Comments

Parker-Davis Transmission System

Programmatic Operation and Maintenance, and Integrated Vegetation Management Program

Western AREA POWER ADMINISTRATION

Please print or write legibly. Thank you for your comments.

For more information, please visit the project web site: http://www.wapa.gov/dsw/environment/DOEEA1982.htm

Date: _____

Name*: _____

Affiliation (*if any*):* _____

Address:* _____

City, State, Zip Code:* _____

Telephone Number:* _____

Email:* _____

Comment:* _____

Please send me notifications by: ☐ **email** ☐ **mail** ☐ **I do not want to be on the project mailing list**

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Your comments will help Western determine the scope and content of the environmental document and identify alternatives and measures to reduce impacts. Submit comments by mail using this comment sheet (fold, stamp, and mail); attach additional sheets if needed. Comments must be postmarked by April 4, 2014. Comments may also be submitted by email to DSW-ParkerDavisProEA@wapa.gov or by phone (602) 605-2592.

Place
Postage
Here

Sean Heath, Environmental Protection Specialist
Western Area Power Administration
Desert Southwest Region
615 S. 43rd Avenue
Phoenix, AZ 85009

Attachment 2

Summary of Agency & Public Comments Received

Agency

1. **U.S Department of Interior, Fish & Wildlife Service - April 3, 2014**
2. **Arizona Game and Fish Department - April 4, 2014**
3. **Nevada State Historic Preservation Office - April 3, 2014**
4. **Nevada Department of Conservation and Natural Resources, Division of Water Resources - March 26, 2014**
5. **Nevada Department of Wildlife – March 27, 2014**
6. **Nevada Division of State Lands and the State Land Use Planning Agency – April 4, 2014**

Public

1. **James Lucas – March 11th, 2014**
2. **Dale Kemper - February 28th, 2014**
3. **Gary Turley - March 11th, 2014**
4. **Bob Black - March 18th, 2014**

United States Department of the Interior
U.S. Fish and Wildlife Service
Arizona Ecological Services Office
2321 West Royal Palm Road, Suite 103
Phoenix, Arizona 85021-4951
Telephone: (602) 242-0210 Fax: (602) 242-2513

In reply refer to:
AESO/SE
02EAAZ00-2014-TA-0138
02EAAZ00-2014-CPA-0020

April 3, 2014

Ms. Linda Marianito, Environmental Manager
Western Area Power Administration
Post Office Box 6457
Phoenix, Arizona 85005-6457

Dear Ms. Marianito:

Thank you for your correspondence of February 28, 2014, received in our office March 12, 2014. This letter documents our response to your "Scoping Letter for Environmental Assessment of Western's Parker-Davis Transmission System Programmatic Operation and Maintenance and Integrated Vegetation Management Project (DOE/EA-1982)" under the authority of the National Environmental Policy Act (NEPA) (40 CFR part 1503). In addition, we provide recommendations, as technical assistance, under the authority of section 7 of the Endangered Species Act of 1973 (ESA) as amended (16 U.S.C. 1531 et seq.).

The Parker-Davis Transmission System consists of 53 substations, 9,993 structures (poles or towers), and 1,534 miles of transmission line. Operation and maintenance (O&M) and integrated vegetation management would occur within existing legal rights-of-way (ROW) on existing transmission line and access roads, as well as at substations and maintenance facilities associated with the power system. The proposed O&M activities would consist of aerial and ground patrols to locate and correct problems, regular and preventative maintenance, inspections and repairs to protect against operational hazards, and road repair to provide access for maintenance and emergencies. The integrated vegetation management program would manage vegetation to protect facilities from fire, control the spread of noxious weeds to protect environmental quality, and establish and maintain low-growing plant communities in the ROW.

We recommend that the environmental assessment include a comprehensive discussion of potential direct and indirect impacts of the project on species listed pursuant to ESA, including southwestern willow flycatcher (*Empidonax traillii extimus*), Yuma clapper rail (*Rallus longirostris yumanensis*), lesser long-nosed bat (*Leptonycteris curasoae yerbabuenae*), Pima pineapple cactus (*Coryphantha scheeri var robustispina*), Gila chub (*Gila intermedia*); species proposed for listing, including yellow-billed cuckoo (*Coccyzus americanus*) and northern Mexican gartsersnake (*Thamnophis eques megalops*); and other sensitive species such as the Sonoran desert tortoise (*Gopherus morafkai*), Tucson shovel-nosed snake, (*Chionactis occipitalis klauberi*), western

burrowing owl (*Athene cunicularia)*, and the non-essential population of Sonoran pronghorn (*Antilocapra americana sonoriensis)*; and that measures to avoid and minimize impacts to these species and associated habitat be included.

Portions of the Parker-Davis Transmission System cross the Colorado, Bill Williams, Gila, Agua Fria, and San Pedro rivers and Granite Creek, Big Bug Creek, and Williamson Valley Wash. These streams support aquatic and/or riparian habitat at or downstream from the crossings. We recommend that the environmental assessment include measures to avoid and minimize direct and indirect impacts of the project to sensitive species and habitat value associated with stream crossing areas. We recommend that routine maintenance and vegetation management along transmission lines avoid the nesting season for migratory birds. We recommend that road maintenance activities include refurbishing or installing erosion control features, such as water bars, to reduce erosion of sediment from transmission line roads into downstream watercourses.

We recommend inclusion of conservation measures to protect habitat value of forage plants for nectar feeding lesser long-nosed bats, including saguaros (*Carnegiea gigantea*) and paniculate agaves (*Agave palmeri, Agave parryi, and Agave deserti*), such as relocation of movable plants. We recommend that the analysis consider the highly variable growth rates of vegetation, dependent largely on availability of soil moisture, in establishing a vegetation management program so that habitat values of slow growing tall plants are not unnecessarily reduced.

Lastly, we recommend you follow our *Recommended Protection Measures for Pesticide Applications in Region 2 of the U.S. Fish and Wildlife Service* (available at http://www.fws.gov/southwest/es/arizona/Documents/ECReports/RPMPA_2007.pdf) for any application of herbicides for vegetation management.

Thank you for the opportunity to provide scoping comments and technical assistance on this proposed project. In all future correspondence on this project, please refer to project number 02EAAZ00-2014-TA-0138. In keeping with our trust responsibility to American Indian Tribes, and pursuant to Secretarial Order 3206, we encourage you to invite any Tribe affected by the proposed action and Bureau of Indian Affairs to participate in the consultation process and, by copy of this letter, are notifying potentially affected tribes and the BIA. We also encourage you to continue to coordinate this project with the Arizona Game and Fish Department.

Should you require further assistance or if you have any questions, please contact Bill Werner (x217) or Brenda Smith (928-556-2157). Thank you for your continued efforts to conserve endangered species.

Sincerely,

Brenda H. Smith

for Steven L. Spangle
Field Supervisor

cc: (electronic copy)
Director, Chemehuevi Cultural Resources Center, Havasu Lake, CA
Manager, Cultural Resources, Cocopah Tribe, Somerton, AZ
Director, Museum, Colorado River Indian Tribes, Parker, AZ
Director, Aha Makav Cultural Society Fort Mojave Indian Tribe, Mohave Valley, AZ
Tribal Historic Preservation Officer, Gila River Indian Community, Sacaton, AZ
Director, Hopi Cultural Preservation Office, Kykotsmovi, AZ
Program Manager, Tribal Historic Preservation Office, Hualapai Tribe, Peach Springs, AZ
Assistant Attorney General, Pascua Yaqui Tribe, AZ
Historic Preservation Officer, Quechan Tribe, Yuma, AZ
Director, Cultural Resources Department, Salt River Pima-Maricopa Indian Community, Scottsdale, AZ
Director, San Carlos Tribal Historic Preservation Office, San Carlos, AZ
Director, Cultural Resources, White Mountain Apache Tribe, Whiteriver, AZ
Tribal Archaeologist, Yavapai-Apache Nation, Camp Verde, AZ
Director, Cultural Research Program, Yavapai-Prescott Indian Tribe, Prescott, AZ
Branch Chief, Environmental Quality Services, Western Regional Office, Bureau of Indian Affairs, Phoenix, AZ
Assistant Field Supervisor, Fish and Wildlife Service, Tucson, AZ
Fish and Wildlife Biologists, Fish and Wildlife Service, Tucson, Phoenix, AZ
(Scott Richardson, Marit Alanen, Jeff Servoss, Susan Sferra, Julie Crawford, Erin Fernandez-Timbadia)
(Ryan Gordon, Greg Beatty, Lesley Fitzpatrick)
Chief, Habitat Branch, Arizona Game and Fish Department, Phoenix, AZ
Regional Supervisor, Region III, Arizona Game and Fish Department, Kingman, AZ
Regional Supervisor, Region IV, Arizona Game and Fish Department, Yuma, AZ
Regional Supervisor, Region V, Arizona Game and Fish Department, Tucson, AZ

W:\William Werner\Brendas Signature\LWAPA Parker_Davis O and M and Veg Maintenance 040314 02EAAZ00_2014_TA.docx:cgg

THE STATE OF ARIZONA
GAME AND FISH DEPARTMENT
5000 W. CAREFREE HIGHWAY
PHOENIX, AZ 85086-5000
(602) 942-3000 • WWW.AZGFD.GOV

April 4, 2014

Western Area Power Administration
Attn: Mr. Sean Heath
Desert Southwest Region
615 S. 43rd Ave.
Phoenix, AZ 85009

Re: EA for Western's Parker-Davis Transmission System Programmatic Operation and Maintenance and Integrated Vegetation Management Project (DOE/EA-1982)

Dear Mr. Heath:

The Arizona Game and Fish Department (Department) received the letter dated February 28, 2014 inviting the Department to be involved and provide input on environmental issues associated with the above-mentioned Federal action. The Department supports Western Area Power Administration's (Western) efforts in developing an EA and incorporating stakeholders in the process.

The Department has identified at least two species that should be considered in development of the EA, desert bighorn sheep and Sonoran desert tortoise. Due to the coarse scale of the map, it is difficult for the Department to assess other species that may be impacted at this time. However, the Department would like to be involved in this process and provide input when there is more information available. We will provide our expertise in identifying potentially affected resources, evaluating impacts, and developing alternatives and mitigation strategies, if necessary. If you have any questions regarding this letter, please contact me at 623-236-7606.

Sincerely,

Ginger Ritter
Project Evaluation Program Specialist, Habitat Branch

cc: Laura Canaca, AGFD, Project Evaluation Program Supervisor, Habitat Branch
Bill Knowles, AGFD, Habitat Program Manager, Region IV

AGFD #M14-03065817

Skip Canfield

From: Rebecca Palmer
Sent: Thursday, April 03, 2014 4:39 PM
To: Skip Canfield
Cc: Julie Ernstein
Subject: RE: Nevada State Clearinghouse Notice E2014-112 (Scoping - EA Western's Parker-Davis Transmission System)

The SHPO has reviewed the scoping document and recommends that any future public scoping documents should address the development of Programmatic Agreements for DOE and Western compliance with Section 106 and the public's opportunity to comment, unless the agency plans a separate public scoping process during the preparation of the Programmatic Agreement.

Rebecca Palmer
Administrator, SHPO
775.684.3443

From: scanfield@lands.nv.gov [mailto:scanfield@lands.nv.gov]
Sent: Friday, March 14, 2014 9:42 AM
To: Alan Jenne; clytle@lincolnnv.com; Brad Hardenbrook; James Morefield; cohnl@nv.doe.gov; Mark Freese; Sandy Quilici; tcompton@dot.state.nv.us; tmueller@dot.state.nv.us; Tod.oppenborn@nellis.af.mil; zip.upham@navy.mil; Alex Lanza; Dave Marlow; Shimi.Mathew@nellis.af.mil; craig.mortimore@wildnevada.org; njboland.nev@gmail.com; Jennifer Crandell; Elizabeth A. Harrison; 99abw.ccy@nellis.af.mil; whenderson@nvleague.org; dstapleton@nvnaco.org; ddavis@unr.edu; munteanj@unr.edu; jprice@unr.edu; Karen Beckley; Rebecca Palmer; Mark Harris; ed.rybold@navy.mil; Sherry Rupert; kirk.bausman@us.army.mil; Denesa Johnston; Robert K. Martinez; Jennifer Scanland; gderks@dps.state.nv.us; dmouat@dri.edu; Alisanne Maffei; bthompson@dot.state.nv.us; Richard Ewell; Skip Canfield; brian.hunsaker@us.army.mil; Bette Hartnett; mison@dot.state.nv.us; Warren Turkett; Michael Visher; J ered.McDonald@lcb.state.nv.us; Jim R. Balderson; Peter Lassaline; jvanhavel@dot.state.nv.us; Lindsey Lesmeister; Stephen Foree; Mark Enders; John C. Tull; John Christopherson; Richard M. Perry; Tim Rubald; Kevin J. Hill; Jason Woodruff; BWhitney@washoecounty.us; endacottsteve@charter.net; Edward Foster; Jennifer Newmark; Lowell Price; Pete Anderson; Rich Harvey; Terry Rubald
Subject: Nevada State Clearinghouse Notice E2014-112 (Scoping - EA Western's Parker-Davis Transmission System)

NEVADA STATE CLEARINGHOUSE
Department of Conservation and Natural Resources, Division of State Lands
901 S. Stewart St., Ste. 5003, Carson City, Nevada 89701-5246
(775) 684-2723 Fax (775) 684-2721

TRANSMISSION DATE: 03/14/2014

U.S. Department of Energy

Nevada State Clearinghouse Notice E2014-112
Project: Scoping - EA Western's Parker-Davis Transmission System

Follow the link below to find information concerning the above-mentioned project for your review and comment.

E2014-112 - http://clearinghouse.nv.gov/public/Notice/2014/E2014-112.pdf

- **Please evaluate this project's effects on your agency's plans and programs and any other issues that you are aware of that might be pertinent to applicable laws and regulations.**

- **Please reply directly from this e-mail and attach your comments.**

- **Please submit your comments no later than Thursday April 3rd, 2014.**

Clearinghouse project archive

Questions? Skip Canfield, Program Manager, (775) 684-2723 or nevadaclearinghouse@lands.nv.gov

____No comment on this project ____Proposal supported as written

AGENCY COMMENTS:

Signature:

Date:

Requested By:

Distribution:
- 99ABW Nellis
- Division of Emergency Management

Alan Jenne - Department of Wildlife, Elko
Alex Lanza -
Alisanne Maffei - Department of Administration
Bette Hartnett - State Energy Office
Bill Thompson - Department of Transportation, Aviation
Bill Whitney - Washoe County Planning
CPT Brian Brian Hunsaker - Nevada National Guard
Cory Lytle - Lincoln County
Craig Mortimore - Wild Nevada
D. Bradford Hardenbrook - Department of Wildlife, Las Vegas
Dagny Stapleton - NACO
Dave Marlow -
David David - UNR Bureau of Mines
David Mouat - Desert Research Institute
Denesa Johnston - Fire Marshal
Ed Foster - Department of Agriculture
Ed Rybold - NAS Fallon
Elizabeth A. Harrison - Tahoe Resource Team - Division of State Lands
Gary Derks - Division of Emergency Management
J Crandell - Colorado River Commission of Nevada
James D. Morefield - Natural Heritage Program
Jason Van Havel - NDOT
Jason Woodruff - PUCN
Jennifer Newmark -
Jennifer Scanland - Division of State Parks
Jered McDonald - Legislative Counsel Bureau
Jim Balderson - NDEP
John Christopherson - Nevada Division of Forestry
John Muntean - UNR Bureau of Mines
John Tull - NDOW
Jon Price - UNR Bureau of Mines
Karen Beckley - State Health Division
Kevin Hill - Nevada State Energy Office
Kirk Bausman - Hawthorne Army Depot
Linda Cohn - National Nuclear Security Administration
Lindsey Lesmeister - NDOW
Lowell Price - Commission on Minerals
Mark Enders - NDOW
Mark Freese - Department of Wildlife
Mark Harris, PE - Public Utilities Commission
Michael Visher - Division of Minerals
Mitch Ison - NDOT
Nancy Boland - Esmeralda County
Pete Anderson - Division of Forestry
Peter Lassaline - NDEP
Rebecca Palmer - State Historic Preservation Office
Rich Harvey - Division of Forestry
Rich Perry - Nevada Division of Minerals
Robert Martinez - Division of Water Resources
Sandy Quilici - Department of Conservation & Natural Resources
Sherry Rupert - Indian Commission
Shimi Mathew - Nellis AFB
Skip Canfield - Division of State Lands
Stephen Foree - NDOW
Steve Endacott - City of Fallon
Terri Compton - Department of Transportation
Terry Rubald - Nevada Department of Taxation, Local Government, Centrally Assessed Property
Tim Rubald - Nevada Sagebrush Ecosystem Team

Timothy Mueller - Department of Transportation
Tod Oppenborn - Nellis Air Force Base
Warren Turkett - Colorado River Commission of Nevada
Wes Henderson - Nevada League of Cities
Zip Upham - NAS Fallon

Nevada State Clearinghouse
Department of Conservation and Natural Resources
901 South Stewart Street, Suite 5003
Carson City, NV 89701
775-684-2723
http://clearinghouse.nv.gov
www.lands.nv.gov

DATE: 3/26/2014
Division of Water Resources

Nevada SAI # E2014-112

EA Western's Parker-Davis Transmission System

_____No comment on this project X Proposal supported as written

AGENCY COMMENTS:

All waters of the State belong to the public and may be appropriated for beneficial use under the provisions of Nevada Revised Statutes (NRS) Chapters 533 and 534 and not otherwise.

Any water used on the described project for construction, dust control, or maintenance should be provided by an established utility or under permit or waiver issued by the State Engineer's Office. Treated effluent is considered water as referred to in NRS Chapter 533, and is subjected to appropriation for beneficial use under procedures described in NRS Chapter 533, and specifically NRS § 533.440. Any water or other boreholes located on the project lands are the responsibility of the owner of the property and must be plugged and abandoned as required in Chapter 534 of the Nevada Administrative Code. If artesian water is located in any well or borehole it shall be controlled as required in NRS 534.060(3).

STATE OF NEVADA
DEPARTMENT OF WILDLIFE
1100 Valley Road
Reno, Nevada 89512
(775) 688-1500 • Fax (775) 688-1595

BRIAN SANDOVAL
Governor

TONY WASLEY
Director

RICHARD L. HASKINS, II
Deputy Director

PATRICK O. CATES
Deputy Director

March 27, 2014

NDOW-SR#: 14-109
SAI#: E2014-112

Sean Heath, Environmental Protection Specialist
Western Area Power Administration
615 S. 43rd Avenue
Phoenix, AZ 85009

Re: Scoping - Environmental Assessment of Western Area Power Administration Parker-Davis Transmission System - Programmatic Operation and Maintenance, and Integrated Vegetation Management Program

Dear Mr. Heath,

The Nevada Department of Wildlife (NDOW) appreciates this scoping opportunity for the subject environmental assessment. The following comments and recommendations are offered regarding potential effects to wildlife resources associated with the proposed actions occurring in Nevada.

- State of Nevada authorization is required to handle and/or remove wildlife out of harm's way in the project area. In keeping, in part, with Nevada Revised Statute 503.597 and Nevada Administrative Codes 503.093 and 503.0935, a Special Purpose Permit should be obtained if such a need is warranted. Additional to U.S. Fish & Wildlife authorization required for moving federally-listed threatened and endangered species out of harm's way, a State of Nevada Special Purpose Permit is also required. Application instructions can be presently obtained online at: http://www.ndow.org/uploadedFiles/ndoworg/Content/Forms_and_Resources/Instructions-Special-Purpose-Permit.pdf. A copy is enclosed. The NDOW's local contact for application assistance is Biologist Jason Jones who can be reached at 702.486.5127 x3718 or at jljones@ndow.org.
- The Gila monster is a State of Nevada protected reptile (NAC 503.080) and may be encountered as part of proposed project activities. To avoid conservation conflicts with this species, somewhat similar in habits to the desert tortoise, NDOW's Gila monster encounter protocol is also enclosed. The protocols are easily incorporated into project worker education and monitoring endeavors. The Gila monster protocols are also accessible online at: http://www.ndow.org/uploadedFiles/ndoworg/Content/Wildlife_Education/Publications/2012-Gila-Monster-Status-Identification-Reporting-Protocol-Observations.pdf
- Birds protected under the Migratory Bird Treaty Act (MBTA), including eagles and hawks, are also State protected (NAC 503.050). Ground disturbing activities should avoid the breeding and nesting season which occurs generally between March 1 and July 31, although several species like raptors, verdin, phainopepla and cactus wren may begin earlier in February. If seasonal avoidance is not practicable, then survey by a qualified biologist of the project site prior to any ground disturbing activities to determine if nesting is underway is recommended. In the event an active nest (containing eggs or young) is discovered or frequently attended by adult birds, a buffer area around the nest appropriate for the species involved must be identified and avoided until

young birds have fledged. This measure is consistent with preventive actions advocated by the U.S. Fish & Wildlife Service (Service) concerning MBTA-protected birds. An example of species-specific guidance for the burrowing owl can be accessed at: http://www.azgfd.gov/pdfs/w_c/owl/burrowingowlclearanceprotocol.pdf.

- Avoidance of herbicide application during the breeding season for all wildlife is recommended.
- If active raptor nests are encountered the Department requests information including location setting and UTM coordinates, species, and if young are present. This information should be directed to Biologist Christy Klinger at 702.486.5127 x3717 or Christy@ndow.org.

Thank you for this scoping opportunity. As planning moves forward we look forward to continued involvement in the NEPA process inclusive of review of appropriate and reasonable considerations for wildlife and wildlife-related activities. For additional assistance on this letter, please contact Biologist Anthony Miller at the Department's Southern Region Office in Las Vegas. He can be reached by phone at 702.486.5127 x3613, or by e-mail at ajmiller@ndow.org.

Sincerely,

D. Bradford Hardenbrook
Supervisory Habitat Biologist
Southern Region, Nevada Department of Wildlife
4747 Vegas Drive, Las Vegas, Nevada 89108
702.486.5127 x3600; 702.486.5133 FAX
bhrdnbrk@ndow.org

AJM: DBH

cc: Nevada State Clearinghouse
NDOW, Files

INSTRUCTIONS
SPECIAL PURPOSE PERMIT

Fee: ☐ **$200.00 – 1 Year Permit (22.05)**

LEGAL AUTHORITY: **NRS 503.597; LCB File No. R148-12**

WILDLIFE DEFINED: Any wild mammal, wild bird, fish, reptile, amphibian, mollusk, or crustacean found naturally in a wild state, whether indigenous to Nevada or not and whether raised in captivity or not.

PERMIT REQUIREMENT: Upon the written permit of the Department, a person may handle, move or temporarily possess any wildlife which is classified as protected for the purpose of reducing or eliminating the risk of harm to the wildlife that may result from any lawful activity conducted on land where the wildlife is located. Permits expire December 31 of each year.

WHERE TO OBTAIN APPLICATION: An application for a permit may be obtained from any Department office located, Elko, Las Vegas, Reno, or on the website at www.ndow.org under the License Office section.

PROCESSING TIME: All applications are subject to a statewide review process. Allow 4 to 6 weeks for processing. Applications submitted with incomplete Applicant Information section will be returned to the client and could cause a delay in the approval and issuance of the permit.

DENIAL OF APPLICATION: Whenever an application is denied, the Department shall notify the applicant in writing of the reason for the denial.

FEDERAL PERMIT REQUIREMENTS: An applicant must submit a copy of his federal permit(s), issued by the U.S. Fish and Wildlife Service with his application that involve threatened or endangered species, or migratory birds protected by the Migratory Bird Treaty Act.

GENERAL RESTRICTIONS, CONDITIONS, AND REQUIREMENTS

POSSESSION OF PERMIT. A copy of the state permit and federal permit (if required) must be in the possession of the permittee while removal, relocating or transporting wildlife specimens.

TRESPASS. The permit does not authorize trespass and/or collection activities on state or federal wildlife refuges or reserves, or other public and private property without permission from the landowner or custodian.

ANNUAL REPORTS. A report of all removal, relocating and salvage activities listing: date of capture/relocated of each species; the number of specimens of each species which were captured/relocated; the habitat type where each specimen was taken; the sex of each specimen; and a description of the location of capture/relocated for each specimen by of the following method:

- UTM coordinates, NAD 83, Zone 11, rounded to the nearest meter. -

Reports must be submitted to:

Nevada Department of Wildlife
License Office – Scientific Collection
4600 Kietzke Ln D135
Reno, NV 89502

COMMERCIALIZATION PROHIBITED. Wildlife collected under the authority of a special purpose permit must not be sold, bartered, traded, or converted to personal use.

PERTINENT STATUTES AND REGULATIONS

LCB File No. R148-12 Special Purpose Permit

1. The Department may issue a special purpose permit pursuant to NRS 503.597 which authorizes the handling, moving or temporarily possessing any wildlife which is classified as protected for the purpose of reducing or eliminating the risk of harm to the wildlife that may result from any lawful activity conducted on land where the wildlife is located.

2. An applicant for a special purpose permit must include on his application:

(a) The name and date of birth of the applicant;
(b) The physical or mailing addresses and telephone number of the applicant;
(c) The name, address and telephone numbers of the place of employment of the applicant;
(d) The driver's license number, the state that issued the driver's license and the date of issue of the driver's license of the applicant, if the applicant holds a driver's license;
(e) The name of the company or other entity that the applicant is representing, if different from the employer of the applicant;
(f) The name of each person who, at the direction of the applicant, will handle, move or temporarily possess the wildlife under the authority of the special permit;
(g) The common and scientific name and the number of each species of wildlife, or nests or eggs thereof, to be handled, moved or temporarily possessed;
(h) The manner in which each specimen of wildlife will be handled, moved or temporarily possessed;
(i) The locations at which and the dates when the wildlife are to be handled, moved or temporarily possessed;
(j) The locations at which or to which the wildlife will be handled, moved or temporarily possessed, if any;
(k) A brief synopsis, not to exceed five pages, of the purpose and justification for the handling, moving or temporary possession of the wildlife; and
(l) The signature of the applicant and the date on which the applicant signed the application.

3. A special permit in subsection 1 must be valid for not more than 1 year. Upon its approval of the application and submission of the fee, the Department shall issue the special purpose permit based on a calendar year.

4. Based on its evaluation of the application, the Department may make such stipulations and conditions on the use and scope of the special permit as the Department deems appropriate. A violation of a stipulation or condition is cause for the cancellation of the special permit.

5. Not later than 30 days after expiration of a special permit specified in subsection 1, the holder of the special permit shall submit to the Department a report which includes, without limitation:

(a) A list of each species of wildlife which is classified as protected that was handled, moved or temporarily possessed, for each such species:
    (1) The number of wildlife handled, moved or temporarily possessed at each location where the wildlife was handled, moved or temporarily possessed; and
    (2) The date on which the wildlife was handled, moved or temporarily possessed; and
(b) Any other information which the Department requires.

6. A special permit specified in subsection 1 which is issued by the Department for the handling, movement or temporary possession of:

(a) A migratory bird that is protected by the Migratory Bird Treaty Act, as amended, 16 U.S.C. §§ 703 et seq.; or

(b) A species of wildlife that is listed as threatened or endangered by the United States Fish and Wildlife Service,

is not valid for the handling, movement or temporary possession of the migratory bird or the threatened or endangered species until the Department receives a copy of the federal permit and/or the biological opinion issued by the United States Fish and Wildlife Service to the applicant for handling, movement or temporary possession of the migratory bird or threatened or endangered species.

WHERE TO SEND APPLICATION

Nevada Department of Wildlife
License Office – Special Purpose Permit
4600 Kietzke Lane – D-135, Reno, NV 89502

NEVADA DEPARTMENT OF WILDLIFE
Southern Region
4747 W. Vegas Drive, Las Vegas, Nevada 89108
Phone: 702-486-5127, Fax: 702-486-5133

7 September 2012

GILA MONSTER STATUS, IDENTIFICATION AND REPORTING PROTOCOL FOR OBSERVATIONS

Gila Monster Status

- Per Nevada Administrative Code 503.080, the Gila monster (*Heloderma suspectum*) is classified as a Protected reptile.

- Per Nevada Administrative Codes 503.090, and 503.093, no person shall capture, kill, or possess any part thereof of Protected wildlife without the prior written permission by the Nevada Department of Wildlife (NDOW).

This species is rarely observed relative to other species which is the primary reason for its Protected classification by the State of Nevada. The USDI Bureau of Land Management has recognized this lizard as a sensitive species since 1978. Most recently, the Gila monster was designated as an *Evaluation* species under Clark County's Multiple Species Habitat Conservation Plan (MSHCP). The evaluation designation was warranted because inadequate information exists to determine if mitigation facilitated by the MSHCP would demonstrably cover conservation actions necessary to insure the species' persistence without protective intervention as provided under the federal Endangered Species Act.

The banded Gila monster (*H.s. cinctum*) is the subspecies that occurs in Clark, Lincoln, and Nye counties of Nevada. Found mainly below 5,000 feet elevation, its geographic range approximates that of the desert tortoise (*Gopherus agasizii*) and is coincident to the Colorado River drainage. Gila monster habitat requirements center on desert wash, spring and riparian habitats that inter-digitate primarily with complex rocky landscapes of upland desert scrub. They will use and are occasionally encountered out in gentler terrain of alluvial fans (bajadas). Hence, Gila monster habitat bridges and overlaps that of both the desert tortoise and chuckwalla (*Sauromalus ater*). Gila monsters are secretive and difficult to locate, spending >95% of their lives underground.

The Gila monster is the only venomous lizard endemic to the United States. Its behavioral disposition is somewhat docile and avoids confrontation. But it will readily defend itself if threatened. Most bites are considered illegitimate and consequential to harassment or careless handling. These lizards are not dangerous unless molested or handled and should not be killed.

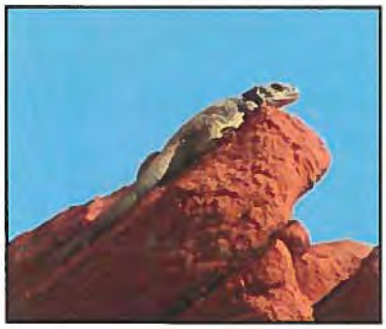
Scant information exists on detailed distribution and relative abundance in Nevada. The Nevada Department of Wildlife (NDOW) has ongoing management investigations addressing the Gila monster's status and distribution, hence additional distribution, habitat, and biological

information is of utmost interest. In assistance to gathering additional information about Gila monsters in Nevada, NDOW will be notified whenever a Gila monster is encountered or observed, and under what circumstances (see Reporting Protocol below).

Identification

The Gila monster is recognizable by its striking black and orange-pink coloration and bumpy, or beaded, skin. In keeping with its namesake, the banded Gila monster retains a black chain-link, banded appearance into adulthood. Other lizard species are often mistaken for the Gila monster. Of these, the non-venomous western banded gecko (*Coleonyx variegatus*) and non-venomous chuckwalla are most frequently confused with the Gila monster. All three species share the same habitats.

The western banded gecko is often mistakenly identified as a baby or juvenile Gila monster. Western banded geckos do have a finely granular skin and pattern that can be suggestive of the Gila monster to the untrained eye. However, western banded gecko heads are somewhat pointed at the snout and the relatively large eyes have vertical pupils. Snouts of Gila monsters are bluntly rounded and the smallish eyes have round pupils. Newly hatched Gila monsters are about 5-6 inches long with a vivid orange and black, banded pattern. Adult western banded geckos are at best cream to yellow and brown in pattern and do not exceed 5 inches.



Both juvenile and adult chuckwallas are commonly confused with the Gila monster. Juvenile chuckwallas have an orange and black, banded tail. Although banding of the tail fades as chuckwallas mature, their large adult size (up to 17 inches) rivals that of the Gila monster. Adult chuckwallas have a body shape somewhat suggestive of the Gila monster, but they lack the coarsely beaded skin and black and orange body pattern of the Gila monster.

Reporting Protocol for Gila Monster Observations

Field workers and personnel in southern Nevada should at least know how to: (1) identify Gila monsters and be able to distinguish it from other lizards such as chuckwallas and western banded geckos (see Identification section above); (2) report any observations of Gila monsters to the Nevada Department of Wildlife (NDOW); (3) be alerted to the consequences of a Gila monster bite resulting from carelessness or unnecessary harassment; and (4) be aware of protective measures provided under state law.

1) Live Gila monsters found in harms way on the construction site will be captured and then

detained in a cool, shaded environment (≤85°F) by the project biologist or equivalent personnel until a NDOW biologist can arrive for documentation, marking and obtaining biological measurements and samples prior to releasing. Despite that a Gila monster is venomous and can deliver a serious bite, its relatively slow gate allows for it to be easily coaxed or lifted into an open bucket or box carefully using a long handled instrument such as a shovel or snake hook (*Note: it is not the intent of NDOW to request unreasonable action to facilitate captures; additional coordination with NDOW will clarify logistical points*). A clean 5-gallon plastic bucket with a secure, vented lid; an 18"x 18"x 4" plastic sweater box with a secure, vented lid; or, a tape-sealed cardboard box of similar dimension may be used for safe containment. Additionally, written information identifying the mapped capture location, Global Positioning System (GPS) coordinates in Universal Transverse Mercator (UTM) using the North American Datum (NAD) 83 zone 11. Date, time, and circumstances (e.g. biological survey or construction) and habitat description (vegetation, slope, aspect, substrate) will also be provided to NDOW.

2) Injuries to Gila monsters may occur during excavation, blasting, road grading, or other construction activities. In the event a Gila monster is injured, it should be transferred to a veterinarian proficient in reptile medicine for evaluation of appropriate treatment. Rehabilitation or euthanasia expenses will not be covered by NDOW. However, NDOW will be immediately notified of any injury to a Gila monster and which veterinarian is providing care for the animal. If an animal is killed or found dead, the carcass will be immediately frozen and transferred to NDOW with a complete written description of the discovery and circumstances, date, time, habitat, and mapped location (GPS coordinates in UTM using NAD 83 Z 11).

3) Should NDOW's assistance be delayed, biological or equivalent acting personnel on site should detain the Gila monster out of harms way until NDOW personnel can respond. **The Gila monster should be detained until NDOW biologists have responded**. Should NDOW not be immediately available to respond for photo-documentation, a digital (5 mega-pixle or higher) or 35mm camera will be used to take good quality images of the Gila monster in situ at the location of live encounter or dead salvage. The pictures will be provided to NDOW at the address above or the email address below along with specific location information including GPS coordinates in UTM using NAD 83 Z 11, date, time and habitat description. Pictures will show the following information: (1) Encounter location (landscape with Gila monster in clear view); (2) a clear overhead shot of the entire body with a ruler next to it for scale (Gila monster should fill camera's field of view and be in sharp focus); (3) a clear, overhead close-up of the head (head should fill camera's field of view and be in sharp focus).

Please contact NDOW Biologist Jason L. Jones at 702-486-5127 x3718
or by e-mail at jljones@ndow.org for additional information regarding these protocols.

FW: State Agency Comments E2014-112 Scoping - EA Western's Parker-Davis Transmission System

Heath, Sean <heath@wapa.gov> on behalf of
DSW-ParkerDavisProEA <DSW-ParkerDavisProEA@wapa.gov>

Mon 4/7/2014 9:13 AM

To: parker- Davis Project <parker-davis@aspeneg.com>;

Cc: Negar Vahidi <NVahidi@aspeneg.com>;

2 attachments

E2014-112 SHPO (Scoping - EA Western's Parker-Davis Transmission System).pdf; E2014-112 NDWR (Scoping - EA Western's Parker-Davis Transmission System).pdf;

From: Skip Canfield [mailto:scanfield@lands.nv.gov]
Sent: Friday, April 04, 2014 11:41 AM
To: DSW-ParkerDavisProEA
Cc: Skip Canfield
Subject: State Agency Comments E2014-112 Scoping - EA Western's Parker-Davis Transmission System

The Nevada State Clearinghouse received the attached comments and the comments below regarding this proposal,
http://clearinghouse.nv.gov/public/Notice/2014/E2014-112.pdf

Skip Canfield
Nevada State Clearinghouse
State Land Use Planning Agency

Nevada Division of State Lands
Department of Conservation and Natural Resources
901 South Stewart Street, Suite 5003
Carson City, NV 89701
775-684-2723
http://clearinghouse.nv.gov
www.lands.nv.gov

The Nevada Division of State Lands and the State Land Use Planning Agency offer the following comments:

Please consider the cumulative visual impacts from development activities **(temporary and permanent)**. Some notable activities include proliferation of new roads, poorly-sited and designed structures, lack of co-location of infrastructure and improper lighting, to name a few.

The following mitigation measures should be required:

Utilize appropriate lighting:

- Utilize consistent lighting mitigation measures that follow "Dark Sky" lighting practices.
- Effective lighting should have screens that do not allow the bulb to shine up or out. All proposed lighting shall be located to avoid light pollution onto any adjacent lands as viewed from a distance. All lighting fixtures shall be hooded and shielded, face downward, located within soffits and directed on to the pertinent site only, and away from adjacent parcels or areas.
- A lighting plan should be submitted indicating the types of lighting and fixtures, the locations of fixtures, lumens of lighting, and the areas illuminated by the lighting plan.
- Any required FAA lighting should be consolidated and minimized wherever possible.

In addition, the following mitigation measures should be employed.

Utilize building materials, colors and site placement that are compatible with the natural environment:

- Utilize consistent mitigation measures that address logical placement of improvements and use of appropriate screening and structure colors. Existing utility corridors, roads and areas of disturbed land should be utilized wherever possible. Proliferation of new roads should be avoided.
- For example, the use of compatible paint colors on structures reduces the visual impacts of the built environment. Using screening, careful site placement, and cognitive use of earth-tone colors/materials that match the environment improve the user experience for others who might have different values than what is fostered by built environment activities.
- Federal agencies should require these mitigation measures as conditions of approval for all permanent and temporary applications.

Skip Canfield
State Land Use Planning Agency

March 11, 2014

To Whom It May Concern:

In response to your letter (see attached), the following reply is tendered for your consideration.

My wife and I share your concern regarding the overgrown vegetation and the erosion of any usable roadway for your projected usage and access for maintenance and operations of the overhead transmission lines.

Currently, the road within your R.O.W., is simply non-existant due to runoff from rains. The vegetation has overgrown to a point where it has become a fire hazard of the first order. Our land east of your right-of-way is cleared and kept cleared by myself to protect our dwellings.

Since we first bought this land in 1996, there has never been any attempt to maintain this area in regard to vegetation control or road maintenance by any agency. I don't mean this as a critical remark, but just as a matter of fact.

When and if this concern is realized and the needed maintenance is accomplished by your organization, I would assist in maintaining that area in a state of acceptability, as long as I am able.

Sincerely,

James R. Lucas

James R. Lucas
25082 E. Desert Hills Rd.
P.O. Box 2358
Florence, Az. 85132
520-858-6643/520-560-3886

FW: Input about Letter Dated 2/28/14

Heath, Sean <heath@wapa.gov> on behalf of
DSW-ParkerDavisProEA <DSW-ParkerDavisProEA@wapa.gov>

Wed 3/5/2014 10:09 AM

<parker- Davis Project <parker-davis@aspeneg.com>;

Sean Heath
Environmental Protection Specialist
Desert Southwest Region
Western Area Power Administration
615 S. 43rd Avenue
Phoenix, AZ 85009
(602) 605-2592 | Office
(602) 329-8371 | Cell

From: Dale [mailto:kemper.dale@cox.net]
Sent: Tuesday, March 04, 2014 12:00 PM
To: DSW-ParkerDavisProEA
Cc: Paulsen, Scott
Subject: Input about Letter Dated 2/28/14

As much as I dislike WAPA access I am aware that the easement gives them the right. I recommend notifying property owners about 48-hours in advance when you will or may require access so we can unlock gates and be present at that time if we desire. Notification by telephone or email would be great.

Thanks,
Dale Kemper
480-844-0875
Kemper.dale@cox.net

FW:

DELETE REPLY REPLY ALL FORWARD

Heath, Sean <heath@wapa.gov> on behalf of DSW-ParkerD mark as unread

Wed 3/12/2014 8:55 AM

To: parker- Davis Project;

Bing Maps + Get more apps

Sean Heath
Environmental Protection Specialist
Desert Southwest Region
Western Area Power Administration
615 S. 43rd Avenue
Phoenix, AZ 85009
(602) 605-2592 | Office
(602) 329-8371 | Cell

From: Turley Gary B [mailto:Gary.Turley@srpnet.com]
Sent: Tuesday, March 11, 2014 2:06 PM
To: DSW-ParkerDavisProEA
Subject:

To whom it may concern,
I am very supportive of establishing and maintaining safe access to all existing and future transmission line ROW's as well as the vegetation that will help protect, maintain and beautify these areas.
Thank you for your interest.
Gary Turley

Scoping Comments

Parker-Davis Transmission System

Programmatic Operation and Maintenance, and Integrated Vegetation Management Program

Western AREA POWER ADMINISTRATION

Please print or write legibly. Thank you for your comments.

For more information, please visit the project web site: http://www.wapa.gov/dsw/environment/DOEEA1982.htm

Date: March 19, 2014

Name*: ROD BLACK

Affiliation (*if any*):* Yuma Audubon

Address:* 1317 W Hillside Pl

City, State, Zip Code:* Yuma AZ 85364

Telephone Number:*

Email:* Rod4039@Gmail.com

Comment:* NOT AT This Time - WAITING for EA pub in Sept 2014 -

Please send me notifications by: ☐ email ☐ mail ☐ I do not want to be on the project mailing list

**This information may be released if requested under the Freedom of Information Act. Individual respondents may request that we withhold their home address from the record, which we will honor to the extent allowable by law. If you wish us to withhold your name and/or address, you must state this prominently at the beginning of your written comments. All submissions from organizations or businesses will be available for public inspection in their entirety.*

Your comments will help Western determine the scope and content of the environmental document and identify alternatives and measures to reduce impacts. Submit comments by mail using this comment sheet (fold, stamp, and mail); attach additional sheets if needed. Comments must be postmarked by April 4, 2014. Comments may also be submitted by email to DSW-ParkerDavisProEA@wapa.gov or by phone (602) 605-2592.

Appendix D

Western's Programmatic Agreements

PROGRAMMATIC AGREEMENT

AMONG
U.S. DEPARTMENT OF ENERGY-WESTERN AREA POWER ADMINISTRATION, THE ADVISORY COUNCIL ON HISTORIC PRESERVATION, ARIZONA STATE HISTORIC PRESERVATION OFFICER, ARIZONA STATE LAND DEPARTMENT, BUREAU OF INDIAN AFFAIRS, BUREAU OF LAND MANAGEMENT, BUREAU OF RECLAMATION, NATIONAL PARK SERVICE, UNITED STATES FOREST SERVICE, YUMA PROVING GROUND, AK-CHIN INDIAN COMMUNITY, COLORADO RIVER INDIAN TRIBES, FORT MOJAVE INDIAN TRIBE, FORT YUMA-QUECHAN TRIBE, GILA RIVER INDIAN COMMUNITY, HUALAPAI TRIBE, NAVAJO NATION, SALT RIVER PIMA-MARICOPA INDIAN COMMUNITY, AND TOHONO O'ODHAM NATION

REGARDING
MAINTENANCE AND MINOR CONSTRUCTION ACTIVITIES AT EXISTING WESTERN TRANSMISSION LINES, FACILITIES AND PROPERTIES IN ARIZONA

WHEREAS, the United States Department of Energy, Western Area Power Administration (Western) operates and maintains, through its Desert Southwest Regional Office (DSW) and Rocky Mountain Regional Office (RMR), an extensive electrical power delivery system throughout the state of Arizona (AZ), which includes transmission lines, substations, communication sites and ancillary features; and

WHEREAS, Western's electrical power delivery system requires regular maintenance and minor construction for safety and delivery of electricity; and

WHEREAS, Western conducts routine and emergency maintenance and minor construction activities (maintenance program) in order to maintain the reliability of the electrical system; thereby making these activities "undertakings" subject to the provisions of Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. § 470f, and its implementing regulations, 36 CFR Part 800; and

WHEREAS, Western is the lead agency for compliance with Section 106 of the NHPA on all Western's maintenance program activities as these activities have the potential to affect historic properties on private, state, federal, or tribal lands; and

WHEREAS, Western's electrical delivery system crosses private, state, state trust, federal and tribal lands, and Western consulted with the AZ State Land Department, Bureau of Indian Affairs, Bureau of Land Management, Bureau of Reclamation, National Park Service, United States Forest Service, and Yuma Proving Ground and invited these agencies to participate as Invited Signatories to this programmatic agreement (PA); and

WHEREAS, this PA concerns Western's electrical delivery system that crosses lands of the following federally-recognized tribes: the Ak-Chin Indian Community, Colorado River Indian Tribes, Fort Mojave Indian Tribe, Gila River Indian Community, Hualapai Tribe, Navajo Nation, Quechan Tribe, Salt River Pima-Maricopa Indian Community, and Tohono O'odham Nation, and Western consulted with these tribes and respective Tribal Historic Preservation Officers (THPOs) regarding the development of this PA, and invited these Tribes to participate as Invited Signatories; and

WHEREAS, Western also consulted with other federally-recognized tribes (all tribes consulted are collectively referred to as Tribes) that may attach religious or cultural significance to properties throughout AZ that may be affected by Western's maintenance program: Cocopah Indian Tribe, Chemehuevi Indian Tribe, Fort McDowell Yavapai Nation, Havasupai Tribe, Hopi Tribe, Kaibab Band of Paiutes, Las Vegas Tribe of Paiute, Moapa Band of Paiute, Pascua Yaqui Tribe, Pueblo of Zuni, San Carlos Apache Tribe, San Juan Southern Paiute Tribe, Tonto Apache Tribe, White Mountain Apache Tribe, Yavapai-Apache Nation, and the Yavapai-Prescott Indian Tribe to participate in the development of this PA, and invited these Tribes to sign as Concurring Parties to this PA; and

WHEREAS, the Arizona State Museum (ASM) has been invited to participate as a Consulting Party pursuant to 36 CFR 800.3(f), as it has defined authorities and responsibilities under Title 41, Chapter 4.1 Article 4 Arizona Revised Statute [A.R.S.] Section 41-841 et. Seq. that apply to state, county, city, and other municipal lands in Arizona, and invited to sign as a Concurring Party; and

WHEREAS, Western sought public input through public outreach and comments were considered and incorporated in this PA; and

WHEREAS, Western also consulted with the Advisory Council on Historic Preservation (ACHP) and the AZ State Historic Preservation Officer (SHPO) on this PA pursuant to regulation (36 CFR Part 800), and both are participating as Signatories; and

WHEREAS, this PA supersedes the previous PA signed in 1996, titled *Programmatic Agreement Among Western Area Power Administration, the Advisory Council On Historic Preservation, and the Arizona State Historic Preservation Officer, Concerning Routine Maintenance Activities at Western Facilities*; and

WHEREAS, the definitions in Appendix A are applicable to this PA;

NOW, THEREFORE, Western, the SHPO, THPOs for the Gila River Indian Community, Hualapai Tribe, Navajo Nation, and Tohono O'odham Nation, and the ACHP and other participating Invited Signatories agree that Western's maintenance program shall be implemented in accordance with the following stipulations in order to take into account the effects of the maintenance program activities on historic properties.

STIPULATIONS

Western, as the lead federal agency for all Western's maintenance program activities, shall ensure that the following measures are carried out:

I. COORDINATION OF ACTIVITIES REQUIRING REVIEW THAT OCCUR ON FEDERAL, STATE AND TRIBAL RESERVATION LANDS

For all planned maintenance program activities requiring review (see Stipulation III.B) under this PA that occur on state, federal and tribal lands, Western ensures that:

A. Western's environmental staff (Environmental Manager, Regional Preservation Official (RPO) or Federal Preservation Officer (FPO)) will notify the state or federal agency(ies) or Tribe(s), as appropriate, within 10 calendar days from the initiation of Western's environmental review of the project.

B. Western will provide the state or federal agency(ies) and Tribe(s), as appropriate, with draft copies of all new inventory reports, tribal consultation documentation (as appropriate), and all similar documentation relating to the identification and treatment of historic properties, and seek their comment per Stipulation IV.B.

C. Western will provide the federal agency(ies) and Tribe(s), as appropriate, with digital and hard copies of Final inventory reports, and associated Geographic Information Systems data, when available, and records, and copies of correspondence from the SHPO or THPO regarding NRHP eligibility determinations pursuant to Stipulation IV.B.

D. Western will consult with land-managing agencies, Tribes and the SHPO on National Register of Historic Places (NRHP) eligibility per Stipulation IV.C.

E. Western will consult with land-managing agencies, Tribes and the SHPO on findings of No Adverse Effects and Adverse Effects, pursuant to Stipulations V.A(1) and V.B, respectively.

F. All documentation provided to SHPO, agencies, THPOs, and Tribes for review concerning NRHP eligibility and project effect determinations will following the documentation standards outlined in 36 CFR § 800.11 to enable the reviewer to understand the basis for the findings and determinations.

II. WESTERN'S PROFESSIONAL QUALIFICATIONS, DOCUMENTATION STANDARDS, AND CULTURAL RESOURE AWARENESS TRAINING

A. Western's RPO and FPO are responsible for ensuring the implementation of this PA and will meet the Secretary of Interior's Professional Qualification Standards (36 CFR Part 61) in one or more fields in History, Archeology, Architectural History, Architecture, or Historic Architecture, as appropriate for activity/undertaking.

B. Western's RPO and FPO will ensure that its contractors obtain all appropriate permits for survey or monitoring on state, federal or tribal lands. Western will ensure that all field work conducted under contract shall be carried out or supervised by a person meeting the Secretary of Interior's Professional Qualification Standards appropriate to the resources. Work shall be conducted to the Secretary's documentation standards for identification and evaluation. In the event that ethnography is warranted, ethnographic work will be conducted by a qualified. cultural anthropologist (62 FR 33715). . Documentation standards include using the respective federal agency, THPO or the Arizona State Museum's documentation requirements and following "site/isolate" definitions, as appropriate.

C. Maintenance personnel will be required to receive cultural resource awareness and sensitivity training annually that is delivered by a qualified archaeologist at Western's Regional Office or in the field. Tribes may be invited to participate in the annual training. Maintenance personnel will also receive such training in the field, prior to projects that require archeological monitoring. New maintenance personnel assigned to such projects after the project has begun will receive awareness and sensitivity training on their first day in the field prior to starting work. Such training efforts will be documented and submitted to Western as part of monitoring reports.

III. UNDERTAKINGS

A. Appendix B is a list of maintenance program activities/undertakings exempt from further Section 106 review**. <u>These activities/undertakings are determined by the Signatories and Invited Signatories to have little or no likelihood of affecting historic properties, should they be present</u>,** and will be carried out by maintenance staff after environmental staff has completed its National Environmental Policy Act (NEPA) review and analysis.

B. **Appendix C** is a list of **<u>non-exempt</u>** maintenance program activities/undertakings that <u>require review under Stipulation IV</u>. Further, any maintenance program activity not listed in Appendices B or C requires Western's RPO or FPO to follow procedures outline in Stipulation IV, prior to the activity/undertaking.

IV. HISTORIC PROPERTY IDENTIFICATION AND EVALUATION

A. **Determine the APE**: As early as possible in the planning process, the RPO or FPO in consultation with the Region's Environmental Manager and maintenance staff will review non-exempt activities to define the APE within Western's right-of-way (ROW) or easement.

B. **Level of Effort:**

1. **Class I Inventory**: The RPO or FPO will conduct a Class I inventory of the proposed APE. Western's RPO, FPO or Western's contractor will contact or visit the land managing agency for current survey information. For activities/undertakings that occur within a tribe's reservation boundaries, Western will contact the tribe to find out about surveys and historic properties known within the proposed project area, as well as any other cultural resources or areas of concern that Western should consider with regard to the proposed activity/undertaking.

2. **Class II or III Survey**: Based on the results of the Class I inventory, the RPO or FPO will determine to what extent a Class II or III field survey of the APE within the ROW or easement is needed. Previously unsurveyed APEs will be inventoried at the Class III level for historic properties except in areas heavily disturbed (i.e. mechanically modified by cut or fill, severe erosion or within modern flood plains) or where dense vegetation prohibits survey (Appendix D, Best Management Practices). For areas >1 acre or >0.25 miles long that cannot be surveyed due to vegetation coverage, the RPO or FPO will consult with the land managing agency or tribe whose land the project is on to discuss monitoring, or post-activity survey or other options if the proposed project cannot be redesigned to avoid these areas. Survey reports will be provided to the land managing agency, SHPO, THPO and Tribes, as appropriate as Stipulated in I.B and C, and be provided a **30 calendar-day comment period**. Extensions to this timeframe may be requested by letter, email or telephone. For any Class II sample survey, Western will consult the SHPO/THPO, as appropriate and the land managing agency prior to conducting the survey.

3. **Tribal Consultation:** As part of Western's identification efforts, the RPO or FPO will consult interested Tribes that attach religious and cultural significance to properties within the APE. Tribes will be provided **30 calendar-days to respond**. Extensions to this timeframe may be requested by letter, email or telephone. Western may consult Tribes proactively (non-project specific) to determine the presence of places of traditional, religious and cultural importance that might be affected by non-exempt maintenance activities.

C. **Determinations of National Register of Historic Places Eligibility (NRHP)**: Determinations of eligibility shall be made in consultation with the appropriate land managing agencies, SHPO, Tribes and THPOs, as appropriate. Pursuant to regulation (36 CFR 800.4(C)(1)), if Western and the SHPO/THPO do not agree, Western shall obtain a

determination of eligibility from the Secretary (Keeper of the National Register) pursuant to 36 CFR part 63. All cultural resources identified, including isolates, will be evaluated relative to all criteria of significance found at 36 CFR 60.4; however, when there is difficulty determining the eligibility of a cultural resource the RPO or FPO may assume it eligible. Agencies and Tribes agree to provide comments on NRHP eligibility within **30 calendar-days** of receipt of Western's request for comments. Extensions to this timeframe may be requested by letter, email or telephone. After consultation with the appropriate agencies and Tribes, the RPO or FPO shall consult with the SHPO or THPO regarding determinations of NRHP eligibility. Correspondence between Western and the SHPO or THPO will be provided to the appropriate land managing agencies, Tribes and THPOs pursuant to Stipulation X.B.

V. PROJECT EFFECTS AND APPROVED CONDITIONS

A. Western utilizes a best management practice of avoiding or minimizing adverse effects to historic properties as defined in 36 CFR § 800.16(l)(1) whenever possible, and has established additional BMP practices that will be followed to minimize project effects to historic properties (Appendix D). For all non-exempt activities (see Appendix C), the RPO or FPO will review such activities per Stipulation IV and make findings of effects in accordance with the following:

1. A finding of **No Historic Property Affected** would result when no historic properties are present or when the APE or proposed activity is modified to avoid historic properties. A finding of **No Adverse Effect** would result when one or more historic property is within the APE, but efforts are made to minimize effects.

   Findings of No Adverse Effect will be made in consultation with land-managing agencies, Tribes, THPOs and the SHPO, except when the following conditions apply:

   a) the project area is determined by the RPO/FPO to have been surveyed to current Class III standards (see Stipulation IV), **and**

   b) historic properties within the APE will be avoided **or** impacts are limited to driving soft rubber-tired or tracked vehicles across a site on an existing access road, or crossing over a site while off-road within the ROW in soft rubber-tired ATVs during ground patrols when conditions are dry.

   The RPO or FPO will determine if the above conditions apply and are appropriate for the activity. The RPO or FPO is not required to consult with the land managing agency, SHPO/THPO or Tribe regarding findings of No Historic Property Affected or No Adverse Effect, when approved conditions apply. For all non-exempt activities (listed or not listed in Appendix C) where these approved conditions do not apply, the RPO or FPO

will consult with the land-managing agency, Tribes and SHPO/THPO regarding No Adverse Effect findings pursuant to 36 CFR 800.5(d)(1). Consulting parties will be provided **30 calendar-days to respond.** If no response, within the 30 calendar-day timeframe, Western may assume concurrence and move forward with the activity. Extensions to this timeframe may be requested by letter, email or telephone. The RPO or FPO will document findings of effect for all non-exempt activities, which will be reported annually pursuant to Stipulation X.

B. The RPO or FPO will make a finding of **Adverse Effect** when adverse effects to historic properties cannot be avoided or minimized. An adverse effect results when an undertaking alters any characteristic of a historic property that qualifies the property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association.

C. Western's RPO or FPO shall consult with the AZ SHPO, the ACHP, THPOs, and land-managing agencies and Tribes (as appropriate) to resolve adverse effects pursuant to 36 CFR § 800.6 prior to commencing with the activity. Should Western decide not to pursue with the activity, all parties involved will be notified.

VI. DEVELOPMENT OF A PLAN FOR MONITORING AND DISCOVERIES

Western may use archaeological monitors and/or tribal cultural monitors during implementation of maintenance activities to ensure avoidance of historic properties and to make available personnel who could respond quickly to potential discovery situations. A plan for monitoring and treating discoveries will be developed in consultation with the Signatories and Invited Signatories, within six (6) months after the execution of this PA, and will be attached as Appendix E. The Signatories and Invited Signatories will have **30 calendar-days to review the draft plan** and provide comments to Western. Western will consider all comments and provide a final draft plan for review and comment 30 calendar-days after receipt of such comments. Signatories and Invited Signatories will have **15 calendar-days to provide additional comments on final draft plan** to Western. Western will consider any additional comments and provide the final plan to the Signatories and Invited Signatories no later than 30 calendar-days after receipt of the final comments. Should Western not meet the timeline for developing the plan, Western will consult with the SHPO, and appropriate land-managing agencies, appropriate Tribes and THPOs on monitoring plans and discoveries on a case-by-case basis, until such plan is developed.

VII. EMERGENCY CONTIGENCIES

Emergency activities are defined as hazardous materials spills or situations of unplanned or unscheduled power outages or imminent outages that potentially threaten human life and property. In the event of an emergency Western will comply with the following procedures:

- The Region's Maintenance Manager will submit a report to the Region's Environmental Manager concerning any emergency activity within 7 calendar-days of the occurrence.

- The Region's Environmental Manager, RPO or FPO will notify the affected land-managing agency or Tribe or THPO by telephone or email within 24 hours days of receipt of the Maintenance Manager's report.

- A summary of the emergency activity will be included in the annual report pursuant to Stipulation X.

- Western will conduct a Class I inventory of the emergency activity APE to determine if known historic properties exist within the APE. If no prior surveys occurred, a post emergency Class III survey will be conducted within 45 calendar-days of the report.

- If cultural resources are found as a result of the post-emergency survey the procedures under Stipulation VIII for Discoveries will be followed.

VIII. DISCOVERIES

A. If archaeological materials are discovered as a result of any maintenance activity, the discovery will be protected, all earth disturbing activities will cease within 30 meters (100 ft) of the discovery, and heavy equipment will be removed from the area until the discovery is assessed and documented. If the RPO or FPO determines that the discovery is an isolate and determines it is not eligible for NRHP listing, it will be documented and the activity will proceed with no further consultation. For all other discoveries, Western will either assume the materials eligible for NRHP listing pursuant to 36 CFR 800.13(c) or consult with the appropriate land-managing agency, Tribes, THPOs, and SHPO regarding eligibility, and will also consult if the discovery was, or will be, adversely affected by the activity. Western will notify the appropriate land-managing agency, SHPO, state agency and Tribes by phone within 48 hours of the discovery.

B. If human remains are discovered work will cease within 30 meters (100 ft) of the discovery. If remains are discovered on federal land, pursuant to 43 CFR 10, the regulations implementing the Native America Graves Protection and Repatriation Act (NAGPRA, 25 U.S.C. 30001 et seq). Western will notify the land managing agency followed by written notification within 24 hours of the discovery. If human remains are discovered on tribal lands, pursuant to 43 CFR 10 (NAGPRA), Western will notify the BIA and tribe followed by written notification within 24 hours of the discovery. Compliance with laws concerning discoveries of human remains on federal lands will be the responsibility of the federal land-managing agency. If human remains are found on state or private lands, Western will comply with state procedures: Discovery of Human Remains, Sacred Ceremonial Object, Object of National and Tribal Patrimony (Arizona Rev. Stat. Â§41-844). Details on these procedures will be outline in the monitoring and discovery plan referenced under Stipulation VI.

IX. EXECUTION AND DURATION

A. This PA may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same PA. Western will distribute copies of all signed pages to the Signatories, Invited Signatories and Concurring Parties once the PA is executed in full.

B. This PA will expire ten (10) years from the date of its execution, unless the PA is amended with a new expiration date prior to such time. At such time, and prior to work continuing on any activity covered by this PA, Western shall either (a) execute a PA pursuant to 36 CFR § 800.14(b), or (b) request, take into account, and respond to the comments of the ACHP under 36 CFR § 800.7or (c) consult on undertakings pursuant to 36 CFR §§ 800.4 - 800.6. Prior to such time, Western may consult with the other Signatories and Invited Signatories to reconsider the terms of the PA and amend it in accordance with Stipulation XII below. Western shall notify the Signatories and Invited Signatories as to the course of action it will pursue.

X. PROGRAM MONITORING AND REPORTING

The RPO or FPO will meet annually with the SHPO or THPO and interested Signatories and Invited Signatories to discuss the implementation of PA and annual report. Western will provide a report to the SHPO and all Signatories detailing the non-exempt activities over the course of the prior calendar year by April 1 of each year, beginning in 2014. This report will include emergencies and discoveries. Western will prepare a table as part of the report listing the activities, dates, file searches, surveys, eligibility determinations, and any consultations with land-managing agencies and Tribes.

XI. DISPUTE RESOLUTION

Should any Signatory or Invited Signatory to this PA object at any time to any actions proposed or the manner in which the terms of this PA are implemented, the RPO or FPO shall notify the SHPO about the objection by email and consult with the objecting party to resolve the objection. If the RPO or FPO determines that such objection cannot be resolved, the FPO will forward the objection to the ACHP.

A. If the ACHP does not provide its advice regarding the dispute within 30 calendar-days, Western may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, Western shall prepare a written response that takes into account any timely comments regarding the dispute from the Signatories and Invited Signatories to the PA, and provide them and the ACHP with a copy of such written response.

B. Western's responsibilities to carry out all other actions subject to the terms of this PA that are not the subject of the dispute remain unchanged.

XII. AMENDMENTS

This PA may be amended in counterparts, when such an amendment is agreed to in writing by all Signatories and Invited Signatories. Western will distribute copies of the amendment to all Signatories, Invited Signatories and Concurring Parties. The amendment will be effective on the date a copy signed by all of the signatories is filed with the ACHP.

XIII. TERMINATION

If any Signatory or Invited Signatory to this PA determines that its terms will not or cannot be carried out, that Signatory or Invited Signatory shall immediately consult with the other Signatories/Invited Signatories to attempt to develop an amendment per Stipulation XII. If within thirty 30 calendar-days (or another time period agreed to by all Signatories/Invited Signatories) an amendment cannot be reached, any Signatory or Invited Signatory may terminate involvement in the PA upon written notification to the other Signatories and Invited Signatories. If the PA is terminated or if a Signatory or Invited Signatory terminates its involvement prior to work continuing on any undertaking that would be normally be covered by this PA or on that Signatory or Invited Signatory's land, Western must either:

A. follow the procedures outlined in 36 CFR §§ 800.4 - 800.6 for each undertaking, or
B. execute an new PA pursuant to 36 CFR § 800.14(b), or
C. request, take into account, and respond to the comments of the ACHP under 36 CFR § 800.7. Western shall notify the Signatories/Invited Signatories as to the course of action it will pursue.

Execution and implementation of this PA evidences that Western has satisfied its Section 106 responsibilities for all individual undertakings associated with its maintenance program in Arizona, and afforded the ACHP the opportunity to comment.

SIGNATORIES

WESTERN AREA POWER ADMINISTRATION

By:_____ Date: 7/17/13
Darrick Moe, DSW Regional Manager, Department of Energy

WESTERN AREA POWER ADMINISTRATION

By:_____ Date: 8-2-13
Brad Warren, RMR Regional Manager, Department of Energy

ARIZONA STATE HISTORIC PRESERVATION OFFICER

By: James W. Garrison Date: 11/19/13
James W. Garrison, State Historic Preservation Officer

ADVISORY COUNCIL ON HISTORIC PRESERVATION

By: _____ Date: 12-12-13
John M. Fowler, Chief Executive Officer

INVITED SIGNATORY

ARIZONA STATE LANDS DEPARTMENT

By: Vanessa P. Hickman Date: 9/9/13
Vanessa P. Hickman, Land Commissioner

INVITED SIGNATORY

BUREAU OF INDIAN AFFAIRS

By: Rodney M. Cruz Date: 8.26.13
for Bryan Bowker, Regional Director, Western Region

INVITED SIGNATORY

BUREAU OF LAND MANAGEMENT

By: _____ Date: 9/11/2013
Raymond Suazo, State Director

INVITED SIGNATORY

BUREAU OF RECLAMATION, LOWER COLORADO REGION

By: _____ Date: August 30, 2013
Terrance J. Fulp, Ph.D., Regional Director

INVITED SIGNATORY

NATIONAL PARK SERVICE, LAKE MEAD RECREATION AREA

By: _____ Date: 8/14/13

for William K. Dickinson, Superintendent

INVITED SIGNATORY

UNITED STATES FOREST SERVICE

By: _____ Date: 08/27/2013

For Calvin Joyner, Regional Forester for Southwest Region

INVITED SIGNATORY

U.S. ARMY GARRISON, YUMA PROVING GROUND

By: _____ Date: 8/13/13

Richard T. Martin, Garrison Manager

INVITED SIGNATORY

AK-CHIN INDIAN COMMUNITY

By:_____ Date:_____
Louis Manuel Jr., Chairman

INVITED SIGNATORY

COLORADO RIVER INDIAN TRIBES

By:_____ Date:_____
Wayne Patch, Sr., Chairman

INVITED SIGNATORY

FORT MOJAVE INDIAN TRIBE

By:_____ Date:_____
Timothy Williams, Chairman

INVITED SIGNATORY

GILA RIVER INDIAN COMMUNITY

By:_____ Date:_____
Gregory Mendoza, Governor

By:_____ Date:_____
Barnaby Lewis, Tribal Historic Preservation Officer

INVITED SIGNATORY

HUALAPAI TRIBE

By:_____ Date:_____
Sherry Counts, Chairperson

By:_____ Date:_____
Loretta Jackson-Kelly, Tribal Historic Preservation Officer

INVITED SIGNATORY

NAVAJO NATION

By:_____ Date:_____
Ben Shelly, President

By:_____ Date: 9-26-13
Alan S. Downer, PhD., Tribal Historic Preservation Officer

INVITED SIGNATORY

QUECHAN TRIBE

By: _____ Date: 8/27/2013
Keeny Escalanti, President

INVITED SIGNATORY

SALT RIVER PIMA-MARICOPA INDIAN COMMUNITY

By:_____ Date:_____
Diane Enos, President

INVITED SIGNATORY

TOHONO O'ODHAM NATION

By:_____ Date:_____
Ned Norris, Jr., Chairman

By:_____ Date:_____
Peter L. Steere, Tribal Historic Preservation Officer

CONCURRING PARTY

ARIZONA STATE MUSEUM

By: _____ Date: 10 Sept 2013
Patrick Lyons, Director

CONCURRING PARTY

CHEMEHUEVI INDIAN TRIBE

By:_____ Date:_____
Edward D. "Tito" Smith, Chairman

CONCURRING PARTY

COCOPAH INDIAN RESERVATION

By:_____ Date:_____
Sherry Cordova, Chairwoman

CONCURRING PARTY

FORT MCDOWELL YAVAPAI NATION

By:_____ Date:_____
Bernadine Burnette, Vice President

CONCURRING PARTY

HAVASUPAI TRIBE

By:_____ Date:_____
Don Watahomigie, Chairman

CONCURRING PARTY

HOPI TRIBE

By:_____ Date:_____
LeRoy N. Shingoitewa, Chairman

CONCURRING PARTY

KAIBAB-PAIUTE TRIBE

By:_____ Date:_____
Manuel Savala, Chairperson

CONCURRING PARTY

LAS VEGAS TRIBE OF PAIUTE

By:_____ Date:_____
Tonia Means, Chairperson

CONCURRING PARTY

MOAPA BAND OF PAIUTE

By:_____ Date:_____
William M. Anderson, Chairman

CONCURRING PARTY

PASCUA YAQUI TRIBE

By:_____ Date:_____
Peter Yucupicio, Chairman

CONCURRING PARTY

PUEBLO OF ZUNI

By:_____ Date:_____
Governor Arlen Quetawki, Sr.

By:_____ Date:_____
Kurt Dongoske, Tribal Historic Preservation Officer

CONCURRING PARTY

SAN CARLOS APACHE RESERVATION

By:_____ Date:_____
Terry Rambler, Chairman

By:_____ Date:_____
Vernelda Grant, Tribal Historic Preservation Officer

CONCURRING PARTY

SAN JUAN SOUTHERN PAIUTE TRIBE

By:_____ Date:_____
May Preston, President

CONCURRING PARTY

TONTO APACHE TRIBE

By:_____ Date:_____
Ivan Smith, Chairman

CONCURRING PARTY

WHITE MOUNTAIN APACHE TRIBE

By:_____ Date:_____
Ronny Lupe, Chairman

By:_____ Date:_____
Mark Altaha, Tribal Historic Preservation Officer

CONCURRING PARTY

YAVAPAI-APACHE NATION

By:_____ Date:_____
David Kwail, Chairman

CONCURRING PARTY

YAVAPAI-PRESCOTT INDIAN TRIBE

By:_____ Date:_____
Ernest Jones, Sr., President

APPENDIX A

Definitions

Aircraft warning device – A device consisting of both signs and marker balls. Signs are usually placed on the tops of transmission line structures. “Marker balls” are large colored balls placed around overhead ground wires to make them visible to aircraft and birds.

Anchor – An anchor is a metal pin or concrete weight attached to the end of a guy wire to secure it to the ground.

Archeological Resources/Materials – any material remains of past human life or activities which are of archaeological interest at least 50 years of age.

Area of potential effects (APE)- the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.

Armor rod – Protective pre-formed wires wrapped around an aluminum conductor to prevent damage at point of support. An armor rod is also used to repair minor conductor damage.

Auger truck – A truck equipped with a bed-mounted auger used to dig holes for poles or structure foundations.

Bedrail – A steel support beam placed between the very top of the two wooden poles on traditional H-Frame structures so as to link the poles and stabilize them. The bedrail is also called the steel angle or ridge iron. It is used for grounding and for attaching the overhead ground wire.

Bird guard – A specially designed device placed on transmission line structures to prevent birds from being electrocuted.

Bobcat – A small front-end loader.

Bucket truck – A specially designed truck equipped with a bucket and hydraulic arm used to lift men and equipment to the top of transmission line structures during construction, maintenance and inspection of transmission line structures.

Bushing – An electrically insulated lining for a hole to protect a through conductor (from Webster's).

Capacitor bank – A **c**apacitor is a device which stores an electrical charge. Capacitors are grouped in "banks" inside switchyards and substations. Capacitor banks perform various functions including increasing power flow, compensating for voltage drops, and improving power at the point of delivery.

Circuit breaker or "breaker" – A circuit breaker is any device designed primarily to provide safe, rapid interruption of abnormal current flow. Circuit breakers interrupt a faulted circuit, and reclose as soon as the fault has been cleared.

Class I inventory –a literature and records search of existing archaeological and historic site records.

Class II survey –a professionally conducted sample survey designed to characterize an area previously surveyed.

Class III survey –a professionally conducted, intensive 100 percent survey conducted to the specifications of the land managing agency.

Clipping – The task of permanently attaching the conductor to the insulators during construction. Clipping is the last step in completing conductor stringing.

Communication site – Four communication systems are used by Western to track and monitor the power system: Microwave transmissions, power line carriers, radio, and leased telephone lines. Microwave communication sites are being used more and more. A microwave site consists of a fenced, level pad occupied by a tower and a small control building.

Conductor – A conductor, often called wire or line, is the actual carrier of current in a transmission system. It is usually made from solid or stranded aluminum and reinforced with steel.

Cross arm – The cross arm is the crossing member of a wood pole or steel transmission line structure which supports the insulators for the conductors.

Cut out fuse – A fuse is an electrical safety device that melts and interrupts the circuit when the current exceeds certain amperage.

Dampener and Space/Damper Installation – Vibration dampeners and spacer/dampers are installed to inhibit the conductor or overhead ground wires from oscillating, whipping, and/or bouncing. They may be installed using bucket trucks.

Danger Tree – A tree, living or dead, that could fall onto the transmission line, structure, facility or a tree that could grow under the line to a height that could cause electric current jumps by Federal Energy Regulatory Commission/Nuclear Energy Regulatory Commission (FERC/NERC)

standards.

Disconnect switch – A switch is used to open or close a circuit. An open switch stops current from flowing in a circuit, while a closed switch allows current to flow again. A disconnect switch is used in an electrical system to separate a part of the system during a fault, and to allow for maintenance and repair.

Footing – A footing is an enlargement at the base of a structure used to distribute the load or weight of the structure. Footings are dug with an auger into the ground and sometimes are filled with concrete.

Ground mat – A ground mat is a large wire mesh mat buried under a substation or other electrical facility used to help ground electrical equipment.

Ground rod – A ground rod is a metal pole installed in the ground to a depth of at least 5 feet. The rods are attached to grounding cables.

Ground wire – A ground wire is a safety devise that directs current to the earth or "ground". Overhead ground wires act as lightning rods. They are connected to the transmission line structures and extend down into the ground.

Guy wire – A steel wire used to support or strengthen a structure. A guy wire securely anchors the structure to the ground. Guy wires are used at dead-end and turning structures, and at endpoints such as substations.

Historic property – any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the NRHP maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria.

Insulator – An insulator keeps current from flowing to the earth or another conductor. Insulators usually hang from the transmission line structure cross arms. An insulator inhibits the flow of electricity to the earth or another conductor. Insulators are usually bell-shaped, arranged in strings, and are made of porcelain, Pyrex glass, or plastic.

Isolate (Isolated Occurrence or Isolated Find) – is a cultural manifestation that does not meet the definition of a site as defined by the respective land managing agency, Arizona State Museum or THPO.

Knee brace – An angle support device used to support a transmission line structure's cross arm.

Light beacon – A light attached to a tower used for guidance or aircraft warning.

Lightning arrestor – Any attachment, usually a metal bayonet, used to attract lightning away from the transmission system and direct it to a ground wire and the ground.

Masticator – A tractor-type machine used for mechanically removing vegetation. Three types of masticators are used:

1. **Feller Buncher –** A tractor-type piece of machinery used to mechanically clear or mow dense vegetation. This is a method of vegetation removal that mechanically blades high-growth vegetation down to 6-8 inches while avoiding soil disturbance during normal operations.
2. **Hydroax –** A hydro-axe is an articulated tractor with a mower-mulcher mounted on the front of the machine. It has rubber flotation-type tires that cause little disturbance to the surface ground in dry soil. The mower-mulcher clips and mulches vegetation from 4 to 10 inches above ground. The hydroax can also be used to remove tree stumps from the ground.
3. **Cut-Shredder** – A rotating drum with teeth that is attached to a front end loader for the removal of vegetation. The drum has guide arms to prevent it from hitting the ground.

Microwave radio tower – A tower, usually constructed of steel lattice, equipped with a microwave receiving dish.

Optical Ground Wire – also known as **OPGW** is a type of cable used in the construction of electric power transmission and distribution lines. Such cable combines the functions of grounding and communications.

Parabolic dish – A bowl-shaped antenna or reflector used in microwave communications.

Pole guard or Pole Splint – A metal collar or brace used to add strength to a pole. See also “stub”.

Portable or Mobile substation – A mini-substation that can be transported by truck and installed anywhere along the transmission system.

Reactor – A reactor is a device used to introduce inductive reactance into a circuit. Usually installed in groups or banks, they help limit current to a safe value. This protects equipment from excessive power surges during a fault.

Recloser – A recloser is a device associated with a circuit breaker that allows the circuit to close automatically after a fault.

RipRap – the placement of rock or fill in a small area around creek beds or embankments to prevent erosion.

Regulator – See voltage regulator.

Shoofly – A shoofly is a temporary road used to get around an obstruction in the right-of-way, usually used during construction. More commonly, it also refers to a temporary tap line used to direct current around a piece of the transmission system that is under construction or repair.

Signatures –

1. **Signatory**: a signatory is a party that has a responsibility under the terms of the PA and has the sole authority to execute, and amend or terminate the PA.

2. **Invited Signatory**: is a party that has a responsibility under the terms of the PA and has been invited to sign giving them the authority to amend or terminate the PA.

3. **Concurring Party**: is a consulting party that does not have a particular responsibility under the PA and has been invited to concur with the stipulations of the PA. The refusal of any party invited to concur in the PA does not invalidate the PA.

Solar power array – A collection or grouping of devices such as mirrors or photovoltaic cells, capable of capturing solar energy for use in generating electricity; typically attached to structures.

Stabilizer or Outrigger pad – A metal plate used to support lifting equipment.

Undertaking – a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency; those carried out with Federal financial assistance; and those requiring a Federal permit, license or approval.

Stub – A "stub" refers to temporary reinforcement done at the base of a pole to provide additional strength. A stub usually consists of a short piece of another pole,

Steel transmission line (TL) structure – A steel structure, usually in a lattice or single pole configuration which can be used in special construction situations and to carry large transmission voltages.

Substation – A substation is an on-ground facility consisting of various electrical equipment used to transform or "step down or up" the voltage for delivery and consumer use.

Switch (Switchgear) – Substation equipment designed and operated to switch electrical circuits and to interrupt power flow.

Tap changer – A device in some transformers that increase or reduce the potential by changing the transformer turns ratio. Tap changing transformers are used to control voltage at loads, substations, and direct current ties.

Transformer – A transformer transfers energy from one circuit to another circuit and are used to increase or decrease voltage in an alternating current system- A transformer consists of two "windings", or many turns of magnetically coupled wires or coils, placed very close together within an oil-cooled cylinder.

Voltage regulator – An electric device that regulates voltage flowing through distribution lines. It automatically raises and lowers the voltage to maintain required voltage levels for service.

Wave trap – A wave trap is used in carrier communications to confine the carrier signal to one transmission line section. It is a parallel circuit tuned to the frequency of the carrier signal.

Wood transmission line (TL) structure – A **s**tructures built from large wooden poles (usually of fir, pine, larch or cedar) that are treated with a preservative chemical to protect them against decay fungi.

X-brace – An X-brace, usually constructed of wood, provides reinforced support to large wooden transmission line structures.

APPENDIX B

Exempt Activities

Activities/Undertakings Exempt From Further Section 106 Review and Reporting

A. Substation Maintenance

1. Maintenance and replacement of transformers and breakers.
2. Servicing and testing of equipment at existing substations, including oil change-outs.
3. Installation or replacement of bushings.
4. Cleaning or replacement of capacitor banks.
5. Maintenance or installation of above ground propane tanks within a substation yard.
6. Maintenance of switches, voltage regulators, reactors, tap changes, reclosers and valves.
7. Replacement of wiring in substations and switch yards.
8. Replacement of existing substation equipment including regulators, capacitors, switches, wave traps, radiators, and lightning arresters.
9. Installation of cut-out fuses.
10. Adjust and clean disconnect switches.
11. Placement of temporary transformer.
12. Maintenance, installation or removal of a solar power array panel (approx. 3 by 3 feet) and controller from structures.
13. Emergency clean up of chemical spills (follow procedures in Stipulation VII).
14. Repair or replacement of ground mats, not to exceed current depth of disturbance.
15. Replacement or repair of footings for electrical or communications equipment above the ground mat within an existing substation.
16. Installation of foundations for storage buildings above the ground mat within existing substation yard.
17. Any ground disturbing activity within the leveled and graveled portions of an existing substation yard, not to exceed current depth of disturbance.
18. Clearing vegetation using hand tools (e.g. chainsaws), including controlled burns, within an existing substation.
19. Maintenance and repair of buildings and structures <45 years old.

B. Transmission Line Maintenance Within the Established ROW

1. Ground and aerial patrols.
2. Climbing inspection and tightening hardware on wood and steel transmission line structures.
3. Replacement or repair of structure grounds.
4. Replacement of aircraft warning devices.
5. Replacement or cleaning of insulators and bed rails.
6. Installation or replacement of bird guards/discouragers.

7. Replacement of cross arms on wood pole transmission line structures.
8. Cut and drop danger trees within ROW with hand tools (e.g. chainsaws).
9. Replacement or repair of steel members of steel transmission line structures.
10. Inspection of hardware on wood and steel transmission line structures.
11. Installation, repair or replacement of X-brace and knee brace.
12. Removal or installation of structure mile markers.
13. Dampener and spacer/damper installation and replacement.
14. Replacing ground spike on wood pole structures.
15. Vegetation and slash removal projects using hand tools (e.g. chainsaws) and no brush piling, not exceeding 10 acres do not require consultation with land-managing agency.
16. Installation of ground rods.
17. Installation of armor rod and clipping-in structures.
18. Replacement or repair of conductor/reconductoring, overhead ground wire (OGW) or optical ground wire (OPGW).
19. Inspection, testing, and application of wood preservatives on existing wooden pole structures.
20. Placing fill or rocks on the surface around existing towers or structures, culverts or erosion features on access roads (source locations are previously reviewed/analyzed per Section 106 (NHPA) and NEPA; excess materials are stored at a substation).
21. Installation of gates where no new posts need to be installed.
22. Exposing tower legs from soil deposition.
23. Stub an existing wood pole structure.
24. Repair of pole guards and pole splints.
25. Placement of single post informational signs for accessing the right-of-way.

C. Communication System Maintenance

1. Microwave radio tower maintenance.
2. Communication tower and antennae maintenance.
3. Replacement of light beacons.
4. Removal of microwave dish.
5. Installation, removal and repair of parabolic dish.
6. Installation or removal of solar power array panels (approx. 3 x 3 foot panel) and controllers from buildings/structures.
7. Replacement or repair of footings for electrical or communications equipment above the ground mat within an existing communications facility.
8. Installation of prefabricated shelters on a level surface.
9. Maintenance and repair of buildings and structures <45 years old.

D. General Facilities Maintenance

1. Application of soil sterilants and herbicides (responsibility of land managing agency or tribe to notify Western of areas excluded for application of chemicals on their lands during the agency or tribe's permitting/approval process).

2. Clearing vegetation using hand tools (e.g. chainsaws).
3. Place fill or rocks around existing culverts (sources locations are previously reviewed/analyzed per Section 106 (NHPA) and NEPA; excess materials are stored at a substation).
4. Repair fences and gates using hand tools.
5. Pull existing fences using hand tools.
6. Grounds maintenance for existing facilities, which could include the use of brush hogs.
7. Maintenance and repair of buildings and structures <45 years old.

APPENDIX C

Non-exempt Activities

Non-exempt activities require RPO or FPO review. Non-exempt activities where approved conditions are met per Stipulation V.A(1) do not require consultation. Any activity not listed in Appendix B or C requires consultation. Non-exempt activities include, but are not limited to:

1. Excavation and installation of new footings on a transmission line or at a communication site.
2. Installation of new or replacement of existing culverts (using a backhoe/front-end loader within an existing access road).
3. Installation of new guy anchors or digging out buried anchors.
4. Wood pole replacements.
5. Removal of foundations at communication sites.
6. Installation, repair or pulling existing fences and gates with heavy equipment or where posts or poles must be installed.
7. Erosion control projects outside existing facilities or within existing facilities that go beyond current depth of disturbance.
8. Access road maintenance, construction or upgrading.
9. Installation of foundations for storage buildings outside graveled area at an existing substation or inside communication site yard.
10. New propane tank installation at a communication site or outside of an established substation.
11. Vegetation clearing by bulldozer or grader.
12. Installation of microwave and radio tower.
13. Underground installation of water, power, communication or ground electrical line beyond current depth of disturbance.
14. Installation of water bars on existing access roads.
15. Setting up portable substations or mobile transformers outside of an established substation.
16. Maintenance and repair to historic buildings or structures (>45 years old or older).

APPENDIX D

Best Management Practices (BMP)

1) Where the RPO or FPO determines that extremely dense vegetation prevents a Class III survey or where vegetation coverage provides low ground visibility <20% or where vegetation becomes a concern for crew safety such as dense areas of cacti, mesquite, tamarisk, etc. or poison oak - all areas within this exclusion will be subject to close reconnaissance from surrounding area. Areas >1 acre or >0.25 mile long that cannot be surveyed due to vegetation coverage, the RPO or FPO will consult with the land managing agency to discuss monitoring, or post-activity survey or other options if the proposed project cannot be redesigned to avoid these areas per Stipulation IV.B(2).

2) Where due to the scale of the project removal of vegetation using hand tools is not feasible, and where mechanical means of vegetation removal will use mastication machinery, the following requirements for BMP are in place.

   A: Mastication equipment will not be used within historic properties.

   B: A qualified archaeologist will monitor mastication activities in areas that cannot be surveyed to be available for discovery situations and to conduct post activity survey to identify the presence of historic properties.

3) Maintenance vehicles will stay on established access roads which may be within or outside the transmission line ROW, In the event of overland travel by anything other than an off road vehicle the incident will be reported to the Environmental Manager per Stipulation VII of the PA.

APPENDIX E

MONITORING AND DISCOVERY PLAN
(TBD PER Stipulation VI)

PROGRAMMATIC AGREEMENT AMONG WESTERN AREA POWER ADMINISTRATION, THE ADVISORY COUNCIL ON HISTORIC PRESERVATION, AND THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER CONCERNING EMERGENCY AND ROUTINE OPERATION AND MAINTENANCE ACTIVITIES AND OTHER ROUTINE ACTIVITIES AT WESTERN FACILITIES IN CALIFORNIA

WHEREAS, The Western Area Power Administration (Western), Sierra Nevada Region and Desert Southwest Region operate and maintain extensive electrical transmission systems that includes transmission lines, substations, communication sites, maintenance facilities, and ancillary features; and

WHEREAS, Western conducts emergency and routine operation and maintenance (O&M) activities necessary to ensure the reliability of the electrical system and other routine activities; and

WHEREAS, these activities include the actions described in Appendix B; and

WHEREAS, certain of these emergency and routine O&M activities and other routine activities are considered undertakings and may have an effect upon historic properties included in or eligible for inclusion in the National Register of Historic Places; and

WHEREAS, Western has consulted with the Advisory Council on Historic Preservation (ACHP) and the California State Historic Preservation Officer (SHPO) pursuant to 36 C.F.R. §800.14(b)(iv) of the regulations implementing Section 106 of the National Historic Preservation Act, 16 U.S.C. §470f, as amended (NHPA); and

WHEREAS, the parties to this Agreement desire to create an efficient mechanism to ensure that Western's emergency and routine O&M activities and other routine activities identified in this Agreement comply with NHPA requirements; and

WHEREAS, other Federal agencies have been invited to concur in this Agreement because of their land management responsibilities on lands where Western has easements. These agencies include the U.S. Forest Service, the Bureau of Reclamation, and the Bureau of Land Management. The agencies have chosen not to participate as concurring parties; and

WHEREAS, the definitions given in Appendix A are applicable throughout this Agreement; and

WHEREAS, on December 10, 1997, Western, ACHP, and SHPO executed an agreement titled Agreement Concerning Emergency and Routine Maintenance Activities at Western Facilities in California (1997 Agreement). The 1997 Agreement provides for Western to conduct routine and

emergency maintenance activities on Western-owned or -managed facilities in accordance with the stipulations of the 1997 Agreement satisfying Western's Section 106 responsibilities; and

WHEREAS, this Agreement supersedes and replaces the 1997 Agreement referenced above; and

NOW, THEREFORE, Western, ACHP and SHPO agree that Western's emergency and routine O&M program and other routine activities described in this Agreement shall be administered in accordance with the following stipulations to satisfy Western's Section 106 responsibility.

STIPULATIONS

Western will ensure that the following measures are carried out.

I. The Natural Resources Manager from each region will be responsible for the implementation of and compliance with this Agreement. The Regional Historic Preservation Official (RPO) will coordinate with Western's Federal Historic Preservation Officer (FHPO), Western's Maintenance Supervisor and the Natural Resources Manager to ensure consistent implementation of this Agreement. The RPO will be responsible for developing and reviewing scopes of work, consultant proposals, historic preservation reports, the Area of Potential Effects (APE) of Projects and project impacts, the need for identification and evaluation of historic properties, and the treatment of historic properties affected by routine operation and maintenance actions and other routine activities if avoidance by project design is not appropriate.

II. The classes of activities listed in Section I of Appendix B will not require any cultural resources investigations or any additional consultation among the parties to this Agreement. These activities have little likelihood of impacting cultural resources. Western will carry out these activities without consulting the SHPO.

III. The classes of activities listed in Section II of Appendix B have a low probability of affecting cultural resources because they have limited potential to result in surface disturbances or other impacts. The RPO will consult with the Maintenance Supervisor and the Natural Resources Manager to determine the project area and scope and APE for each activity in Section II they plan to undertake and conduct a project review. Such project review will include, but is not limited to, a Class I records and literature search for known cultural resources in the vicinity of the project, information on the location of previously conducted surveys and survey results, and information about the likelihood of the project area containing cultural resources, including integrity of surface conditions and existence of facilities of 45 years or older. Western need not consult with the SHPO if Class III (intensive) level surveys have been completed and no historic properties have been identified or if the undertaking proposed involves facilities less than 45 years of age. If the project area has not been surveyed to Class III (intensive) level or the identified historic property cannot be avoided, the RPO will evaluate existing environmental data to determine the possible existence of cultural resources, the likelihood of impacting such resources, and further actions required. The RPO will determine whether or not a field survey, archeological monitoring or other historic preservation efforts are necessary. In

large areas where dense vegetation prevents a Class III survey, mechanical means of vegetation removal (use of a masticator) may be used provided best management practices (BMP) as outlined in Appendix C are followed. Western shall discuss every determination in the annual report in accordance with Stipulation IX of this Agreement.

IV. The classes of activities listed in Section III of Appendix B will be subjected to Class I and Class III inventories by a qualified cultural resource specialist if they have not been subjected to a prior inventory. Additionally, any routine O&M activities and other routine activities Western undertakes that are not identified in one of the three classes will be subjected to Class I and Class III inventories by a qualified cultural resource specialist, if they have not been subjected to a prior inventory. Western's RPO, in consultation with the Natural Resources Manager and Maintenance Supervisor, will determine the APE. They will identify areas not requiring additional survey based on a records search, previous survey and consultation indicating that no historic properties were present and places where there is no potential for survival of the historic property. Western shall discuss every determination in the annual report in accordance with Stipulation IX if this Agreement.

III & IV

V. If the surveys that take place under Stipulations II and III find no resources that meet California's SHPO and land-managing agencies' site definition, no consultation with the SHPO in accordance with 36 C.F.R. §§ 800.4 and 800.5 is required. If an archaeological or historic site is located, but the APE can be changed in order to avoid the site, no consultation among the signatories of this Agreement is required. After reviewing for completeness and evaluating for eligibility to the National Register of Historic Places, Western will forward to the SHPO and the land-managing agencies or Tribe (as appropriate) any field survey data including any site survey report as well as site information within four weeks of the acceptance of the completed report and site information. If historic properties meeting site definitions are located and cannot be avoided, consultation will take place in accordance with 36 C.F.R. §§ 800.4 through 800.6.

VI. Western will review building acquisition, modification, upgrading, disposal, and demolition projects to determine whether historic properties will be impacted. If historic properties will be impacted or if structures (including substation equipment) are more than 45 years old, Western will consult with the SHPO according to 36 C.F.R. §§ 800.4 through 800.6.

VII. Emergency activities will be carried out without consultation. Emergency activities are defined as situations of unplanned or unscheduled power outages or imminent outages that potentially threaten human life and property. These activities may take place between or at towers and within existing facilities such as substations, and may include replacing structures (including crossarms, insulators, and/or conductors) and tree removal. If one has not been conducted, Western will conduct a Class III survey of the emergency activity APE as soon as practicable and notify the SHPO and the local land-management agency of the findings.

VIII. Western will provide each land-management agency represented herein with information and any changes on the location of its rights-of-way and facilities within their jurisdiction. Each land-management agency will provide Western with appropriate information on sites identified on Western's rights-of-way or at its facilities subsequent to the preparation of this Agreement.

IX. On an annual basis, Western will prepare a report detailing actions taken under this Agreement for the portions of the emergency and routine O&M program and other routine activities listed under Section II and III of Appendix B. This report will be submitted to the ACHP and the SHPO by October 1 of each year beginning in 2010. The report will list the actions taken, a short description of each action, the date each action was reviewed, results of records search and inventory (if applicable), any consultations with and by whom, and the decision made based upon this information. The report will also include a general discussion of Western's efforts to identify historic resources, an evaluation of the effectiveness of the Agreement, information about Western's public involvement efforts, and items related to Western's historic property protection program.

X. Western shall develop and implement a plan for discovery should project activities encounter a previously unknown historic property. All work that might affect the property shall cease until Western, in consultation with all appropriate parties (including the SHPO, Western's HPO, Tribes, private landowners, and state, local, and land-management agencies), can evaluate the property's eligibility and project probable effects. Western shall consult with the SHPO and the land-management agencies or individuals to determine what measures can be taken to mitigate the effects or avoid the property. The consultation shall also determine when work at the location of the discovery may resume.

XI. Treatment of human remains and items of cultural patrimony will be handled on a case-by-case basis with involvement of the appropriate parties listed in Stipulation X. In the event that human remains or items of cultural patrimony as defined by the Native American Graves Protection and Repatriation Act, 25 U.S.C. § 3001, *et seq.*, (NAGPRA) are encountered on lands under the ownership of Western, Western shall consult with the lineal descendants and culturally affiliated Tribe(s) to establish the appropriate disposition of any Native American human remains or items of cultural patrimony in compliance with NAGPRA. On Federal lands managed by another Federal agency, the Federal land manager, with Western's cooperation, will assume responsibility for compliance with NAGPRA. If Native American human remains are encountered on state or private land, Western shall follow the procedures set forth in the California Public Resources Code § 5097, *et seq.* If a private landowner desires to maintain ownership of archeological items, records, and materials, copies of records shall be maintained by Western, and copies of records shall be forwarded to the appropriate office of the California Historical Resources Information System.

XII. Curation of Recovered Data:

A. Any cultural items (artifacts), materials, and records associated with the collection of those cultural items that were obtained by Western in activities associated with this Agreement shall be maintained at a local curatorial facility in accordance with the standards specified in 36 C.F.R. Part 79, as required by any other Federal agency. A curatorial agreement shall be executed between Western, or its representatives, and the curatorial facility prior to the implementation of any collection or recovery. If no suitable facility can be identified to house the material recovered during the implementation of this Agreement, Western shall consult with the SHPO to identify and finalize alternative arrangements.

B. Western shall return all archeological items, records, and materials recovered from privately held lands to the owner as established under the Archaeological Resources Protection Act, 16 U.S.C. § 470aa-mm (ARPA). If these items, records, or materials are refused by their owner or donated to an appropriate Federal agency, Western shall ensure that the receiving agency acquires title to these items, records, or materials and makes binding arrangements to curate such property. If the owner desires to maintain ownership of the archeological items, records, and materials, copies of the records shall be maintained by Western, and copies of reports shall be forwarded to the appropriate office of the California Historical Resources Information System.

XIII. The land-management agencies shall provide information to Western about the location of historic properties included in, or eligible for inclusion in, the National Register of Historic Places within Western's rights-of-way and about the location of historic preservation activities (surveys) that did and did not result in the identification of historic properties; e.g. both positive and negative historic property findings.

XIV. Any signatory party to this Agreement may terminate the Agreement by providing thirty (30) days notice to the other parties, provided that the parties will consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination. In the event that the parties agree to terminate this Agreement, Western will comply with 36 C.F.R. §§ 800.4 through 800.6 with regard to all activities covered by this Agreement.

XV. Any signatory party to this Agreement may propose to the other signatory parties that this Agreement be amended, whereupon the parties will consult in accordance with 36 C.F.R. 800.6(c)(1) and (7) to consider such an amendment. Other parties may be added to this Agreement upon mutual agreement of the original signatories.

XVI. Should any party to this Agreement object within 30 days to any actions proposed pursuant to this Agreement, Western shall consult with the objecting party to resolve the objection. If Western determines that the objections cannot be resolved, Western shall forward all documentation relevant to the dispute to ACHP. Within thirty (30) days after receipt of the pertinent documentation, ACHP shall either:

A. Provide Western with comments which Western will take into consideration in reaching a decision regarding the dispute; or

B. Notify Western that it will comment pursuant to 36 C.F.R. § 800.7(c), and proceed to comment. Any ACHP comment provided in response to such a request will be taken into account by Western in accordance with 36 C.F.R. § 800.7(c)(4) and Section 110(1) of the NHPA with reference to the subject of dispute.

Any recommendation or comment provided by ACHP will be understood to pertain only to the subject of the dispute. Western's responsibility to carry out all actions under this Agreement that are not the subject of the dispute will remain unchanged.

XVII. All appendices attached to this Agreement shall be in force and in effect, as part of this Agreement, until suspended or amended, or until the termination of this Agreement.

Execution and implementation of this Programmatic Agreement and its transmittal by Western to the ACHP in accordance with 36 C.F.R. §800.6(b)(1)(iv), and subsequent implementation of its terms shall evidence, pursuant to 36 C.F.R. §800.6(c) that Western has satisfied its Section 106 responsibilities for all individual undertakings of its emergency and routine operation and maintenance program and other routine activities in California described in this Agreement.

SIGNATORY PARTIES:

WESTERN AREA POWER ADMINISTRATION

By: _____ Date: 1/7/10
Thomas R. Boyko, Regional Manager, Sierra Nevada Region

By: _____ Date: 12/29/09
Darrick Moe, Regional Manager, Desert Southwest Region

CALIFORNIA STATE HISTORIC PRESERVATION OFFICER

By: _____ Date: 20 JAN 2010
Milford Wayne Donaldson, State Historic Preservation Officer

ADVISORY COUNCIL ON HISTORIC PRESERVATION

By: _____ Date: 3/1/10
John M. Fowler, Executive Director

APPENDIX A
Definitions

All-dielectric Self-supporting Cables (ADSS) - Cables installed on transmission and distribution lines for grounding and transferring communication data throughout the transmission line system (see OPGW).

Aircraft Warning Devices - These devices consist of both signs and marker balls. Signs are usually placed on the tops of transmission line structures. "Marker balls" are large colored balls placed around overhead groundwires to make the groundwires more visible to aircraft and birds.

Anchors - Anchors are metal pins or concrete weights attached to the ends of guy wires to secure them to the ground.

Armor Rod - Protective pre-formed wires wrapped around aluminum conductor to prevent damage at point of support. Also used to repair minor conductor damage.

Auger Truck - A truck equipped with a bed-mounted auger used to dig holes for poles or structure foundations.

Bird Guard - A specially designed device placed on transmission line structures to prevent birds from being electrocuted.

Bobcat - A small front-end loader.

Brushhog - A debris chipper that grinds vegetation.

Bucket Truck - A specially designed truck equipped with a bucket and hydraulic arm used to lift men and equipment to the top of transmission line structures during construction, maintenance and inspection of transmission line structures.

Bushing - An electrically insulating lining for a hole to protect a through conductor.

Capacitor Banks - Capacitors are devices which store an electrical charge. Capacitors are grouped in "banks" inside switchyards and substations. Capacitor banks perform various functions including increasing power flow, compensating for voltage drops, and improving power at the point of delivery.

Cellular Tower Antennae - Antennae installed on a Western transmission line tower or other Western facilities by private telecommunication companies for wireless services and telecommunication projects. Installation of cellular tower antennae usually involves the need for other nearby components such as small equipment cabinets, and underground or aerial telephone line connections.

Circuit Breakers or "Breakers" - A circuit breaker is any device designed primarily to provide safe, rapid interruption of abnormal current flow. Circuit breakers interrupt a faulted circuit, and reclose as soon as the fault has been cleared.

Class I Survey - A literature and records search of previously identified archaeological and historic site records within or near the project APE.

Class II Survey - A professionally-conducted sample survey designed to characterize an area.

Class III Survey - An intensive, professionally–conducted, cultural resources survey to identify cultural resources present in the APE. Intensive surveys should be no more than 20 meter transects apart and cover 100% of the APE.

Clipping - The task of permanently attaching the conductor to the insulators during construction. Clipping is the last step in completing conductor stringing.

Communication Sites - Four communication systems are used by Western to track and monitor the power system: microwave transmissions, power line carriers, radio, and leased telephone lines. Microwave communication sites are being used more and more. A microwave site consists of a fenced, level pad occupied by a tower and small control building.

Conductor - Conductors, often called wires or lines, are the actual carriers of current in a transmission system. They are usually made from solid or stranded aluminum and reinforced with steel.

Crossarms - The crossarm is the crossing member of a wood pole or steel transmission line structure which supports the insulators for the conductors.

Cultural Resources - Any definite location of past human activity, occupation, or use. Cultural resources are identifiable through inventory, historical documentation or oral evidence. Cultural resources include archeological, historic, pre-historic, or architectural sites, structures, places, objects, or artifacts and all records and remains related to or located within such resources.

Cut Out Fuse - A fuse is an electrical safety device that melts and interrupts the circuit when the current exceeds certain amperage.

Dampener Installation - Vibration dampeners are installed to inhibit the conductor or overhead ground wires from oscillating, whipping, and/or bouncing. They may be installed using bucket trucks.

Disconnect Switches - A switch is used to open or close a circuit. An open switch stops current from flowing in a circuit, while a closed switch allows current to flow again. Disconnect

switches are used throughout an electrical system to separate various parts of the system during a fault, and to allow for maintenance and repair.

Footing – An enlargement at the base of a structure used to distribute the load or weight of the structure. Footings are dug with an auger into the ground and sometimes are filled with concrete.

Ground Mat - A large wire mesh mat buried under a substation or other electrical facility used to help ground electrical equipment.

Ground Rod - A metal pole installed in the ground to a depth of at least 5 feet. The rods are attached to grounding cables.

Ground Wire - A safety device that directs current to the earth or "ground". Overhead ground wires act as lightning rods. They are connected to the transmission line structures and extend down into the ground.

Guy Wire - A steel wire used to support or strengthen a structure. A guy wire securely anchors the structure to the ground. Guy wires are used at deadend and turning structures and at endpoints such as substations.

Insulators - An insulator keeps current from flowing to earth or another conductor. Insulators usually hang from the transmission line structure crossarms. An insulator inhibits the flow of electricity to earth or another conductor. Insulators are usually bell-shaped, arranged in strings, and are made of porcelain, Pyrex glass or plastic.

Knee Brace - An angle support device used to support a transmission line structure's crossarm.

Light Beacon - A light attached to a tower used for guidance or aircraft warning.

Lightning Arrestor - Any attachment, usually a metal bayonet, used to attract lightning away from the transmission system and direct it to a ground wire and the ground.

Masticator - A tractor-type machine used for mechanically removing vegetation. Two types of masticators are generally used:

1. Feller Buncher - A tractor-type piece of machinery used to mechanically clear or mow dense vegetation. This is a method of vegetation removal that mechanically blades high growth vegetation down to 6-8 inches high while avoiding soil disturbance during normal operations.
2. Hydroax - A hydro-axe is an articulated tractor with a mower-mulcher mounted on the front of the machine. It has rubber flotation-type tires that cause little disturbance to the surface ground in dry soil. The mower-mulcher clips and mulches vegetation from 4 to 10 inches above ground. The hydroax can also be used to remove tree stumps from the ground.

Microwave Radio Tower - A tower, usually constructed of steel lattice, equipped with a microwave receiving dish.

Overhead Fiber Optic Ground Wires (OPGW) - A type of cable that is installed overhead on electric power transmission and distribution lines. OPGW combines the functions of electrical grounding and sending communication data.

Parabolic Dish - A bowl-shaped antennae or reflector used in microwave communications.

Pole Guard - A metal collar or brace used to add strength to a pole. See also "stub".

Portable or Mobile Substation - A mini-substation that can be transported by truck and installed anywhere along the transmission system.

Reactors - Devices used to introduce inductive reactance into a circuit. Usually installed in groups or banks, they help limit current to a safe value and protect equipment from excessive power surges during a fault.

Reclosers - A device associated with a circuit breaker that allows the circuit to close automatically after a fault.

Regulators - See voltage regulators.

Solar Power Array - A collection or grouping of devices such as mirrors or photovoltaic cells, capable of capturing solar energy for use in generating electricity.

Shoo-fly - A temporary tap line used to direct current around a piece of the transmission system that is under construction or repair. It also refers to a temporary road used to get around an obstruction in the normal right-of-way.

Stabilizer or Outrigger Pads - Metal plates used to support lifting equipment.

Stub - A temporary reinforcement done at the base of a pole to provide additional strength. A stub usually consists of a short piece of another pole.

Steel Transmission Line (TL) Structure - A steel structure, usually in a lattice or single pole configuration which can be used in special construction situations and to carry large transmission voltages.

Substations - On-ground facilities consisting of electrical equipment used to transform (step down or up) the voltage for delivery and consumer use.

Switches (Switchgear) - Substation equipment designed and operated to switch electrical circuits and to interrupt power flow.

Tap Changers - Devices in some transformers that increase or reduce the potential by changing the transformer turns ratio. Tap changing transformers are used to control voltage at loads, substations, and direct current ties.

Transformers - Transformers transfer energy from one circuit to another circuit and are used to increase or decrease voltage in an alternating current system. A transformer consists of two "windings", or many turns of magnetically coupled wires or coils, placed very close together within an oil cooled cylinder.

Voltage Regulators - Electric devices that regulate voltage flowing through distribution lines. It automatically raises and lowers the voltage to maintain required voltage levels for service.

Wave Traps - A wave trap is used in carrier communications to confine the carrier signal to one transmission line section. It is a parallel circuit tuned to the frequency of the carrier signal.

Wood Transmission Line (TL) Structures - Structures built from large wooden poles (usually of fir, pine, larch or cedar) that are treated with a preservative chemical to protect them against decay fungi.

X-Braces - X-braces, usually constructed of wood, provide reinforced support to large wooden transmission line structures.

APPENDIX B

Routine Operation and Maintenance Activities and Other Routine Activities

I. Activities with No or Minor Associated Surface Disturbance:

Many of these activities take place within the confines of an existing substation or communications site. Most substations have been leveled and graveled. Equipment used for these activities consist of rubber-tired vehicles such as bucket trucks, backhoes, front-end loaders, cranes, auger trucks, bobcats, and pole trucks. Many vehicles require stabilizer pads which can compact a ground area of about 2' by 2'.

A. **Substation Activities:**

1) Maintenance and replacement of transformers and breakers.
2) Servicing and testing of equipment at existing substations, including oil changeouts.
3) Installation or replacement of bushings.
4) Cleaning or replacement of capacitor banks.
5) Maintenance or installation of propane tanks within a substation yard.
6) Maintenance of switches, voltage regulators, reactors, tap changes, reclosers and valves.
7) Replacement of wiring in substations and switch yards.
8) Replacement of existing substation equipment including regulators, capacitors, switches, wave traps, radiators, and lightning arresters.
9) Installation of cut-out fuses.
10) Adjust and clean disconnect switches.
11) Placement of temporary transformer.
12) Maintenance, installation and removal of solar power array and controller.
13) Clean up of chemical spills when clean up remains above the ground mat.
14) Installation of foundation for storage buildings above ground mat within existing substation yard.
15) Ground mat repairs.
16) Clearing vegetation by hand within the boundary of a fenced substation.

B. **Transmission Line Activities:**

1) Ground and aerial patrols.
2) Climbing, inspection, and tightening hardware on wood and steel transmission line structures.
3) Replacement or repair of ground wire.
4) Replacement or placement of aircraft warning devices.
5) Replacement or cleaning of insulators.
6) Installation of bird guards.
7) Replacement of cross arms on wood pole transmission line structures.
8) Cut and drop danger trees.

9) Replacement or repair of steel members of steel transmission line structures.
10) Inspection of hardware on wood and steel transmission line structures.
11) Installation, repair or replacement of X-brace and knee brace.
12) Removal or installation of structure mile markers.
13) Dampener installation.
14) Installation of ADSS or OPGW.
15) Replacing ground spike on wood pole structures.
16) Brush removal by hand.
17) Installation of ground rods.
18) Installation of armor rod and clipping-in structures.
19) Replacement of conductor.
20) Application of wood preservatives on existing wooden pole structures.
21) Place fill or rocks around existing towers or structures.
22) Place fill or rocks around existing culverts.
23) Adding rock to bases of poles or structures where the soil is blown out.
24) Installation of cellular antenna on Western facilities when no underground trenching is required.

C. **Communication System Activities:**
1) Microwave radio tower maintenance.
2) Communication tower and antennae maintenance.
3) Installation of light beacons.
4) Removal of microwave dish.
5) Installation, removal and repair of parabolic dish.

D. **General Maintenance at Facilities:**
1) Building maintenance including interior and exterior painting; and roof, ceiling, floor, window and door maintenance.
2) Application of soil sterilants and herbicides.
3) Clearing vegetation by hand.
4) Place fill or rocks around existing culverts.

II. Activities with Minimal Surface Disturbance:

These activities may cause minimal and restricted surface disturbance.

A. **Substation Activities:**
1) Excavation for and installation of new footings.
2) Repair or replacement of ground mats.
3) Replacement or repair of footings for electrical or communications equipment within an existing substation or communications facility.
4) Remediation of small spills of oil and hazardous materials.

B. **Transmission Line Activities:**

1) Replacement of existing culverts (use of a backhoe/front-end loader within an existing access road).
2) Installation of gates where no new posts need to be installed.
3) Digging out buried anchors.
4) Uncovering tower legs from soil deposition.
5) Installation of anchors.
6) Wood pole replacements.
7) Stub an existing wood pole structure.
8) Rip-rap installation on creek or river banks where no recontouring is required.
9) Repair of pole guards.
10) Placement of single post informational signs for accessing the right-of-way.
11) Place fill in erosional features on access roads.
12) Remediation of small spills of oil and hazardous materials.
13) Vegetation removal using a masticator following BMPs in Appendix C.

C. **Communication System Activities:**

1) Removal of foundations or footings at communication sites.
2) Installation or removal or solar power array and controller.

D. **General Maintenance at Facilities:**

1) Repair fences and gates.
2) Pull existing fences.
3) Grounds maintenance for existing facilities, including the use of brush hogs.
4) Erosion control projects within an existing facility.

III. Activities Causing Extensive Surface Disturbance:

These types of activities may include the use of bulldozers, graders, backhoes, front-end loaders. Activities could take place on any Western facility including transmission line rights-of-way, substations, communication facilities, microwave facilities, and office locations.

1) Access road construction or upgrading. (This activity may take place adjacent to, or outside of, Western facilities.)
2) Installation of new culverts.
3) Installation of foundation for storage buildings outside graveled area at an existing substation.
4) Installation of fences and gates where posts or poles must be installed.
5) Erosion control projects outside existing facilities.
6) Propane tank and pad installation at a communication site.
7) Erosion control projects outside existing substation.
8) Vegetation clearing by bulldozer or grader.

9) Installation of microwave and radio tower.
10) Rip-rap installation that includes recontouring on creek or river banks.
11) Underground installation of water, power, communication or ground electrical line below ground mat or outside a substation.
12) Installation of water diversion bars on existing access roads.
13) Installation of foundation for storage buildings inside communication site yards.
14) Setting up portable substations outside of an established substation.
15) Propane tank installation outside of an established substation.
16) Excavation for and installation of new footings on a transmission line or at a communication site.
17) Installation of cellular antenna on Western facilities when underground trenching is required.

APPENDIX C
Best Management Practices

For project areas where dense vegetation prevents a Class III survey and where due to the scale of the project area vegetation removal by hand is not feasible, mechanical means of vegetation removal using mastication machinery as defined in Appendix A may be used provided the following requirements for best management practices (BMP) are in place.

BMP 1: Western will require mastication operators to prevent blading devices from removing vegetation at ground level to avoid soil disturbance. All mowed vegetation shall not be cut below 6 inches.

BMP 2: Mastication equipment will not be used within areas recently subjected to heavy rains in order to prevent rutting in wet soils from equipment tires.

BMP 3: A qualified archaeologist will be on site during mastication activities to monitor survey areas being cleared of vegetation. Should any cultural resources be detected, mastication activities will cease in the area until an assessment and the significance of the find is made. Results of the monitoring and survey activities will be provided in the annual report.

APPENDIX D

Differences between the 1997 Programmatic Agreement and this 2009 Programmatic Agreement

The following changes and additions have been made in this Agreement when compared to the 1997 Agreement.

Title: "Other Routine Activities" have been added to "Emergency and Routine Maintenance Activities". Other routine activities are those activities that Western performs on a regular basis but that are not defined as operation and maintenance activities. Such activities do not include new transmission line construction or other new facility construction.

Second Whereas Clause: "Other routine activities" have been added to "emergency and routine and operation maintenance activities" and throughout.

Last Whereas Clause: Statement of "first amended Agreement" has been added.

STIPULATIONS:

I. Environmental Manager is changed to Natural Resources Manager.

II. Regional Historic Preservation Official (RPO) is added as responsible for decisions regarding actions carried out under the Agreement. RPO is responsible for historic preservation requirements at the regional level but is still required to coordinate with Western's Federal Historic Preservation Officer who oversees activities at the Agency level.

III. The following language has been added to Stipulation III. "In large areas where dense vegetation prevents a Class III survey, mechanical means of vegetation removal (use of a masticator) may be used provided best management practices (BMP) as outline in Appendix –are followed".

Throughout: References to 36 C.F.R. Part 800 have been revised/updated to reflect the amendments to 36 C.F.R. Part 800 effective August 5, 2004.

Appendix A:

The following definitions have been added to Appendix A:

Cellular Tower Antennae - Antennae installed on a Western transmission line tower or other Western facilities by private telecommunication companies for wireless services and telecommunication projects. Installation of cellular tower antennae usually involves the need for

other nearby components such as small equipment cabinets, and underground or aerial telephone line connections.

Class III Survey - An intensive, professionally–conducted, cultural resources survey to identify cultural resources present in the APE. Intensive surveys should be no more than 20 meter transects apart and cover 100% of the APE.

Masticator – A Masticator is a tractor-type machine used for mechanically removing vegetation. Two types of masticators are generally used:

1. Feller Buncher – A tractor-type piece of machinery used to mechanically clear or mow dense vegetation. This is a method of vegetation removal that mechanically blades high growth vegetation down to 6 to 8 inches high while avoiding soil disturbance during normal operations.

2. Hydroax – A hydro-axe is an articulated tractor with a mower-mulcher mounted on the front of the machine. It has rubber flotation-type tires that cause little disturbance to the surface ground in dry soil. The mower-mulcher clips and mulches vegetation from 4 to 10 inches above ground. The hydroax can also be used to remove tree stumps from the ground.

Appendix B

The following activities have been added to Appendix B:

BI.B.24. "Installation of cellular antenna on Western facilities when no underground trenching is required."

BII.B.13. "Vegetation removal using a masticator following BMPs in Appendix C."

BIII.17. "Installation of cellular antenna on Western facilities when underground trenching is required."

Appendix C

Appendix C has been added for "Best Management Practices".

Appendix D

Appendix D has been added to summarize amendments.

PROGRAMMATIC AGREEMENT

AMONG
THE U.S. DEPARTMENT OF ENERGY-WESTERN AREA POWER ADMINISTRATION,
ADVISORY COUNCIL ON HISTORIC PRESERVATION,
NEVADA STATE HISTORIC PRESERVATION OFFICER,
NEVADA STATE LANDS DEPARTMENT,
BUREAU OF LAND MANAGEMENT, BUREAU OF RECLAMATION, AND
NATIONAL PARK SERVICE

REGARDING
MAINTENANCE AND MINOR CONSTRUCTION ACTIVITIES AT EXISTING
WESTERN TRANSMISSION LINES, FACILITIES AND PROPERTIES IN NEVADA

WHEREAS, the United States Department of Energy, Western Area Power Administration (Western) operates and maintains, through its Desert Southwest Regional Office (DSW) and Sierra Nevada Regional Office (SNR), an extensive electrical power delivery system throughout the state of Nevada (NV), which includes transmission lines, substations, communication sites and ancillary features; and

WHEREAS, Western's electrical power delivery system requires regular maintenance and minor construction for safety and delivery of electricity; and

WHEREAS, Western conducts routine and emergency maintenance and minor construction activities (maintenance program) in order to maintain the reliability of the electrical system; thereby making these undertakings as defined in 36 CFR § 800.16(y) subject to the provisions of Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. § 470f, and its implementing regulations, 36 CFR Part 800; and

WHEREAS, Western is the lead agency for compliance with Section 106 of the NHPA on all Western's maintenance program undertakings as these undertakings have the potential to affect historic properties (as defined in 36 CFR § 800.16(1)(l) on private, state, and federal; and

WHEREAS, Western's electrical delivery system crosses private, state, state trust, and federal lands in Nevada, and Western consulted with the NV State Lands Department, Bureau of Land Management (BLM), Bureau of Reclamation (Reclamation) , and National Park Service (NPS) and invited these agencies to participate as Invited Signatories to this programmatic agreement (PA), and BLM, Reclamation and NPS plan to sign; and

WHEREAS, Western also consulted with or made efforts to engage in the process federally-recognized tribes (Tribes) that may attach religious or cultural significance to properties throughout NV potentially affected by Western's maintenance program (Appendix A) and invited these Tribes to sign as Concurring Parties, however, to date none have indicated if they will sign the PA at this time; and

WHEREAS, Western sought public input through several newspapers and its website, and no comments were received on this PA; and

WHEREAS, Western also consulted with the Advisory Council on Historic Preservation (ACHP) and the NV State Historic Preservation Officer (SHPO) on this PA pursuant to regulation (36 CFR Part 800) and both are participating as Signatories; and

WHEREAS, there are no tribal reservation lands currently affected by this PA, and should that change in the future this PA is only applicable on tribal lands (defined at 36 CFR § 800.16(x)) where the applicable tribe or THPO has executed the PA through an amendment; and

WHEREAS, the definitions in Appendix B are applicable to this PA;

NOW, THEREFORE, Western, the ACHP, SHPOs, Signatories and Invited Signatories agree that Western's maintenance program shall be administered in accordance with the following stipulations to satisfy Western's Section 106 responsibility.

STIPULATIONS

Western, as the lead federal agency for all Western's maintenance program undertakings, shall ensure that the following measures are carried out:

I. COORDINATION OF UNDERTAKINGS REQUIRING REVIEW THAT OCCUR ON FEDERAL, AND STATE LANDS

For all planned maintenance program undertakings requiring review (Appendix D) under this PA that occur on state, federal and tribal lands, Western shall ensure that:

A. Western's environmental staff (Environmental Manager, Regional Preservation Official (RPO) or Federal Preservation Officer (FPO)) will contact the land-managing agency(ies) or Tribe(s), as appropriate, within 10 calendar days of notification of project funding.

B. Western will provide the state or federal agency(ies) and Tribe(s), as appropriate, with draft copies of all new inventory reports, applicable past inventory reports on which Western did not consult, tribal consultation documentation (as appropriate), and all similar documentation relating to the identification, evaluation and effect of historic properties, and seek their comment per Stipulation IV.B.

C. Western will provide the federal agency(ies) and Tribe(s), as appropriate, with digital and hard copies of Final inventory reports, and associated Geographic Information Systems data, when available, and records, and copies of correspondence from the SHPO or THPO regarding National Register of Historic Places (NRHP) eligibility determinations pursuant to Stipulation IV.B.

D. Western will consult with land-managing agencies, Tribes and the SHPO on NRHP eligibility per Stipulation IV.C.

E. Western will consult with land-managing agencies, Tribes and the SHPO on findings of No Adverse Effects and Adverse Effects, pursuant to Stipulations V.A(1) and V.B, respectively.

F. All documentation provided to SHPO, agencies, THPOs, and Tribes for review concerning NRHP eligibility and project effect determinations will follow the documentation standards outlined in 36 CFR § 800.11.

II. WESTERN'S PROFESSIONAL QUALIFICATIONS, DOCUMENTATION STANDARDS, AND CULTURAL RESOURCE AWARENESS TRAINING

A. Western's RPO and FPO are responsible for ensuring the implementation of this PA and will meet the Secretary of Interior's Professional Qualification Standards (36 CFR Part 61) in one or more fields in History, Archeology, Architectural History, Architecture, or Historic Architecture, as appropriate for the undertaking.

B. Western's RPO and FPO will ensure that its contractors obtain all required permits for survey or monitoring on state, federal or tribal lands. Western will ensure that all field work conducted under contract shall be carried out or supervised by a person meeting the Secretary of Interior's Professional Qualification Standards appropriate to the resources. Work shall be conducted to the Secretary's documentation standards for identification and evaluation. In the event that ethnography is warranted, ethnographic work will be conducted by a qualified cultural anthropologist (62 FR 33715). Documentation standards include using the respective federal or state agency requirements and following "site/isolate" definitions, as appropriate.

C. Maintenance personnel will be required to receive cultural resource awareness and sensitivity training annually that is delivered by a qualified archaeologist at Western's Regional Office or in the field. Training materials will be provided to consulting parties in the annual report for review and comment. Tribes may be invited to participate in the annual training. Maintenance personnel will also receive such training in the field, prior to projects that require archeological monitoring. New maintenance personnel assigned to such projects after the project has begun will receive awareness and sensitivity training on their first day in the field prior to starting work. Such training efforts will be documented and submitted to Western as part of monitoring reports.

III. UNDERTAKINGS

A. **Appendix C** is a list of maintenance program undertakings exempt from further Section 106 review. **These undertakings are determined by the Signatories and**

Invited Signatories to have little or no likelihood of affecting historic properties, should they be present, and will be carried out by maintenance staff after environmental staff has completed its National Environmental Policy Act (NEPA) review and analysis.

B. **Appendix D** is a list of maintenance **non-exempt** program undertakings that require review under Stipulation IV. Further, any maintenance program activity not listed in Appendices C or D requires Western's RPO or FPO to follow the procedures outlined in Stipulation IV, prior to the activity/undertaking.

IV. HISTORIC PROPERTY IDENTIFICATION AND EVALUATION

A. Determine the Area of Potential Effects (APE): As early as possible in the planning process, the RPO or FPO in consultation with the Region's Environmental Manager and maintenance staff will review non-exempt undertakings specified in Stipulation III to define the APE within Western's right-of-way (ROW) or easement.

B. Level of Effort:

1. **Class I Inventory**: The RPO or FPO will conduct a Class I inventory of the proposed APE. Western's RPO, FPO or contractor will contact or visit the land managing agency or tribe for current survey information. Western will also contact tribes about any other cultural resources or areas of concern that Western should consider with regard to the proposed undertaking.

2. **Class II or III Survey**: Based on the results of the Class I inventory, the RPO or FPO will determine to what extent a Class II or III field survey of the APE within the ROW or easement is needed. Previously unsurveyed APEs will be inventoried at the Class III level for historic properties except in areas heavily disturbed (i.e. mechanically modified by cut or fill, severe erosion or within modern flood plains) or where dense vegetation prohibits survey (Appendix E, Best Management Practices (BMP)). For areas >1 acre or >0.25 miles long that cannot be surveyed due to vegetation coverage, the RPO or FPO will consult with the land managing agency or Tribe to discuss monitoring, or post-activity survey or other options if the proposed project cannot be redesigned to avoid these areas. Areas greater than 20 percent slope will not be inventoried for safety reasons. Such areas should be examined with binoculars for the presence of areas with a high probability to contain cultural resources such as rockshelters, etc. Survey reports will be provided to the land managing agency, SHPO, and Tribes, as appropriate as Stipulated in I.B and C, and be provided a **30 calendar-day comment period**. Extensions to this timeframe may be requested by letter, email or telephone. For any Class II sample survey, Western will consult the SHPO/THPO, as appropriate and the land managing agency regarding the parameters of the sample survey prior to conducting the survey.

3. **Tribal Consultation**: As part of Western's identification efforts, the RPO or FPO will consult interested Tribes that attach religious and cultural significance to properties within the APE. Tribes will be provided **30 calendar-days to respond**. Extensions to this timeframe may be requested by letter, email or telephone. Western may consult Tribes proactively (non-project specific) to determine the presence of places of traditional, religious and cultural importance that might be affected by non-exempt maintenance undertakings requiring review.

C. Determinations of National Register of Historic Places Eligibility (NRHP): Determinations of eligibility shall be made in consultation with the appropriate land managing agencies, SHPO, and Tribes, as appropriate. Pursuant to regulation (36 CFR § 800.4(C)(1)), if Western and the SHPO do not agree, Western shall obtain a determination of eligibility from the Secretary (Keeper of the National Register) pursuant to 36 CFR Part 63. All cultural resources identified at the time of documentation will be evaluated relative to all criteria of significance found at 36 CFR § 60.4; however, when there is difficulty assessing the eligibility of a cultural resource in the field the RPO or FPO may assume it eligible. Agencies and Tribes agree to provide comments on NRHP eligibility within **30 calendar days** of receipt of Western's request for comments. Extensions to this timeframe may be requested by letter, email or telephone. After consultation with the appropriate agencies and Tribes, the RPO or FPO shall consult with the SHPO regarding determinations of NRHP eligibility. Correspondence between Western and the SHPO will be provided to the appropriate land managing agencies pursuant to Stipulation I.C.

D. Monitoring: Western may use archaeological monitors and/or tribal cultural monitors during implementation nonexempt of maintenance activities to ensure avoidance of historic properties and to make available personnel who could respond quickly to potential discovery situations, which would involve historic property identification and evaluation. Western will base its decision to include tribal cultural monitors on the type and nature of the nonexempt undertaking being conducted, and the presence or likely presence of specific resources of concern to tribes. Western will consult with the SHPO, appropriate land-managing agencies, and appropriate Tribes on monitoring plans.

V. PROJECT EFFECTS AND APPROVED CONDITIONS

A. Western utilizes a BMP of avoiding or minimizing adverse effects to historic properties whenever possible, and established additional practices to follow to minimize project effects to historic properties (Appendix E). For all non-exempt undertakings (see Appendix D), the RPO or FPO will review such undertakings per Stipulation IV and make findings of effects in accordance with the following:

1. A finding of **No Historic Property Affected** would result when no historic properties are present or when there are historic properties present but the undertaking will have no effect upon them (for example when the APE or proposed undertaking is modified

to avoid historic properties). A finding of **No Adverse Effect** would result when one or more historic property is within the APE, and the undertaking will affect a historic property, but the effects will not diminish the aspects of integrity nor the characteristics that make the property eligible for listing in the NRHP (for example when (for example when efforts are made to minimize effects).

Findings of **No Adverse Effect** will be made in consultation with the appropriate land-managing agencies, Tribes, THPOs and SHPOs, except when the following conditions apply:

a) the FPO/RPO determines that the project area is surveyed to current Class III standards (see Stipulation IV), **and**

b) historic properties within the APE will be avoided **or** effects are limited to driving soft rubber-tired or tracked vehicles across a nonstructural historic property on an existing access road, or crossing over a site while off-road within the ROW in soft rubber-tired ATVs during ground patrols when conditions are dry.

The RPO or FPO will determine if the above conditions apply and are appropriate for the activity. The RPO or FPO is not required to consult with the land managing agency, SHPO or Tribe regarding findings of No Historic Property Affected or No Adverse Effect, when approved conditions apply. For all non-exempt undertakings (listed or not listed in Appendix D) where these approved conditions do not apply, the RPO or FPO will consult with the appropriate land-managing agency, Tribes and SHPO regarding No Adverse Effect findings pursuant to 36 CFR § 800.5(d)(1). Consulting parties will be provided **30 calendar-days from receipt to respond.** If no response, within the 30 calendar-day timeframe, Western may assume concurrence and may move forward with the activity. Extensions to this timeframe may be requested by letter, email or telephone. The RPO or FPO will document findings of effect for all non-exempt undertakings, which will be reported annually pursuant to Stipulation IX.

B. The RPO or FPO will make a finding of **Adverse Effect** when adverse effects to historic properties cannot be avoided or minimized. An adverse effect results when an undertaking alters any characteristic of a historic property that qualifies the property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association.

C. Western's RPO or FPO shall consult with the SHPO, ACHP, land-managing agencies, and THPO/Tribes, and other consulting parties to resolve adverse effects pursuant to 36 § CFR 800.6 prior to commencing with the activity. Should project plans change, or Western decides not to pursue with the activity, all parties involved will be notified.

VI. EMERGENCY CONTIGENCIES

Emergency situations are defined as hazardous materials spills or situations of unplanned or unscheduled power outages or imminent outages that potentially threaten human life and property. An emergency is when the preservation of human life and property is a priority concern. Emergencies apply only to undertakings that are implemented within 30 days after a disaster or after formal declaration by an appropriate authority as described at 36 CFR § 800.12. In the event of an emergency Western will comply with the following procedures:

- The Region's Maintenance Manager will submit a report to the Region's Environmental Manager concerning any emergency activity within 7 calendar-days of the occurrence.
- The Region's Environmental Manager, RPO or FPO will notify the affected land-managing agency by telephone or email within 24 hours days of receipt of the Maintenance Manager's report.
- A summary of the emergency activity will be included in the annual report pursuant to Stipulation IX.
- Western will conduct a Class I inventory of the emergency activity APE to determine if known historic properties exist within the APE. If no prior surveys occurred, a post emergency Class III survey will be conducted within 45 calendar-days of the report.
- If cultural resources are found as a result of the post-emergency survey the procedures under Stipulation VII for Discoveries will be followed.

VII. DISCOVERIES

A. If archaeological materials are discovered as a result of any maintenance activity or undertaking, the discovery will be protected, all earth disturbing undertakings will cease within 30 meters (100 ft) of the discovery, and heavy equipment will be removed from the area until the discovery is assessed and documented. If the RPO or FPO determines that the discovery is an isolate and determines it is not eligible for NRHP listing, it will be documented and the activity will proceed with no further consultation. For all other discoveries, Western will either assume the materials eligible for NRHP listing pursuant to 36 CFR § 800.13(c) or consult with the appropriate land-managing agency, THPOs/Tribes, and SHPO regarding eligibility and effect. Western will notify the appropriate land-managing agency, SHPO, state agency and Tribes by phone within 48 hours of the discovery.

B. If human remains are discovered work will cease within 30 meters (100 ft) of the discovery. If remains are discovered on federal land, the local County Sheriff will be notified

immediately, and pursuant to 43 CFR Part 10, the individual who made the discovery will notify the land managing agency and Western immediately by phone followed by written notification within 24 hours of the discovery. Should this PA apply to tribal lands in the future, human remains that are discovered on tribal lands, will be treated in accordance with 43 CFR Part 10 (NAGPRA), and Western will notify the BIA and tribe followed by written notification within 24 hours of the discovery. Compliance with laws concerning discoveries of human remains on federal lands will be the responsibility of the federal land-managing agency. If human remains are found on state or private lands, Western will comply with state procedures: Historic Preservation and Archeology - Protection of Indian Burial Sites (Nevada Revised Statutes (NRS) Chapter 383.170-180).

VIII. DURATION

This PA will expire ten (10) years from the date of its execution, unless the PA is amended pursuant to Stipulation XI with a new expiration date prior to such time. If the PA expires, Western shall consult on undertakings pursuant to 36 CFR §§ 800.4 - 800.6, until a new PA is executed pursuant to 36 CFR § 800.14.

IX. PROGRAM MONITORING AND REPORTING

The RPO or FPO will meet annually with the SHPO and interested Signatories, Invited Signatories to discuss the implementation of the PA and annual report. Western will provide a report to the SHPO and all Signatories, Invited Signatories and interested consulting parties listing the exempt undertakings in table form and detailing the **non-exempt** undertakings over the course of the prior calendar year by April 1 of each year, beginning in 2015. This report will include emergencies and discoveries, and copies of cultural awareness training materials. Western will provide a table listing the following information:

- Exempt and non -exempt undertakings,
- Dates of undertakings,
- File searches,
- Surveys,
- Reports,
- Eligibility determinations, and
- Consultations with land-managing agencies and Tribes

X. DISPUTE RESOLUTION

Should any Signatory or Invited Signatory to this PA object at any time to any actions proposed or the manner in which the terms of this PA are implemented, the RPO or FPO shall notify the SHPO about the objection by email and will consult with the objecting party to resolve the matter. If the RPO or FPO determines that such objection cannot be resolved, the FPO will forward the objection to the ACHP for its advisory comments.

A. If the ACHP does not provide its advisory comments regarding the dispute within 30 calendar-days, Western may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, Western shall prepare a written response that takes into account any timely comments regarding the dispute from the Signatories and Invited Signatories to the PA, and provide them and the ACHP with a copy of such written response.

B. Western's responsibilities to carry out all other actions subject to the terms of this PA that are not the subject of the dispute remain unchanged.

XI. AMENDMENTS

This PA may be amended in counterparts, when such an amendment is agreed to in writing by all Signatories and Invited Signatories. Western will distribute copies of any amendments to the Signatories, Invited Signatories and consulting parties, and will be effective on the date a copy signed by all of the signatories is filed with the ACHP.

XII. TERMINATION

If any Signatory or Invited Signatory to this PA determines that its terms will not or cannot be carried out, that Signatory or Invited Signatory shall immediately consult with the other Signatories/Invited Signatories to attempt to develop an amendment per Stipulation XI. If within thirty 30 calendar-days (or another time period agreed to by all Signatories/Invited Signatories) an amendment cannot be reached, the Signatory may terminate the PA or an Invited Signatory may terminate their involvement in the PA upon written notification to the other Signatories and Invited Signatories. If the PA is terminated or if a Signatory or Invited Signatory terminates its involvement, prior to work continuing on any undertaking that would be normally be covered by this PA or on that Signatory or Invited Signatory's land, Western must either:

A. follow the procedures outline in 36 CFR §§ 800.4 - 800.6 for each undertaking, or
B. execute an new PA pursuant to 36 CFR § 800.14(b), or
C. request, take into account, and respond to the comments of the ACHP under 36 CFR § 800.7. Western shall notify the Signatories/Invited Signatories as to the course of action it will pursue.

Execution and implementation of this PA evidences that Western has satisfied its Section 106 responsibilities for all individual undertakings associated with its maintenance program in Nevada, and afforded the ACHP the opportunity to comment.

SIGNATORIES

WESTERN AREA POWER ADMINISTRATION

By: Ronald E Moulton Date: 8/14/14
Ronald Moulton, Acting DSW Regional Manager, Department of Energy

WESTERN AREA POWER ADMINISTRATION

By: S Subhash Paluru Date: 8/19/14
~~Tom Boyko~~, SNR Regional Manager, Department of Energy
SUBHASH PALURU

NEVADA STATE HISTORIC PRESERVATION OFFICER

By:_____ Date:_____
Rebecca Palmer, State Historic Preservation Officer

ADVISORY COUNCIL ON HISTORIC PRESERVATION

By: John M. Fowler Date: 1/23/15
John M. Fowler, Executive Director

SIGNATORIES

WESTERN AREA POWER ADMINISTRATION

By:_____ Date:_____
Ronald Moulton, Acting DSW Regional Manager, Department of Energy

WESTERN AREA POWER ADMINISTRATION

By:_____ Date:_____
Subhash Paluru, SNR Regional Manager, Department of Energy

NEVADA STATE HISTORIC PRESERVATION OFFICER

By: Rebecca Palmer Date: 10/7/14
Rebecca Palmer, State Historic Preservation Officer

ADVISORY COUNCIL ON HISTORIC PRESERVATION

By: John M. Fowler Date: 1/23/15
John M. Fowler, Executive Director

INVITED SIGNATORIES

BUREAU OF LAND MANAGEMENT

By:_____ Date: 9/15/14
Amy Lueders, State Director

BUREAU OF RECLAMATION

By:_____ Date: September 26, 2014
Terrance Fulp, PhD., Lower Colorado Regional Director

By:_____ Date:_____
David Murillo., Mid-Pacific Regional Director

NATIONAL PARK SERVICE, LAKE MEAD NATIONAL RECREATION AREA

for By: _____ Date: 9/2/14
William K. Dickinson, Superintendent

CONCURRING PARTIES

Battle Mountain Band Council

By:_____ Date:_____
Harvey Henley, Chairman

Carson Colony Council

By:_____ Date:_____
Gary Nevers, Chairman

Chemehuevi Tribe

By:_____ Date:_____
Edward D. "Tito" Smith, Chairman

Cocopah Indian Tribe

By:_____ Date:_____
Sherry Cordova, Chairperson

Colorado River Indian Tribes

By:_____ Date:_____
Sylvia Homer, Acting Chairwoman

Colorado River Indian Tribes

By:_____ Date:_____
Wilene Fisher-Holt, Tribal Historic Preservation Officer

Confederated Tribes of Goshute Reservation

By:_____ Date:_____
Ed Naranjo, Chairman

Dresslerville Community Council

By:_____ Date:_____
Lloyd Wyatt, Chairman

Duck Valley Shoshone-Paiute Tribe

By:_____ Date:_____
Terry Gibson, Chairman

Duckwater Shoshone Tribe

By:_____ Date:_____
Virginia Sanchez, Chairperson

Elko Band Council

By:_____ Date:_____
Gerald Temoke, Chairman

Ely Shoshone Tribe

By:_____ Date: 9-4-14
Alvin S. Marques, Chairperson

Fallon Paiute-Shoshone Business Council

By:_____ Date:_____
Len George, Chairman

Ft. McDermitt Paiute-Shoshone Tribe

By:_____ Date:_____
Billy Bell, Chairman

Ft. Mohave Indian Tribe

By:_____ Date:_____
Timothy Williams, Chairman

Fort Yuma Quechan

By:_____ Date:_____

Havasupai Tribe

By:_____ Date:_____
Don Watahomigie, Chairman

Hopi Tribe

By:_____ Date:_____

Hualapai Tribe

By:_____ Date:_____
Sherry Counts, Chairperson

Kaibab Paiute Tribe

By:_____ Date:_____

Las Vegas Paiute Tribe

By:_____ Date:_____
Benny Tso, Chair

Lovelock Paiute Tribe

By:_____ Date:_____
Victor Mann, Chairman

Moapa Business Council

By:_____ Date:_____
William Anderson, Chairman

Paiute Tribe of Utah

By:_____ Date:_____

Pyramid Lake Paiute Tribe

By:_____ Date: 9/8/2014
Elwood Lowery, Chairman

Pyramid Lake Paiute Tribe

By:_____ Date:_____
Ralph Burns, THPO

Reno-Sparks Indian Community

By:_____ Date:_____
Arlan Melendez, Chairman

Reno-Sparks Indian Colony

By:_____ Date:_____
Michon R. Eben, THPO

South Fork Band Council

By:_____ Date:_____
Sim Malotte, Chairperson

Stewart Community Council

By:_____ Date:_____
David Tom, Chairman

Summit Lake Paiute Tribe

By:_____ Date:_____
Randi DeSoto, Chairwoman

Te-Moak Tribal Council

By:_____ Date:_____
Davis Gonzales, Chairman

Timbisha Shoshone Tribe

By:_____ Date:_____
George Gholson, Chairman

Walker River Paiute Tribe

By:_____ Date:_____
Lorren Sammaripa, Chairperson

Washoe Tribal Council

By:_____ Date:_____
Wanda Batchelor, Chairperson

Washoe Tribe of Nevada and California

By:_____ Date:_____
Darrel Cruz, CRO/THPO Director

Wells Band Council

By:_____ Date:_____
Michelle Cure, Chairperson

Winnemucca Colony Council

By:_____ Date:_____
Tribal Chair

Woodsfords Community Council

By:_____ Date:_____
Geoff Ellis, Chairman

Yerington Tribal Council

By:_____ Date:_____
Delmar Stevens, Chairman

Yomba Tribal Council

By:_____ Date:_____
Wayne Dyer, Chairman

APPENDIX A

NV PA Tribal Consultation Distribution List

Battle Mountain Band Council

Carson Colony Council

Chemehuevi Tribe

Cocopah Tribe

Colorado River Indian Tribes

Confederated Tribes of Goshute Reservation

Dresslerville Community Council

Duck Valley Shoshone-Paiute Tribe

Duckwater Shoshone Tribe

Elko Band Council

Ely Shoshone Tribe

Fallon Paiute-Shoshone Business Council

Ft. McDermitt Paiute-Shoshone Tribe

Fort Mojave Indian Tribe

Fort Yuma Quechan

Havasupai Tribe

Hopi Tribe

Hualapai Tribe

Kaibab Paiute Tribe

Las Vegas Paiute Tribe

Lovelock Paiute Tribe

Moapa Business Council

Paiute Tribe of Utah

Pyramid Lake Paiute Tribe

Reno-Sparks Indian Community

South Fork Band Council

Stewart Community Council

Summit Lake Paiute Tribe

Te-Moak Tribal Council

Timbisha Shoshone Tribe

Walker River Paiute Tribe

Washoe Tribe of Nevada and California

Wells Band Council

Winnemucca Colony Council

Woodfords Community Council

Yerington Tribal Council

Yomba Tribal Council

APPENDIX B

Definitions

Aircraft warning device – A device consisting of both signs and marker balls. Signs are usually placed on the tops of transmission line structures. "Marker balls" are large colored balls placed around overhead ground wires to make them visible to aircraft and birds.

Anchor – An anchor is a metal pin or concrete weight attached to the end of a guy wire to secure it to the ground.

Archeological Resources/Materials – "As defined in the uniform regulations implementing the Archeological Resources Protection Act at 43 CFR 7.3(1)) and are any material remains of past human life which are of archaeological interest at least 50 years of age.

Area of potential effects (APE)- the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.

Armor rod – Protective pre-formed wires wrapped around an aluminum conductor to prevent damage at point of support. An armor rod is also used to repair minor conductor damage.

Auger truck – A truck equipped with a bed-mounted auger used to dig holes for poles or structure foundations.

Bird guard – A specially designed device placed on transmission line structures to prevent birds from being electrocuted.

Bobcat – A small front-end loader.

Bucket truck – A specially designed truck equipped with a bucket and hydraulic arm used to lift men and equipment to the top of transmission line structures during construction, maintenance and inspection of transmission line structures.

Bushing – An electrically insulated lining for a hole to protect a through conductor (from Webster's).

Capacitor bank – A capacitor is a device which stores an electrical charge. Capacitors are grouped in "banks" inside switchyards and substations. Capacitor banks perform various functions including increasing power flow, compensating for voltage drops, and improving power at the point of delivery.

Circuit breaker or "breaker" – A circuit breaker is any device designed primarily to provide safe, rapid interruption of abnormal current flow. Circuit breakers interrupt a faulted circuit, and reclose as soon as the fault has been cleared.

Class I inventory –a literature and records search of existing archaeological and historic site records.

Class II survey –a professionally conducted sample survey designed to characterize an area previously surveyed.

Class III survey –a professionally conducted, intensive 100 percent survey at 20 or 30 meter transect intervals conducted to the specifications of the land-managing agency.

Clipping – The task of permanently attaching the conductor to the insulators during construction. Clipping is the last step in completing conductor stringing.

Communication site – Four communication systems are used by Western to track and monitor the power system: Microwave transmissions, power line carriers, radio, and leased telephone lines. Microwave communication sites are being used more and more. A microwave site consists of a fenced, level pad occupied by a tower and a small control building.

Conductor – A conductor, often called wire or line, is the actual carrier of current in a transmission system. It is usually made from solid or stranded aluminum and reinforced with steel.

Cross arm – The cross arm is the crossing member of a wood pole or steel transmission line structure which supports the insulators for the conductors.

Cut out fuse – A fuse is an electrical safety device that melts and interrupts the circuit when the current exceeds certain amperage.

Dampener Installation – Vibration dampeners are installed to inhibit the conductor or overhead ground wires from oscillating, whipping, and/or bouncing. They may be installed using bucket trucks.

Danger Tree – A tree, living or dead, that could fall onto the transmission line, structure, facility or a tree that could grow under the line to a height that could cause electric current jumps by Federal Energy Regulatory Commission/Nuclear Energy Regulatory Commission (FERC/NERC) standards.

Disconnect switch – A switch used to open or close a circuit. An open switch stops current from flowing in a circuit, while a closed switch allows current to flow again. A disconnect switch is used in an electrical system to separate a part of the system during a fault, and to allow for maintenance and repair.

Emergency – Emergency undertakings are defined as hazardous materials spills or situations of unplanned or unscheduled power outages or imminent outages that potentially threaten human life and property.

Footing – A footing is an enlargement at the base of a structure used to distribute the load or weight of the structure. Footings are dug with an auger into the ground and sometimes are filled with concrete.

Ground mat – A ground mat is a large wire mesh mat buried under a substation or other electrical facility used to help ground electrical equipment.

Ground rod – A ground rod is a metal pole installed in the ground to a depth of at least 5 feet. The rods are attached to grounding cables.

Ground wire – A ground wire is a safety devise that directs current to the earth or "ground". Overhead ground wires act as lightning rods. They are connected to the transmission line structures and extend down into the ground.

Guy wire – A steel wire used to support or strengthen a structure. A guy wire securely anchors the structure to the ground. Guy wires are used at dead-end and turning structures, and at endpoints such as substations.

Historic property – any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the NRHP maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria.

Insulator – An insulator keeps current from flowing to the earth or another conductor. Insulators usually hang from the transmission line structure cross arms. An insulator inhibits the flow of electricity to the earth or another conductor. Insulators are usually bell-shaped, arranged in strings, and are made of porcelain, Pyrex glass, or plastic.

Isolate (Isolated Occurrence or Isolated Find) – is a cultural manifestation that does not meet the definition of a site as defined by the respective land managing agency, SHPO or THPO. On Nevada state lands, archaeologists documenting isolates will default to the BLM definition; whereby an isolate is one artifact within a 30-square meter area.

Knee brace – An angle support device used to support a transmission line structure's cross arm.

Light beacon – A light attached to a tower used for guidance or aircraft warning.

Lightning arrestor – Any attachment, usually a metal bayonet, used to attract lightning away from the transmission system and direct it to a ground wire and the ground.

Masticator – A tractor-type machine used for mechanically removing vegetation. Three types of

masticators are used:

1. **Feller Buncher** – A tractor-type piece of machinery used to mechanically clear or mow dense vegetation. This is a method of vegetation removal that mechanically blades high-growth vegetation down to 6-8 inches while avoiding soil disturbance during normal operations.
2. **Hydroax** – A hydro-axe is an articulated tractor with a mower-mulcher mounted on the front of the machine. It has rubber flotation-type tires that cause little disturbance to the surface ground in dry soil. The mower-mulcher clips and mulches vegetation from 4 to 10 inches above ground. The hydroax can also be used to remove tree stumps from the ground.
3. **Cut-Shredder** – A rotating drum with teeth that is attached to a front end loader for the removal of vegetation. The drum has guide arms to prevent it from hitting the ground.

Microwave radio tower – A tower, usually constructed of steel lattice, equipped with a microwave receiving dish.

Minor construction – the minor or temporary construction of something relating to a maintenance activity; for example, the construction of a shoofly.

Parabolic dish – A bowl-shaped antenna or reflector used in microwave communications.

Pole guard – A metal collar or brace used to add strength to a pole. See also "stub".

Portable or Mobile substation – A mini-substation that is transportable by truck and installed anywhere along the transmission system.

Reactor – A reactor is a device used to introduce inductive reactance into a circuit. Usually installed in groups or banks, they help limit current to a safe value. This protects equipment from excessive power surges during a fault.

Recloser – A recloser is a device associated with a circuit breaker that allows the circuit to close automatically after a fault.

RipRap – the placement of rock or fill in a small area around creek beds or embankments to prevent erosion.

Regulator – See voltage regulator.

Routine maintenance – work conducted on Western's transmission lines and facilities to maintain the maintain safety and reliability of the electrical system.

Shoofly – A shoofly is a temporary road used to get around an obstruction in the right-of-way, usually used during construction. More commonly, it also refers to a temporary tap line used to direct current around a piece of the transmission system that is under construction or repair.

Signatures –

1. **Signatory**: a signatory is a party that has a responsibility under the terms of the PA and has the sole authority to execute, and amend or terminate the PA.
2. **Invited Signatory**: is a party that has a responsibility under the terms of the PA and has been invited to sign giving them the authority to amend or terminate the PA.
3. **Concurring Party**: is a consulting party that does not have a particular responsibility under the PA and has been invited to concur with the stipulations of the PA. The refusal of any party invited to concur in the PA does not invalidate the PA.

Solar power array – A collection or grouping of devices such as mirrors or photovoltaic cells, capable of capturing solar energy for use in generating electricity; typically attached to structures.

Stabilizer or Outrigger pad – A metal plate used to support lifting equipment.

Undertaking – a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency; those carried out with Federal financial assistance; and those requiring a Federal permit, license or approval.

Stub – A "stub" refers to temporary reinforcement done at the base of a pole to provide additional strength. A stub usually consists of a short piece of another pole,

Steel transmission line (TL) structure – A steel structure, usually in a lattice or single pole configuration which can be used in special construction situations and to carry large transmission voltages.

Substation – A substation is an on-ground facility consisting of various electrical equipment used to transform or "step down or up" the voltage for delivery and consumer use.

Switch (Switchgear) – Substation equipment designed and operated to switch electrical circuits and to interrupt power flow.

Tap changer – A device in some transformers that increase or reduce the potential by changing the transformer turns ratio. Tap changing transformers are used to control voltage at loads, substations, and direct current ties.

Transformer – A transformer transfers energy from one circuit to another circuit and are used to increase or decrease voltage in an alternating current system- A transformer consists of two "windings", or many turns of magnetically coupled wires or coils, placed very close together within an oil-cooled cylinder.

Voltage regulator – An electric device that regulates voltage flowing through distribution lines. It automatically raises and lowers the voltage to maintain required voltage levels for service.

Wave trap – A wave trap is used in carrier communications to confine the carrier signal to one transmission line section. It is a parallel circuit tuned to the frequency of the carrier signal.

Wood transmission line (TL) structure – A structures built from large wooden poles (usually of fir, pine, larch or cedar) that are treated with a preservative chemical to protect them against decay fungi.

X-brace – An X-brace, usually constructed of wood, provides reinforced support to large wooden transmission line structures.

APPENDIX C

Exempt Undertakings

Undertakings Exempt From Further Section 106 Review and Reporting

A. Substation Maintenance

1. Maintenance and replacement of transformers and breakers.
2. Servicing and testing of equipment at existing substations, including oil change-outs.
3. Installation or replacement of bushings.
4. Cleaning or replacement of capacitor banks.
5. Maintenance or installation of above ground propane tanks within a substation yard.
6. Maintenance of switches, voltage regulators, reactors, tap changes, reclosers and valves.
7. Replacement of wiring in substations and switch yards.
8. Replacement of existing substation equipment including regulators, capacitors, switches, wave traps, radiators, and lightning arresters.
9. Installation of cut-out fuses.
10. Adjust and clean disconnect switches.
11. Placement of temporary transformer.
12. Maintenance, installation or removal of a solar power array panel (approx. 3 by 3 feet) and controller from structures.
13. Emergency clean up of chemical spills (follow procedures in Stipulation VII).
14. Repair or replacement of ground mats, not to exceed current depth of disturbance.
15. Replacement or repair of footings for electrical or communications equipment above the ground mat within an existing substation.
16. Installation of foundations for storage buildings above the ground mat within existing substation yard.
17. Any ground disturbing activity within the leveled and graveled portions of an existing substation yard, not to exceed current depth of disturbance.
18. Clearing vegetation using hand tools , including controlled burns, within an existing substation.
19. Maintenance and repair of buildings and structures <45 years old.

B. Transmission Line Maintenance Within the Established ROW

1. Ground and aerial patrols.
2. Climbing inspection and tightening hardware on wood and steel transmission line structures.
3. Replacement or repair of wood pole ground wire.
4. Replacement of aircraft warning devices.
5. Replacement or cleaning of insulators.

6. Installation of bird guards.
7. In-kind replacement of cross arms on wood pole transmission line structures.
8. Cut and drop danger trees within ROW with hand tools.
9. Replacement or repair of steel members of steel transmission line structures.
10. Inspection of hardware on wood and steel transmission line structures.
11. Installation, repair or replacement of X-brace and knee brace.
12. Installation of structure mile markers.
13. Dampener installation.
14. Replacing ground spike on wood pole structures.
15. Vegetation and slash removal projects using hand tools (e.g. chainsaws) and no brush piling, do not require consultation with land-managing agency. (See BMP: Appendix E).
16. Installation of ground rods.
17. Installation of armor rod and clipping-in structures.
18. Replacement or repair of conductor/reconductoring, overhead ground wire (OGW) or optical ground wire (OPGW).
19. Application of wood preservatives on existing wooden pole structures.
20. Installation of gates where no new posts need to be installed.
21. Exposing tower legs from soil deposition.
22. Stub an existing wood pole structure for replacement in-kind or no replacement.
23. Repair of pole guards.
24. Placement of single post informational signs for accessing the right-of-way.

C. Communication System Maintenance

1. Microwave radio tower maintenance.
2. Communication tower and antennae maintenance.
3. Replacement of light beacons.
4. Removal of microwave dish.
5. Installation, removal and repair of parabolic dish.
6. Installation or removal of solar power array panels (approx. 3 x 3 foot panel) and controllers from buildings/structures.
7. Replacement or repair of footings for electrical or communications equipment above the ground mat within an existing communications facility.
8. Installation of prefabricated shelters on a level surface.
9. Maintenance and repair of buildings and structures <45 years old.

D. General Facilities Maintenance

1. Application of soil sterilants and herbicides (responsibility of land managing agency to notify Western of areas excluded for application of chemicals on its lands during the agency's permitting/approval process).
2. Clearing vegetation using hand tools (see BMP: Appendix E).

3. In-kind repair fences and gates using hand tools.
4. Pull existing fences using hand tools if fence is <45 years old.
5. Grounds maintenance for existing facilities, which could include the use of brush hogs if previously conducted on-site.
6. Maintenance and repair of buildings and structures <45 years old.

APPENDIX D

Non-exempt Undertakings

Non-exempt undertakings require RPO or FPO review. Non-exempt undertakings where approved conditions are met per Stipulation V.A(1) do not require consultation. Any activity not listed in Appendix C or D requires consultation. Non-exempt undertakings include, but are not limited to:

1. Excavation and installation of new footings on a transmission line or at a communication site.
2. Installation of new or replacement of existing culverts (using a backhoe/front-end loader within an existing access road).
3. Installation of new guy anchors or digging out buried anchors.
4. Wood pole replacements.
5. Removal of foundations at communication sites.
6. Installation, repair or pulling existing fences and gates with heavy equipment or where posts or poles must be installed.
7. Erosion control projects outside existing facilities or within existing facilities that go beyond current depth of disturbance.
8. Access road maintenance, construction or upgrading.
9. Installation of foundations for storage buildings outside graveled area at an existing substation or inside communication site yard.
10. New propane tank installation at a communication site or outside of an established substation.
11. Vegetation clearing by bulldozer or grader.
12. Installation of microwave and radio tower.
13. Underground installation of water, power, communication or ground electrical line beyond current depth of disturbance.
14. Installation of water bars on existing access roads.
15. Setting up portable substations or mobile transformers outside of an established substation.
16. Maintenance and repair to historic buildings or structures (>45 years old or older).

APPENDIX E

Best Management Practices (BMP)

1) Where the RPO or FPO determines that extremely dense vegetation prevents a Class III survey or where vegetation coverage provides low ground visibility <20% or where vegetation becomes a concern for crew safety such as dense areas of cacti, mesquite, tamarisk, etc. or poison oak - all areas within this exclusion will be subject to close reconnaissance from surrounding area. Areas >1 acre or >0.25 mile long that cannot be surveyed due to vegetation coverage, the RPO or FPO will consult with the land managing agency to discuss monitoring, or post-activity survey or other options if the proposed project cannot be redesigned to avoid these areas per Stipulation V).

2) Where due to the scale of the project removal of vegetation using hand tools is not feasible, and where mechanical means of vegetation removal will use mastication machinery, the following requirements for BMP are in place.

   A: Mastication equipment will not be used within historic properties.

   B: A qualified archaeologist will monitor mastication undertakings in areas that cannot be surveyed to be available for discovery situations and to conduct post activity survey to identify the presence of historic properties.

3) Western's historic property avoidance measures for all non-exempt undertakings covered under this PA are as follows:

   Western, whenever possible will redesign undertakings to avoid historic properties. In addition, archaeological monitoring will occur to ensure avoidance of historic properties present within the APE. In addition to archaeological monitoring, tribal cultural monitoring may occur in certain circumstances, determined appropriate during tribal consultation. Archaeological monitors will coordinate with the crew supervisor or maintenance inspector assigned by Western as the point of contact regarding scheduled training and monitoring. Coordination with the supervisor or inspector is necessary to evaluate the location and condition of historic properties recommended for monitoring.

   Prior to maintenance activities, Western's archaeologist or contractor monitoring archaeologist will complete background research on any historic property scheduled for monitoring. Research will provide information concerning the type of resource, location of artifacts and/or feature(s), and past investigations, including any previous monitoring, testing, or data recovery. Documentation of historic properties by the archaeological monitor before maintenance activities begin will consist of a boundary evaluation, photographic documentation of the current conditions, and field checking of relevant features near the maintenance activity.

Blue and white flagging, recognized by Western as demarcating sensitive areas, will be used to mark the boundary and a 30-meter buffer. Prior to ground disturbing activities, the monitor will document artifacts/features within the proposed maintenance work area, but no collections will occur. Flagging and other markings shall be removed as soon as possible to avoid calling undue attention to historic properties.

Western's archaeologist or contractor will at times also monitor within the boundaries of known historic properties, where Western determined that the undertaking is a type that would not affect the qualities that make the property eligible to the NRHP.

As part of continued coordination with Western's supervisor or inspector, the supervisor will contact the monitoring archaeologist when the project is completed. The monitoring archaeologist will then examine the monitored historic properties to take final photographs, assess condition, and remove the flagging, staking and signage within 2 weeks of project completion.

Maintenance vehicles will stay on established access roads which may be within or outside the transmission line ROW, In the event of overland travel by anything other than an off road vehicle the incident will be reported to the Environmental Manager per Stipulation VI of the PA.

Appendix E

Biological Opinion

United States Department of the Interior
U.S. Fish and Wildlife Service
Arizona Ecological Services Office
2321 West Royal Palm Road, Suite 103
Phoenix, Arizona 85021-4951
Telephone: (602) 242-0210 Fax: (602) 242-2513

In reply refer to:
AESO/SE

02EAAZ00-2014-TA-0138
02EAAZ00-2014-CPA-0020

August 10, 2015

Ms. Linda J. Marianito, Environmental Manager
Western Area Power Administration
Post Office Box 6457
Phoenix, Arizona 85005-6457

Dear Ms. Marianito:

Thank you for your March 19, 2015 correspondence received in our office on March 23, 2015, requesting formal consultation and concurrence in accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 et seq.). At issue are potential impacts on federally listed species resulting from your proposal to continue operation and maintenance (O&M) activities and to implement an Integrated Vegetation Management (IVM) program along an existing electric transmission line right-of-way (ROW), the Parker-Davis Transmission System (Parker-Davis System), in portions of Cochise, Mohave, Maricopa, Pinal, Pima, and Yavapai Counties, Arizona. You concluded that the proposed action "may affect and is likely to adversely affect" four species: endangered Pima pineapple cactus (*Coryphantha scheeri* var *Robustispina*) (cactus); threatened northern Mexican gartersnake (*Thamnophis eques megalops*) (gartersnake); endangered southwestern willow flycatcher (*Empidonax trailii extimus*) (flycatcher); and the threatened Western Distinct Population Segment (DPS) of the yellow-billed cuckoo (*Coccyzus americanus*) (cuckoo).

You also concluded that the action "may affect but is not likely to adversely affect" the endangered lesser long-nosed bat (*Leptonycteris curasoae yurbabuenae*) and endangered California condor (*Gymnogyps californianus*). We concur with your determinations for these species and provide our rationales in Appendix A.

You requested our concurrence that the proposed action is not likely to jeopardize the nonessential experimental population of the California condor and will not adversely modify proposed critical habitat for the northern Mexican gartersnake and Western yellow-billed cuckoo. We are also providing conference reports for these concurrences in Appendix A.

Lastly, you concluded that the proposed action will "not affect" the endangered Gila chub (*Gila intermedia*), threatened Chiricahua leopard frog (*Lithobates chiricahuensis*), and designated critical habitat for the flycatcher. Species with "no effect" determinations do not require our review and therefore, are not considered further in this analysis.

This biological opinion (BO) is based on information provided in the March 19, 2015 *Programmatic Biological Assessment for Operations and Maintenance and Integrated Vegetation Management Program* (PBA) (Western Area Power Administration [Western] 2015), the November 2014 *Parker-Davis Transmission System Routine Operation and Maintenance Project and Proposed Integrated Vegetation Management Program Programmatic Environmental Assessment* (EA; Western 2014), email correspondence, telephone conversations, and other sources of information. Literature cited in this conference opinion is not a complete bibliography of all literature available on the species of concern, transmission line construction and its effects, or on other subjects considered in this opinion. A complete administrative record of this conference is on file at this office (file numbers 02EAAZ00-2014-TA-0138 and 02EAAZ00-2014-CPA-0020).

CONSULTATION HISTORY

March 12, 2014	We received your scoping letter informing all interested parties of your intent to develop an EA for the Parker-Davis Transmission System Programmatic Operation and Maintenance Project (DOE/EA-1982).
April 3, 2014	We transmitted a response to your scoping letter asking that the EA include a comprehensive discussion of potential direct and indirect impacts of the proposed project on species listed pursuant to the ESA.
November 2014	Your Programmatic EA was issued for review by all interested parties.
January 13, 2015	We received your draft PBA for the proposed project.
March 23, 2015	We received your final PBA and initiated formal consultation for the proposed project.
August 5, 2015	We sent you our draft BO.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

Complete descriptions of the proposed action are found in your PBA and EA and are included by reference herein. We provide a summary of the proposed action below.

The proposed action is for continued O&M activities and implementation of an IVM program for the Parker-Davis System (Figure 1). The purpose of the proposed action is to balance environmental protection with system reliability, protection of human safety, and compliance with the National Electric Safety Code, Institute of Electrical and Electronics Engineers standards, Western's own directives for maintaining system reliability, and other statutory and industry standards and requirements. O&M activities are preventative and involve inspections and repair of Parker-Davis infrastructure and maintenance of access roads. The IVM program is needed to eliminate the threat of vegetation interference with operation of the transmission system.

Operations and Maintenance (O&M) Activities

O&M activities would occur on existing transmission line ROWs, access roads, substations, and maintenance facilities. O&M activities would include aerial and ground patrols to locate and correct problems, regular and preventative maintenance efforts, inspections, repairs, and road repair to provide access for maintenance and emergencies. These activities would be performed wherever damage or deterioration of transmission lines or facilities poses a threat to safety or reliability. Equipment needed for these activities could include a light duty helicopter, fixed-wing aircraft, all-terrain vehicle, pickup truck, bulldozer, backhoe, bucket truck, front-end loader, crane, augur truck, bobcat, pole truck, and hand tools. Some activities may require work outside of the ROW, e.g., for hazard tree removal, conductor pulling and tensioning, washout repair, and installation of culverts.

O&M activities would occur under three categories (see Tables 1-3 for listings of activities in each category): Category A actions are inspection and minor maintenance activities with little to no potential for impacts. Category B actions are typical repair tasks that occur along transmission lines and would involve surface disturbing activities within relatively small areas. Category C actions are minor additions or modifications to existing infrastructure that would disturb larger areas and use heavy equipment.

Inspections

Western would continue conducting aerial, ground, and climbing inspections of its existing transmission infrastructure under the O&M program. Aerial inspections would be conducted at least twice a year over the entire transmission system. Aerial patrols would occur 50-300 feet (ft) above and adjacent to the transmission line. Ground inspections would allow for closer assessment of infrastructure not possible by air. Ground inspections would be performed on 50 percent of all lines with wood pole structures annually, and 33 percent of all lines with steel structures annually, resulting in inspection of 100 percent of the Parker-Davis System every 2-3

years. Western would use climbing inspections on transmission line structures if aerial or ground inspections reveal problems.

Emergency Repairs

Inspections often identify problems that may require vegetation management or immediate repair or replacement of transmission line hardware. Storms and other natural events also may result in necessary emergency repairs of the Parker-Davis System. Emergency repairs would follow Western's best management practices (BMPs), standard operating procedures (SOPs), and project conservation measures (PCMs) when possible. Safety related BMPs, SOPs, and PCMs would always be instituted. Implementation of Western's standard protocols may not occur in the event of an emergency involving loss of electrical power to residential, commercial, or industrial sectors.

Access and ROW Road Maintenance

As part of the O&M program, Western would maintain safe and reliable access to the Parker-Davis System. This would require repairs as necessary to roads, bridges, culverts, cattle guards, and fences. If an existing access road has become unusable because of erosion, or because protected species or cultural sites, etc., are found, then a new road or a road detour would need to be constructed or used.

Integrated Vegetation Management (IVM) Program

The IVM program would manage vegetation to protect facilities from fire, control the spread of noxious weeds, establish and maintain stable, low-growing plant communities in the ROW for fault protection, and protect public and worker safety around transmission lines and other facilities.

Western's policy on its IVM program is specified in Western Order No. 450.3A: *Western's desired condition beneath and adjacent to its transmission line facilities is characterized by stable, low growth plant communities free from noxious or invasive plants. These communities will typically be comprised of herbaceous plants and low growing shrubs which ideally are native to the local area. Vegetation on the bordering areas of transmission line rights-of-way can be managed so that increased tree height is allowed in relation to an increasing distance from the transmission line.*

Western would adopt a two-step approach for the Parker-Davis System: 1) initial treatment, and 2) long term maintenance of ROW vegetation. Ultimately, Western's intent is to establish and maintain ROWs that require infrequent treatments for vegetation management (i.e., about once every 5 years). Achieving the desired ROW condition may take several iterations of vegetation treatment over an extended period of time. Once achieved, the desired condition will be proactively maintained through ongoing corridor vegetation management.

Initial Treatment

Western has not completed any substantial removal of vegetation from the Parker-Davis System (except for individual hazard trees) since construction 50+ years ago. Trees and taller shrubs are incompatible with Western's desired condition, as described above (Western Order 450.3A) and in Western's IVM Guidance Manual (Western 2007). Therefore, Western would remove nearly all vegetation (except grasses, forbs, and some small shrubs) within the ROWs to safely and reliably operate the transmission facilities.

In addition to vegetation removal within the limits of the ROW, danger trees outside of the ROW would also be removed. Danger trees are defined as trees located within or adjacent to the ROW that present a hazard to employees, the public, or power system facilities. These would include trees that may bend, grow, swing in, or fall towards the power lines.

Long–term Maintenance

Once the ROW has been cleared of undesirable vegetation, the IVM program would maintain the desired condition within the ROW. Federal energy standards require vegetation inspections and treatment to maintain transmission lines in safe and reliable operating conditions (NERC Reliability Standard FAC-003). Vegetation clearance distances required by NERC FAC-003 are provided in Western Order 430.1B. The required clearances vary by line voltage, from 20 ft in the case of 69-kilovolt (kV) lines, to 29 ft in the case of 500-kV lines.

Manual and Mechanical Control Methods for Initial Treatment and Long-term Maintenance

Vegetation control would require use of manual, mechanical, and herbicidal methods (use of herbicides is considered in the next section). Manual methods would involve cutting, pruning, and trimming with hand tools or power saws or installation of synthetic or natural barriers to manage vegetative growth. Mechanical control typically involves use of self-propelled machine platforms with various interchangeable treatment-head attachments. The primary benefit of manual methods is selectivity; only unwanted or target vegetation is removed. Mechanical control can be selective or nonselective. In the latter case, all plants in the path of the machine are affected, as in the case of mowing.

Slash is the debris left within a vegetation treatment area. Slash disposal would be designed to reduce fire hazards, hasten natural decomposition, keep nutrients in the ecosystem, retain soil moisture, control erosion, retard growth of undesirable plant species, and improve aesthetic appeal. Slash would be chipped (using a mechanical chipper) and scattered; lopped and scattered; or burned in piles.

Herbicide Control Methods

Western may also employ the use of herbicides for vegetation management. Western proposes using only herbicides that have been approved for use in ROW maintenance (including access roads) based on evaluations of toxicity, solubility, soil absorption potential, and persistence in water and soil. When using herbicides, Western would follow measures outlined in *Recommended Protection Measures for Pesticide Applications in Region 2 of the U.S. Fish and Wildlife Service.*

Schedule of O&M and IVM Activities

Western assumes that O&M and IVM activities during any given year on average would include:

- 250 to 500 acres (ac) of vegetation management in ROW and access roads;
- Stabilization/grading of 10 to 20 miles (mi) of access roads;
- Replacement or repair of 3 to 5 culverts;
- Installation/maintenance of 10 to 20 mi of communication equipment, including fiber-optic cable;
- Relocation or stabilization of 4 to 8 towers or poles (towers would be relocated adjacent to existing tower or poles);
- Inspection of communication sites once each year; and
- Treatment of approximately 100 ac by herbicides.

Conservation Measures

The proposed action includes a number of general conservation measures addressing erosion control, use of herbicides, and other concerns. General measures include BMPs and SOPs and are discussed in the EA. The proposed action also includes PCMs addressing the need for limited operating periods, buffer zones, surveys for special status species, etc. PCMs are species-specific. Western and its contractors will follow all BMPs, SOPs, and PCMs at all times during all proposed actions (with the possible exception of emergency actions, as discussed above). Species-specific PCMs are as follows:

Pima Pineapple Cactus

- A qualified biologist shall conduct cactus surveys in suitable habitat prior to O&M and IVM activities.
- Flagging or temporary fencing will be placed around all cactus plants located within 50 ft of work areas.
- All flagging or fencing will be removed following completion of the project.
- A qualified biological monitor shall be present during ground disturbance activities occurring in proximity to flagged or fenced cactus.
- Any cactus that cannot be avoided will be relocated within the ROW, but outside of any area undergoing disturbance.

Northern Mexican Gartersnake

- Western will refrain from using erosion control products, such as wattles, that contain a mesh size of 0.5 inches (in) within proposed gartersnake critical habitat. This mesh size may cause direct mortality due to entanglement. Alternatively, Western will use the smallest mesh size possible (<0.5 in), or preferably products that do not contain any mesh- or net-like attributes near occupied gartersnake habitat.

- Suitable habitat will be flagged or mapped for avoidance by a qualified biologist. Only manual vegetation removal will be allowed within the flagged areas.
- Vegetation management will be confined to the minimum area necessary to facilitate O&M and IVM activities

Southwestern Willow Flycatcher

- From May 15 to August 25, any noisy O&M or IVM ground activities in suitable habitat that require equipment other than hand tools and pickup trucks will be prohibited or a qualified biologist will conduct protocol surveys prior to these activities using methods described in Sogge et al. 2010. If resident birds are detected, the U.S. Fish and Wildlife Service (FWS) will be contacted for guidance.
- Prior to site mobilization, Western will provide notification of the activity to the appropriate Federal land manager, land owner, or agency.

Yellow-billed Cuckoo

- From June 1 to August 15, any noisy O&M and IVM activities in suitable habitat that require equipment other than hand tools and pickup trucks will be prohibited or a qualified biologist will conduct presence/absence surveys prior to these activities using currently accepted survey methods. If cuckoos are detected, FWS will be contacted for guidance.

Action Area

The action area is defined as all areas to be affected directly or indirectly by the proposed action along an existing electric transmission line ROW, the Parker-Davis System, in portions of Cochise, Mohave, Maricopa, Pinal, Pima, and Yavapai Counties, Arizona, and not merely the immediate area involved in the action (50 CFR § 402.02). In delineating the action area, we evaluated the farthest reaching physical, chemical, and biotic effects of the action on the environment, focusing on, but not exclusive to, the transmission line corridors, and centered on the transmission lines themselves (the linear poles, towers, and conductors of the Parker-Davis System). The action area involves approximately 640 linear mi of transmission lines, approximately 700 mi of access roads, 30 substations, and communications facilities, from Peacock Substation, 13 mi east of Kingman, Arizona, to Apache Substation, 25 mi east of Benson, Arizona (Figure 1). The majority of transmission lines along the Parker-Davis System are 115-kV or larger, constructed on steel lattice, wood H-frame, or steel monopole structures. Unimproved dirt roads or existing publicly maintained roads, provide access to the Parker-Davis System. Substations vary in size from <1-170 ac.

STATUS OF THE SPECIES

Pima Pineapple Cactus

The cactus was listed as endangered on September 23 1993 (58 FR 49875) without critical habitat. A 5-year review (U.S. Fish and Wildlife Service [USFWS] 2007) has been completed and recommended no change to the classification of the species as endangered. A draft recovery plan has been developed (USFWS 2015).

The cactus is a hemispherical plant with a diameter of 3-7 in and height of 4-18 in. The plants can be single-stemmed, multi-headed, or appear in clusters. The flowers are silky yellow (rarely white) and appear in early July with summer rains. This cactus is an obligate outcrosser, meaning it does not self-pollinate. For reproduction to occur, cacti are dependent on *Diadasia rinconis*, a ground-nesting, solitary native bee, thought to be the major pollinator of this cactus species (McDonald 2005). Cactus also cross pollinate each other, but this is unlikely if individuals are >2,900 ft apart (McDonald 2005).

Cacti occur in very low densities in Sonoran desertscrub vegetation or in the ecotone between desert scrubland and desert grassland on slopes of <10 percent and at elevations ranging from about 2,300-4,700 ft (Roller and Halverson 1997, Brown 1982, Johnson 2004). The species is geographically restricted to southeast Arizona, specifically the Altar and Santa Cruz Valleys in Pima and Santa Cruz Counties. Range limits include the Baboquivari Mountains to the west and Santa Rita Mountains to the east. The range extends north nearly to Tucson and south to Sonora, Mexico.

Several attempts have been made to delineate specific features of cactus habitats in the form of predictive models that would pinpoint areas where cacti are likely to occur (e.g., McPherson 2002, RECON Environmental, Inc. 2006, USFWS unpubl. analysis). The predictive power of the models, unfortunately, was low (25% in the case of McPherson 2002), and some predictors generated by the models were too general to be useful in pinpointing cactus locations in the field. During these studies, cacti were found in both shallow and deep soils, on rocky sites, in deep silt, and on gravelly alluvial deposits. Cacti were found in clumps but more often were widely dispersed at very low densities. Cactus plants were often difficult to detect, especially in dense grass.

Given low densities of the species in most parts of its range, large-scale surveys for this species have been rare and are cost prohibitive. Since the cactus' listing in 1993, there have been 75 formal section 7 consultations under the ESA involving this cactus in southern Arizona, resulting in the direct mortality of more than one thousand individual cactus plants on 8,000 ac of suitable habitat. Most of these consultations were related to construction activities (USFWS 2015). However, many projects that occur within the range of the cactus do not undergo section 7 consultation, and FWS does not typically receive information regarding the status or loss of plants or habitat associated with those projects. Records of all reported cactus locations, including those resulting from FWS consultations, and those reported voluntarily from the private sector, are maintained by the Arizona Game and Fish Department (AGFD) as part of its Heritage Data Management System (HDMS). As of late 2014, the HDMS had 5,553 records of live cacti, most with geographic coordinates.

Thus, threats to the cactus continue to include habitat loss, habitat fragmentation, direct mortality due to development, and inadequate regulatory mechanisms to protect the species. Threats previously documented (58 FR 49875) that will continue to take a toll include overgrazing, spread of invasive species, illegal collection, wildfires, and mining. Like development, the spread of invasive species into the range of the cactus, particularly grasses, appears to be a particularly serious and growing threat. Boer lovegrass (*Eragrostis chloromelas*) and Lehmann lovegrass (*Eragrostis lehmanniana*) now dominate the landscape on 1,470,000 ac of southeastern Arizona (Gori and Enquist 2003). Lehmann lovegrass is also dominant across extensive areas of cactus habitat in the southern portion of the Altar Valley. These invasive grasses are likely to continue moving into native grasslands to the north, east, and south into Mexico. The invasive grasses displace native vegetation, form continuous and sometimes dense mats, and ultimately alter the native fire regime, specifically, by increasing the frequency, intensity, and size of wildfires (Ruyle et al. 1988, Anable et al. 1992). Roller and Halvorson (1997) hypothesized that fire-induced mortality of cactus increases along with stand densities of Lehmann lovegrass. Bufflegrass (*Pennisetum ciliare*) has also become dominant in vacant areas of Tucson and along roadsides in southeastern Arizona, notably along Interstate 10 (I-10) and State Route 86. Some cactus habitats along these roadways are already being converted to dense stands of bufflegrass.

Northern Mexican Gartersnake

The gartersnake was designated as a candidate species for listing in 1985. In 2008, it was determined that the species warranted listing but listing was precluded by higher-priority actions (71 FR 71788). The species was listed as threatened on July 8, 2014 (79 FR 38678). Critical habitat was proposed on July 10, 2013 (78 FR 41550). There is no recovery plan for the gartersnake.

This gartersnake ranges in color from olive to olive-brown or olive-gray with three lighter-colored stripes that run the length of the body, the middle of which darkens towards the tail. It may occur with other native gartersnake species and can be difficult for people without specific expertise to identify because of its similar appearance to sympatric gartersnake species. The snake may reach a maximum length of 44 in.

Throughout its range, the gartersnake occurs at elevations from 130 to 8,497 ft (Rossman et al. 1996), and it is considered a "terrestrial-aquatic generalist" (Drummond and Marcías-García 1983). The gartersnake is a riparian obligate (restricted to riparian areas when not dispersing) and occurs chiefly in the following habitat types: 1) source-area wetlands (e.g., cienegas or stock tanks); 2) large-river riparian woodlands and forests; and 3) streamside gallery forests (Hendrickson and Minckley 1984, Rosen and Schwalbe 1988). Emmons and Nowak (2013), when surveying in the upper Verde River region, found this subspecies most commonly in protected backwaters, braided side channels and beaver ponds, isolated pools near the river mainstem, and edges of dense emergent vegetation that offered cover and foraging opportunities. In the northern-most part of its range, the gartersnake appears to be most active during July and August, followed by June and September.

The gartersnake is an active predator and is thought to heavily depend upon a native prey base (Rosen and Schwalbe 1988). These gartersnakes forage along vegetated streambanks, searching for prey in water and on land, using different strategies (Alfaro 2002). Generally, its diet consists of amphibians and fishes, such as adult and larval (tadpole) native leopard frogs

(*Lithobates* spp.), as well as juvenile and adult native fish (Rosen and Schwalbe 1988). In situations where native prey species are rare or absent, the snake's diet may include nonnative species, including larval and juvenile bullfrogs (*L. catesbeianus*), western mosquitofish (*Gambusia affinis*) (Holycross et al. 2006, Emmons and Nowak 2013), or other soft-rayed fishes.

Native predators of this gartersnake include birds of prey, other snakes, wading birds, mergansers (*Mergus* spp.), belted kingfishers (*Megaceryle alcyon*), raccoons (*Procyon lotor*), skunks (*Mephites*, *Spilogale*, *Conepatus* spp.), and coyotes (*Canis latrans*) (Rosen and Schwalbe 1988, Brennan et al. 2009). Historically, large, highly predatory native fish species such as Colorado pikeminnow (*Ptychocheilus lucius*) may have preyed upon gartersnake where they co-occurred. Native chubs (*Gila* spp.) may also prey on neonatal gartersnakes.

Sexual maturity in the subspecies occurs at two years of age in males and at two to three years of age in females (Rosen and Schwalbe 1988). Gartersnakes are viviparous (bringing forth living young rather than eggs). Mating has been documented in April and May followed by the live birth of between 7 and 38 newborns in July and August (Rosen and Schwalbe 1988, Nowak and Boyarski 2012).

Gartersnakes historically occurred in every county and nearly every subbasin within Arizona, from several perennial or intermittent creeks, streams, and rivers as well as lentic wetlands such as cienegas, ponds, or stock tanks (Brennan and Holycross 2006, Cotton et al. 2013). In New Mexico, the gartersnake had a limited distribution that consisted of scattered locations throughout the Upper Gila River watershed in Grant and western Hidalgo Counties (Price 1980, Fitzgerald 1986, Degenhardt et al. 1996, Holycross et al. 2006). Within Mexico, gartersnakes historically occurred within the Sierra Madre Occidental and the Mexican Plateau, comprising approximately 85 percent of the total rangewide distribution of the subspecies (Rossman et al. 1996).

The only viable gartersnake populations in the United States where the subspecies remains reliably detected are all in Arizona: 1) The Page Springs and Bubbling Ponds State Fish Hatcheries along Oak Creek; 2) lower Tonto Creek; 3) the upper Santa Cruz River in the San Rafael Valley; 4) the Bill Williams River; and, 5) the middle/upper Verde River. In New Mexico, the gartersnake may occur in extremely low population densities within its historical distribution; limited survey effort is inconclusive to determine extirpation. The status of the gartersnake on tribal lands, such as those owned by the White Mountain or San Carlos Apache Tribes, is poorly known. Less is known about the current distribution of the gartersnake in Mexico due to limited surveys and limited access to information on survey efforts and field data from Mexico.

We have concluded that in as many as 26 of 31 known localities in the United States the gartersnake population is likely not viable and may exist at population densities low enough to be threatened with extirpation, or they may already be extirpated. Only five populations of gartersnakes in the United States (16 percent of the 31 localities) are considered likely viable where the subspecies remains reliably detected. Harmful nonnative species are a concern in almost every gartersnake locality in the United States and are the most significant reason for their decline. Harmful nonnative species can contribute to starvation of gartersnakes through competitive mechanisms, and may reduce or eliminate recruitment of young gartersnakes through predation. Other threats include alteration of rivers and streams from dams, diversions,

flood-control projects, and groundwater pumping that change flow regimes, reduce or eliminate habitat, and favor harmful nonnative species. Climate change and drought may also be important threats (79 FR 38678).

Southwestern Willow Flycatcher

The flycatcher was listed as endangered without critical habitat on February 27, 1995 (60 FR 10694). Critical habitat was designated on July 22, 1995 (62 CFR 39129) and revised on January 2, 2013 (78 CFR 344). The original critical habitat designation included 1,556 stream mi in the desert Southwest. The revised rule reduced designated critical habitat to approximately 1227 stream mi. A recovery plan for the species was completed in 2002 (USFWS 2002), and a 5-year review was done in 2014 (USFWS 2014). The 5-year review determined that no change was needed to the species' classification as endangered.

The flycatcher is one of four currently recognized subspecies of the willow flycatcher, a neotropical migrant and spring/summer resident of North America (Unitt 1987, Browning 1993). This subspecies breeds in the southwestern U.S. and winters in Mexico, Central America, and possibly northern South America (Phillips 1948, Stiles and Skutch 1989, Peterson 1990, Ridgely and Tudor 1994, Howell and Webb 1995). In Arizona, the subspecies is increasing (from 145-to 459 breeding territories from 1996 to 2007; English et al. 2006, Durst et al. 2008). Currently, population stability of the subspecies in Arizona depends on two large populations at Roosevelt Lake and the confluence of the San Pedro and Gila Rivers. However, catastrophic events and losses of birds within these populations could alter the status of the subspecies quickly and significantly. Conversely, expansion into new habitats or discovery of other populations would improve the bird's known status.

The flycatcher is a riparian obligate species, breeding in mesic areas with standing water, or saturated soils. Flycatchers are typically found along rivers, lakesides, and other wetlands with dense riparian habitat consisting of multi-layered tree canopies of varying sizes and age classes. Occupied flycatcher territories are usually located near or over surface water or saturated soils in habitat patches at least 33 ft in diameter. In the Southwest, flycatchers arrive on territories in late April or early May, and nest building begins in mid-May. Flycatchers are insectivores, foraging in dense shrub and tree vegetation along rivers, streams, and other wetlands.

Flycatcher territories occur within two distinct habitat types in Arizona: 1) mixed riparian/tamarisk (*Tamarix* spp.) habitats below 4,000 ft in elevation; and 2) willow (*Salix* spp.) thickets in broad, flat drainages above 7,000 ft. Historical egg/nest collections and species' descriptions throughout its range describe flycatcher's widespread use of willow for nesting (Phillips 1948, Phillips et al. 1964, Hubbard 1987, Unitt 1987). The subspecies also nests in boxelder (*Acer negundo*), tamarisk (also called saltcedar), Russian olive (*Elaeagnus angustifolio*), and live oak (*Quercus agrifolia*).

Tamarisk is an important component of this flycatcher's nesting and foraging habitats. In 2001, 323 of the 404 known flycatcher nests in Arizona (80 percent, in 346 territories) were in tamarisk (Smith et al. 2002). Tamarisk had been thought to represent poorer flycatcher habitat; however, comparison of reproductive performance, prey populations, and physiological condition of flycatchers breeding in native and exotic vegetation showed no differences (Durst 2004, Owen and Sogge 2002, Sogge et al. 2005, Sogge et al. 2008, USFWS 2002).

Flycatcher habitat is dynamic and can change rapidly (Finch and Stoleson 2000). Tamarisk can develop from seed to suitability in 4-5 years. Heavy flooding can eliminate or reduce the quality of habitat in a day. Flycatcher use of habitat in different successional stages may also be dynamic. Over-mature or developing riparian vegetation not suitable for nest placement can be occupied and used for foraging and shelter by migrating, breeding, dispersing, or non-territorial flycatchers (McLeod et al. 2005, Cardinal and Paxton 2005).

The flycatcher is endangered primarily because land and water management actions associated with agriculture and urban development have reduced, degraded, and eliminated much of its riparian habitats. Other threats include human recreation along rivers and streams, livestock grazing, predation, brood parasitism by brown-headed cowbirds (*Molothrus ater),* invasion of the tamarisk-eating leaf beetle (*Diorhabda carinulata*), and wildfires that have become more frequent and destructive as a result of the proliferation of exotic vegetation and degraded watersheds. Nestling predation and brood parasitism are the most common forms of direct mortality. All existing threats are compounded by the risk of stochastic events because the subspecies' habitats are fragmented and because populations occur at low numbers.

Because tamarisk is prevalent throughout the flycatcher's range, and is used heavily by the subspecies (Durst et al. 2008), the introduced tamarisk-eating leaf beetle is a particularly serious threat. In 2009, 13 of 15 flycatcher nests at on the Virgin River in Utah failed following defoliation of tamarisk by this beetle (Paxton et al. 2010). As of 2012, the insect had been found in southern Nevada and Utah and northern Arizona and New Mexico. Tamarisk often flourishes in areas where native trees are unable to grow due to water diversions, flow regulation, and groundwater pumping. Loss of tamarisk without replacement by native trees will likely impact flycatchers wherever their range overlaps with the tamarisk leaf-eating beetle.

In pre-settlement times, fire was not a primary disturbance factor in southwestern riparian areas (USFWS 2002). Recently, however, fire size and frequency have increased because of an increase in dry, fine fuels in riverbeds and riparian systems. Drying of river beds due to human land-use practices, increases in human-caused ignitions, and the presence of tamarisk, a highly flammable plant, are largely responsible for these fuels. In June 1996, a fire destroyed approximately one-half mile of occupied tamarisk flycatcher nesting habitat on the San Pedro River in Pinal County, Arizona resulting in the loss of up to eight nesting pairs (Paxton et al. 1996).

Western Yellow-billed Cuckoo

The cuckoo was listed as threatened on October 3, 2014 (79 FR 59992). Critical habitat was proposed on August 15, 2014 (79 FR 48548). There is no recovery plan for the cuckoo.

The cuckoo is a neotropical migrant that breeds in North America and winters in South America. It was formerly widespread throughout the western U.S. and British Columbia (American Ornithologists Union 1998, Hughes 1999), but may now be extirpated or is rare in much of its former range. The largest remaining breeding areas in the U.S. are in southern and central California, Arizona, and New Mexico. Estimates of the breeding population in the U.S. range from 350-495 pairs. In Arizona, estimates range from 170-250 breeding pairs, the largest number of pairs within the DPS's range (79 FR 59992).

In the arid West, cuckoos breed in dense riparian woodlands comprised of cottonwood, willow, and mesquite (*Prosopis* spp.) (Laymon and Halterman 1989, Hughes 1999). In Arizona, the species occurs primarily in low-elevation drainages where stands of multi-storied native riparian woodlands occur (Corman and Wise-Gervais 2005). Cuckoo foraging habitats may encompass a broader range than those needed specifically for nest placement. Cuckoos forage primarily in cottonwoods (Hamilton and Hamilton 1965, Halterman 1991), but may also forage in mesquite stands (Johnson et al. 2008). Cuckoos may nest and forage in tamarisk but their habitats usually contain a native tree component (Gaines and Laymon 1984, Johnson et al. 2008). Areas of tamarisk monoculture are not suitable habitat. During migration, cuckoos may be found in a variety of vegetation types, including coastal scrub, secondary growth woodland, hedgerows, humid lowland forests, and forest edges from sea level to 8,125 ft (Hughes 1999). Nesting, foraging, and migration habitats can be relatively dense and contiguous, irregularly shaped, or narrow and linear. During migration cuckoos may be found in smaller riparian patches than those in which they typically nest and forage.

Cuckoo habitats are largely associated with perennial rivers and streams but streamflow frequency, magnitude, duration, and timing can vary widely among regulated and unregulated systems and between years (Poff et al. 1997, USFWS 2002). However, humid conditions created by surface and subsurface moisture appear to be an important habitat characteristic.

Subsurface hydrologic conditions are important in determining riparian vegetation patterns and in turn the distribution of cuckoo habitats. Goodings willow cannot survive if groundwater drops below 10 ft and Fremont cottonwood (*P. fremontii*) cannot survive if groundwater drops below 16 ft (Stromberg et al. 1996).

Cuckoos forage primarily by gleaning insects from vegetation but they also capture small vertebrates such as tree frogs (*Hyla* spp.) and lizards (Hughes 1999). They specialize on relatively large prey, including caterpillars (Lepidoptera spp.), katydids (Tettigoniidae spp.), cicadas (Cicadidae spp.), and grasshoppers (Caelifera spp.) (Laymon et al. 1997). Their breeding periods may be timed to coincide with outbreaks of insect species, including tent caterpillars and cicadas (Hughes 1999, Halterman 2009). Cuckoos reach their breeding ranges from mid-May to mid-June, later than most other neotropical migrants, and breeding may continue into September (Rosenberg et al. 1982, Hughes 1999).

The primary threat to the western yellow-billed cuckoo is loss or fragmentation of high-quality riparian habitat suitable for nesting (Corman and Wise-Gervais 2005). Actions such as dam building, groundwater pumping, stream channelization and stabilization, diversion of surface and ground water for agricultural and municipal purposes, livestock grazing, wildfire, drought, and establishment of nonnative vegetation have changed surface and subsurface stream flows and altered the quality, distribution, abundance, and longevity of riparian vegetation (USFWS 2002). Habitat loss and fragmentation and related isolation of cuckoo populations has increased the species' vulnerability to stochastic events (e.g., chance weather events, wildfires) and to long term effects of additional development, climate change, and other factors. Pesticide use and resulting prey scarcity (especially the loss of sphinx moth caterpillars in the West) also have played a role in the decline of cuckoos in the DPS (Erlich et al. 1992).

ENVIRONMENTAL BASELINE

The environmental baseline includes past and present impacts of all Federal, State, or private actions in the action area, the anticipated impacts of all proposed Federal actions in the action area that have undergone formal or early section 7 consultation, and the impact of State and private actions which are contemporaneous with the consultation process. The environmental baseline defines the current status of the species and its habitat in the action area to provide a platform to assess the effects of the action now under consultation.

Description of the Action Area

The Parker-Davis System passes near or crosses three riparian systems: the Gila and Salt Rivers; Cienega Creek; and San Pedro River. Generally, these riparian communities have been altered from their original (pre-settlement) conditions and ultimately have been degraded by human actions, including and especially dam building, water diversions, groundwater pumping, agriculture, livestock grazing, and urban development. These actions have changed surface and subsurface stream flows and lowered the quality, distribution, abundance, and longevity of riparian vegetation. Invasions of nonnative plants and animals have also contributed to loss and reductions in quality of riparian habitats.

The Gila River and Salt River are highly regulated. Surface water from the Salt River passes through a series of four reservoirs, all located northeast of Phoenix. The last of these dams, Granite Reef Diversion Dam, diverts flows to the agricultural and municipal sectors of Phoenix and the greater area. Downstream from the Granite Reef Dam the Salt River is ephemeral and only flows in response to flooding or reservoir releases. The Salt River becomes perennial further downstream due to effluent discharges from the 23rd Avenue and 91st Avenue City of Phoenix wastewater treatment plants, near the confluence of the Gila River. Downstream of the Salt/Gila confluence, the Gila River flows year round due to effluent discharge at the wastewater treatment plants mentioned above, and from return flow from nearby agricultural areas.

Cienega Creek is one of the most intact riparian areas left in southern Arizona and is perennial in some reaches. It supports several natural preserves, Las Cienegas National Conservation Area, and Cienega Creek Natural Preserve (see Appendix A) and is one of the few remaining streams in Arizona that has not been invaded by non-native fish. It also supports healthy populations of native fish and amphibians. However, some reaches are dry because of groundwater pumping and other factors, including the reach where the Parker-Davis System crosses Cienega Creek.

The San Pedro River is the last undammed desert river in the American Southwest. However, flows are subject to depletion through groundwater pumping and other factors (Arizona Department of Water Resources [ADWR] 2010). Currently, groundwater pumping is in excess of recharge, and as a result the San Pedro River is ephemeral in many reaches. At the Parker-Davis System/San Pedro River crossing, ground water is likely too deep to support short- or long-term health of riparian woodlands.

Status of the Species Within the Action Area

<u>Pima Pineapple Cactus</u>

For the environmental baseline, we consider areas of the Parker-Davis System where cacti are known to occur: the Tucson-Apache section of the Parker-Davis System, extending from Tucson east to the Apache substation.

Western conducted cactus surveys along the Tucson-Apache Power Line in 2010, 2012, 2013, and 2014. These surveys preceded ongoing O&M activities. Cactus plants were found from the eastern boundary of the San Xavier Indian Reservation to approximately one mi west of Davidson Canyon; however, sections of the ROW containing cactus plants were not continuous. The San Xavier Reservation (Tohono O'odham Nation) is in the southwestern part of the Tucson metropolitan area. Davidson Canyon is a tributary of Cienega Creek (described below).

Northern Mexican Gartersnake

The Parker-Davis System crosses Cienega Creek approximately 16 mi west of Benson, Arizona, 1.5 mi south of I-10, in Pima County. The line also crosses the San Pedro River two mi east of Benson, one mi north of I-10, in Cochise County, Arizona. Surveys for the northern subspecies of this gartersnake were not done for the purposes of the proposed action; however, the subspecies historically was found along Cienega Creek and the San Pedro River and both watersheds are considered to be occupied by the gartersnake (78 FR 41550). However, neither of these crossings is within the five areas in Arizona, described under *Status of the Species,* where the gartersnake is still reliably found. Critical habitat for the species does occur along these watercourses within the action area (see Appendix A), but habitat at the crossings themselves does not include perennial flows. Individuals may occur intermittently in the proposed action area when dispersing to areas with perennial water or when prey is present as a result of recent rains.

Southwestern Willow Flycatcher

For the environmental baseline, we focus on one river crossing that we also considered above for the gartersnake, at the San Pedro River. Flycatcher surveys were not conducted for the proposed action, so we cannot say if nesting pairs are present at the crossing. However, as we discuss in greater detail in Appendix A, vegetation at the crossing consists of upland desertscrub, dense tamarisk, and scattered mesquite trees. Tamarisk is an important component of flycatcher habitat in the Southwest; thus, breeding pairs could be present at the crossing and habitat there could be used by dispersing, migrating, or foraging birds. The nearest known occupied habitat is in the Middle Gila/San Pedro Management Unit (a designated critical habitat unit; 62 CFR 39129) nine mi north (downstream) of the Parker-Davis crossing. A high of 195 flycatcher nesting territories was counted in the management unit in 2005 (Sogge and Durst 2008). However, except for the tamarisk stands, suitable habitat for the flycatcher is limited at the crossing. The area lacks permanent or semi-permanent water or saturated soils and water is likely only present in the area as a result of recent rains. There are no willow or cottonwood trees and none of the vegetation typical of riparian woodlands. Insect (prey) populations present at the crossing would be those associated with desert scrub and tamarisk habitats, with an unknown amount of overlap with insects typically found in riparian woodlands. We do not know if tamarisk stands at the crossing have been infected by the tamarisk leaf-eating beetle, but they are at risk.

Western Yellow-billed Cuckoo

The Parker-Davis System parallels the north side of the Gila River in Maricopa County, Arizona, 0.5 mi from the river itself. The power line also crosses Cienega Creek at the same location discussed above for the gartersnake, and it crosses the San Pedro River, at the same location as we discussed above for the gartersnake and flycatcher. All three areas include or are near proposed cuckoo critical habitats (see Appendix A).

Cuckoo surveys were not done for the purposes of the proposed action at any of the sites discussed above and no regular or standardized cuckoo counts (e.g., playback surveys) have occurred in these areas. Incidental cuckoo records on the Salt and Gila Rivers during the breeding period are available from two primary sources: the HDMS (http://www.azgfd.gov) and eBird (http://www.ebird.org), an online checklist program. The number of breeding pairs that occur in the Salt/Gila watershed is not known and the extent of use of the area during migration has not been documented. Cuckoos have been documented in multiple years in several locations. The detection nearest the Parker-Davis System occurred on July 14, 2012, on the north side of the river, in the Estrella Mountain Regional Park, two mi from the power line (eBird, accessed June 10, 2015). Vegetation along the ROW consists of creosotebush (*Larrea tridentata*), burage (*Ambrosia dumosa*), cactus, mesquite, and palo verde (*Parkinsonia* spp.).

On Cienega Creek, cuckoos occur at the Las Cienagas National Conservation Area, approximately seven mi south of the Parker-Davis crossing, and within the Cienega Creek Natural Preserve, which includes the crossing. Proposed critical habitat for the cuckoo is 0.7 mi north of the Parker-Davis crossing of Cienega Creek, and seven mi south, at the Las Cienegas National Conservation Area (see Appendix A). However, as we discussed above for the gartersnake, the crossing lacks permanent or semi-permanent water flows and riparian vegetation. Because cuckoos are more flexible in their habitat use during migration, and the area probably supports large insect prey, cuckoos could occur here during dispersal and migration.

On the San Pedro River, the Three Links conservation property, approximately 15 mi northwest of the Parker-Davis crossing, is the nearest site occupied by cuckoos. Cuckoo detections occurred here during flycatcher surveys, from 2004-2013, and during cuckoo breeding season playback surveys, in 2012 and 2013, but the number of breeding territories at the Three Links property is unknown (Tucson Audubon Society Chapter unpubl. data, U.S. Bureau of Reclamation unpubl. data). The greatest number of cuckoos in Arizona, up to 52 pairs, was counted within BLM's San Pedro Riparian National Conservation Area, beginning approximately 18 mi south of the San Pedro River crossing (Halterman 2009). As we discussed above for the flycatcher, vegetation at the San Pedro River crossing consists of upland desertscrub, dense tamarisk, and scattered mesquite, which are not suitable as cuckoo nesting habitat. Because cuckoos are more flexible in their habitat outside of the breeding period, and the area probably supports large insect prey, it is possible cuckoos would occur here during dispersal and migration.

EFFECTS OF THE ACTION

Effects of the action refer to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated and interdependent with that action, which will be added to the environmental baseline. Interrelated actions are those that

are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Indirect effects are those that are caused by the proposed action and are later in time, but are still reasonably certain to occur.

O&M and IVM activities will occur along the Parker-Davis System on a scheduled basis (see *Description of the Proposed Action*, above). Emergency maintenance may occur at any time to ensure power transmission. O&M and emergency work may include repair of transmission lines or repair or replacement of damaged equipment. Effects to species habitats will be the same for O&M and emergency actions. Emergency actions may occur during breeding seasons, which may affect breeding, migrating or foraging individuals, and are addressed for each species. The IVM program will affect vegetation along the ROW and within proposed critical habitats (see Appendix A).

Although changes to vegetation and water availability may occur over the life of the O&M and IVM programs, we do not expect these changes to be substantial so the condition of the action area will not change substantially for the species addressed, e.g., breeding habitat for riparian species will not develop where there is no breeding habitat now. In general, factors considered above will continue to limit cactus recovery and recovery of riparian systems important to the gartersnake, flycatcher, and cuckoo.

Pima Pineapple Cactus

Cactus surveys prior to O&M and IVM actions, flagging and fencing of cactus plants inside the ROW, and monitoring by a qualified biologist during surface disturbing activities should eliminate most direct effects to cacti. Thus, effects of the proposed action should have no population-level effects. Emergency actions could result in direct loss of individual plants on rare occasions, but because of the limited amount of cactus habitat that overlaps the transmission system these losses would have no effect at the population level. Some Category B and C activities (Tables 1-3), such as road repairs and tower footing maintenance, could indirectly affect cactus habitat due to sediment runoff from surface disturbances. Ground-disturbing activities could also lead to increased establishment and spread of invasive plant species, which may compete with cacti for space and resources, and could modify fire regimes. Measures to minimize erosion and the spread of invasive plant species, as described in the PBA and EA, would minimize the potential for indirect effects to the cactus.

Northern Mexican Gartersnake

Because the Cienega Creek and San Pedro River crossings are usually dry, individuals would occur only intermittently in the action area, e.g., during dispersal and when water is present after rains. Thus, we are reasonably certain that the likelihood of individuals being directly affected by the proposed action (e.g., crushed by vehicles) is small, and the proposed action would have no effects at the population level. First, actions associated with O&M and IVM activities will occur only sporadically, i.e., every 3-5 years or when emergencies occur. Second, impacts would be temporary and cease with the completion of O&M and IVM activities. Third, no ground disturbing activities will occur during routine O&M and IVM activities at the crossings themselves, although disturbances could occur at nearby towers. Emergency activities could

result in some ground disturbance, but with the generally dry conditions at these crossings, it is unlikely there would be any direct effects to gartersnakes.

Southwestern Willow Flycatcher

No designated flycatcher critical habitat on the San Pedro River is present in the project area; thus, there would be no effect on flycatcher designated critical habitat. Flycatchers are known to breed in large numbers downstream of the Parker-Davis System crossing, and habitat at the crossing itself is only marginally suitable for nesting flycatchers. Thus, the temporary impacts from this project would not cause population effects. From May 15 to August 25 (the flycatcher breeding period), any noisy O&M or IVM ground activities that require equipment other than hand tools and pickup trucks will be prohibited, or a qualified biologist will conduct flycatcher surveys prior to project activities, using methods described in Sogge et al. (2010). If resident birds are detected, the FWS will be contacted for guidance.

Habitat at the Parker-Davis System crossing of the San Pedro River is suitable for foraging and migrating flycatchers. However, IVM activities within the ROW would be limited to the minimum required to maintain clearance between vegetation and the transmission lines, primarily by topping some trees. This would occur as needed, likely every 3-5 years. To avoid impacts to flycatchers, any vegetation management would occur outside of the breeding season with the exception of emergency situations. Emergency maintenance may occur during the breeding season, which could result in temporary displacement of migrating, nesting, or foraging birds. We anticipate that emergency activities would be of short duration, so this displacement should not affect adult survival, and individuals will likely resume normal behavior after emergency maintenance is complete. However, noise disturbance associated with emergency activities could result in loss of eggs or young and could cause nest abandonment if these activities occur near incubating or brooding adults.

Indirect effects to flycatchers as a result of the proposed action could include noise impacts during routine maintenance and vegetation management activities. Potential noise impacts could include changes in habitat use, especially if birds are forced into poorer habitats, and increased stress (e.g., Gordon and Uetz 2012; Herrera-Montes and Aide 2011).

Western Yellow-billed Cuckoo

No impacts from the proposed project on nesting cuckoos are anticipated because nesting habitat is not present in the ROW, and we do not anticipate that nesting habitat will develop within the ROW during the project's lifetime, unless fundamental changes in water use and availability occur at the Cienega Creek and San Pedro River crossings (on the Gila River, the Parker-Davis System crosses desertscrub habitat well away from the nearby riparian zone). Thus, the project will cause no population-level effects. As safeguards, O&M and IVM activities will not occur at any river or stream crossing considered above during the cuckoo breeding period, unless necessary. Also, a qualified biologist will conduct cuckoo surveys prior to any project-related activity, using currently accepted survey methods. If cuckoos are detected, FWS will be contacted for guidance. Migrating or dispersing birds may be impacted by noise during project-related activities; however, these effects would be short-term and birds could move to other suitable foraging habitats. IVM activities within the ROW would be limited to the minimum required to maintain clearance between vegetation and the transmission lines. Emergency

maintenance may displace migrating or dispersing birds, but as with noise-related impacts, the effects would be temporary. Displacement is unlikely to affect a migrant's or dispersing bird's survival, and individuals would likely resume normal behavior after the emergency maintenance is complete.

CUMULATIVE EFFECTS

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

Habitat for all the species we have considered include areas of State, tribal, and private lands where livestock grazing could occur. Livestock grazing could lead to direct mortality of cacti and gartersnakes (by trampling of individuals), and could further degrade the watersheds and habitats of the riparian species we have considered (gartersnake, flycatcher, and cuckoo), due to trampling and the establishment and spread of invasive plants. However, direct effects of grazing in riparian areas on State lands would not occur because grazing is not permitted in the floodplains or within adjacent riparian woodlands. Other, unregulated, activities could include trespass livestock, inappropriate OHV use, other recreational activities, and cross-border activities from Mexico. These and other human activities may result in habitat loss or damage to areas where the cactus occurs or to the various river and stream crossings we have discussed.

CONCLUSION

The conclusions of this biological opinion are based on full implementation of the project as described in the *Description of the Proposed Action* section of this document, including the *Conservation Measures* that were incorporated into the project design.

Pima Pineapple Cactus

After reviewing the current status of the cactus, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the FWS's biological opinion that the proposed action is not likely to jeopardize the continued existence of the cactus. We base these conclusions on the following reasons:

- Although Individual plants may be affected or removed, relocation of plants should reduce loss of individuals. Cacti will continue to be present in the project vicinity and will contribute to the continued persistence of the population in the action area.

Northern Mexican Gartersnake

After reviewing the current status of the gartersnake, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the FWS's biological opinion that the proposed action is not likely to jeopardize the continued existence of the gartersnake. We base these conclusions on the following reasons:

- The likelihood of individuals being directly affected is small, considering the relatively small areas that will be affected by the project and the lack of permanent water and prey. We expect that habitat in the project area, which is used primarily for movements and dispersal, will continue to remain functional into the future.

Southwestern Willow Flycatcher

After reviewing the current status of the flycatcher, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the FWS's biological opinion that the proposed action is not likely to jeopardize the flycatcher's continued existence. We base this conclusion on the following reasons:

- Most nesting, foraging, and migrating individuals will not be affected because proposed actions will occur only outside of the breeding period. Although emergency maintenance may affect nesting, migrating, or foraging individuals, these activities will be of short duration and we do not expect that reproduction or survival will be affected.
- Habitat within riparian areas would only be affected by maintenance actions requiring removal of minimal amounts of vegetation to maintain line clearance. Habitat conditions will remain suitable for nesting, foraging, and migration.

Western Yellow-billed Cuckoo

After reviewing the current status of the cuckoo, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the FWS's biological opinion that the proposed action is not likely to jeopardize the continued existence of the cuckoo, and it is our conference opinion that the proposed action is not likely to destroy or adversely modify proposed cuckoo critical habitat. We base these conclusions on the following reasons:

- Breeding habitat does not occur within the ROW and is not expected to develop during the project's lifetime; therefore, there will be no effect to breeding activity.
- Most migrating and foraging individuals will not be affected because proposed actions will occur only outside of the breeding period. Although emergency maintenance may affect migrating or foraging individuals, these activities will be of short duration and we do not expect that survival will be affected.

INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and Federal regulations pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harm," is defined (50 CFR 17.3) and means an act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering. "Harass" is defined (50 CFR 17.3) and means an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. "Incidental take" is

defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the ESA provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

AMOUNT AND EXTENT OF TAKE

Pima Pineapple Cactus

Sections 7(b)(4) and 7(o)(2) of the ESA generally do not apply to listed plant species. However, limited protection of listed plants from take is provided to the extent that the ESA prohibits the removal and reduction to possession of federally-listed endangered plants from areas under Federal jurisdiction, or for any act that would remove, cut, dig up, or damage or destroy any such species on any other area in knowing violation of any regulation of any State or in the course of any violation of a State criminal trespass law. Our review of the project does not indicate that any such prohibited activities will result from the proposed action.

Northern Mexican Gartersnake

We do not anticipate that implementation of the proposed action is reasonably certain to result in incidental take of any gartersnake because:

- Conservation measures will ensure that direct effects to gartersnakes are avoided by use of appropriate erosion control products and by minimizing vegetation control procedures and avoiding surface disturbances.
- Very little information exists on gartersnake occurrence in the action area; however, the lack of perennial flows at Cienega Creek and at the San Pedro River indicate that snakes would occur at these crossings only intermittently.
- We cannot predict whether, when, or where emergency actions may occur at the above crossings. Due to the generally dry conditions at these crossings, we are not reasonably certain that emergency responses could result in take of gartersnakes.

Southwestern Willow Flycatcher

We do not anticipate that implementation of the proposed action is reasonably certain to result in incidental take of any flycatcher because:

- Proposed actions will occur only outside of the breeding period and flycatcher surveys will precede any O&M and IVM activities.
- Emergency maintenance that may affect nesting, migrating, or foraging individuals cannot with reasonable certainty be expected to occur at the San Pedro River crossing when flycatchers are present.

Western Yellow-billed Cuckoo

We do not anticipate that implementation of the proposed action is reasonably certain to result in incidental take of any cuckoo because:

- There is no breeding habitat within the ROW.
- Emergency maintenance that may affect migrating or dispersing individuals cannot with reasonable certainty be expected to occur.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

Pima Pineapple Cactus

We recommend that Western coordinate with the Arizona-Sonoran Desert Museum in salvaging for their collection any individual cactus that cannot be relocated for any reason.

Northern Mexican Gartersnake

We recommend that Western work with us and AGFD to participate in recovery planning and implementation of conservation actions for the gartersnake, particularly on efforts to remove harmful nonnative species from occupied gartersnake habitats.

Southwestern Willow Flycatcher

We recommend that Western work with us and AGFD to implement recovery actions for the flycatcher.

Western Yellow-billed Cuckoo

We recommend that Western work with us and AGFD to participate in recovery planning and implementation of conservation actions for the cuckoo.

In order for the FWS to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the FWS requests notification of the implementation of any conservation recommendations.

REINITIATION NOTICE

This concludes formal consultation on the actions outlined in the request, and no further section 7 consultation is required for this project at this time. As provided in 50 CFR ' 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

Please note that we are currently reviewing that status of the candidate species that may occur in the action area (roundtail chub, Sonoran desert tortoise, and Sprague's pipit) to determine if they should be added to the Federal Lists of Endangered and Threatened Wildlife and Plants. We are available to provide technical assistance for any of these species, if necessary, to ensure they are not negatively impacted by O&M or IVM treatments or activities.

Certain project activities may also affect species that are protected under the Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 U.S.C. sec. 703-712) and/or bald and golden eagles protected under the Bald and Golden Eagle Protection Act (BGEPA). The MBTA prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by FWS. BGEPA prohibits anyone, without a permit issued by the FWS, from taking (including disturbing) eagles, and including their parts, nests, or eggs. If you believe migratory birds will be affected by the project, we recommend you contact our Migratory Bird Permit Office, P.O. Box 709, Albuquerque, NM 87103, (505) 248-7882, or permitsR2mb@fws.gov. For more information regarding the MBTA, please visit the following websites: http://www.fws.gov/migratorybirds and http://www.fws.gov/migratorybirds/mbpermits.html.

For information on protections for bald eagles under the BGEPA, please refer to the FWS's National Bald Eagle Management Guidelines (72 FR 31156) and regulatory definition of the term "disturb" (72 FR 31132) that were published in the Federal Register on June 5, 2007. Existing take authorizations for bald eagles issued under the ESA became covered under the BGEPA via a final rule published in the Federal Register on May 20, 2008 (73 FR 29075). Our office is also available to provide technical assistance to help you with compliance.

The FWS appreciates Western's efforts to identify and minimize effects to listed species from this project. We encourage you to coordinate the review of this project with AGFD. We also appreciate your ongoing coordination during implementation of this program. In keeping with our trust responsibilities to American Indian Tribes, we are providing copies of this memorandum to the Bureau of Indian Affairs (BIA) and are notifying affected Tribes.

For further information please contact Robert Lehman (602) 242-0210 (x217) or Brenda Smith at (928) 556-2157. In all future correspondence on this project, please refer to consultation numbers 02EAAZ00-2014-TA-0138 and 02EAAZ00-2014-CPA-0020.

Sincerely,

Steven L. Spangle
Field Supervisor

cc (electronic)

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Table 1. Category A – Inspection and Minor Maintenance Activities

Substation and Facilities Maintenance

- Building maintenance including interior and exterior painting; and roof, ceiling, floor, window, and door maintenance
- Substation inspections
- Maintenance and replacement of transformers and breakers
- Servicing and testing of equipment at existing substations, including oil change-outs
- Installation or replacement of brushings
- Cleaning or replacement of capacitor banks
- Maintenance or installation of switches (manual and motor-operated), interrupters, voltage regulators, reactors, reclosers, and valves
- Replacement of wiring in substations and switch yards
- Replacement of existing substation equipment including regulators, capacitors, switches, wave traps, radiators, instrument transformers, and lightning arresters
- Installation of cut-out fuses
- Adjustments and cleaning disconnect switches
- Placement of temporary transformer
- Maintenance, installation, and removal of solar power array and controller
- Installation of foundation for storage buildings above ground mat within existing substation yard
- Maintenance or installation of propane tanks within a substation yard
- New footings
- Ground mat repairs
- Clearing vegetation by hand within the property boundary of a substation
- Application of approved herbicides (including pesticides) within the property boundary of a substation
- Main station battery bank maintenance and installation
- Remediation of small spill of oil (less than 1 gallon)

Transmission Line Maintenance

- Ground and aerial patrols
- Climbing inspection and tightening hardware on wood and steel transmission line structures
- Ground wire maintenance
- Aircraft warning device maintenance (e.g., light beacons, aerial marker balls, etc.)
- Insulator maintenance
- Bird guard maintenance
- Cross arm maintenance on wood pole transmission line structures
- Emergency hand removal and/or pruning of danger trees or vegetation
- Maintenance or replacement of steel members of steel transmission line structures
- Maintenance or replacement of hardware on wood and steel transmission line structures
- X brace and knee brace maintenance
- Wood pole testing
- Ground rod maintenance
- Armor rod maintenance and clipping-in structures
- Conductor maintenance
- Wood preservative maintenance on wooden pole structures
- Emergency placement of rocks at bases of poles or structures to stabilize small eroded areas
- Antenna maintenance
- Structure mile-marker maintenance
- Remediation of small spill of oil (less than 1 gallon)

Protection and Communication System Maintenance

- Generator maintenance
- Maintenance and inspection of microwave radio towers and dishes
- Maintenance and inspection of communication towers, antennae, and appurtenant equipment
- Panel additions and removals, wiring changes, and controls modifications
- Maintenance and inspection of parabolic dishes
- Light beacon maintenance
- Refilling of propane tanks, and maintenance of associated gauges and switches
- Above-ground foundation and footings maintenance
- Application of herbicides (including pesticides) within the property boundary of a communications site

Table 2. Category B – Routine Maintenance Activities

• **Transmission Line Maintenance**	
▪ Maintenance and repair of existing culverts	▪ Installation of minor rip-rap on washes, creeks, and rivers
▪ Installation of new culverts (for areas outside of jurisdictional waters)	▪ Place fill or rock(s) around existing culverts
▪ Installation of new foundation for storage building at existing facilities	▪ Place fill or rock(s) around existing towers or structures
▪ Cross arms replacements on wood pole structures	▪ Vehicle and equipment staging
▪ Remove soil deposition around tower legs	▪ Installation and repair of fences and gates
▪ Ground anchors maintenance	▪ Installation of underground and overhead power, communication, or ground electrical line (less than 100 ft)
▪ Wood pole maintenance and replacement	▪ Hand removal and/or pruning of danger trees or vegetation
▪ Fill in erosional features on access roads	▪ Mechanical vegetation management by means of bulldozers, masticators, or other mechanical equipment
▪ Remediation of small spill of oil and hazardous materials (up to 10 gallons)	▪ Spacer/damper replacement and maintenance
▪ Grading existing access roads (within existing road footprint)	
• **Substations, Facilities, Protection, and Communication System Maintenance**	
▪ Foundations or footings maintenance	▪ Maintenance and repair of existing culverts
▪ Installation of underground and overhead water, power, communication, or ground electrical line (less than 100 ft)	▪ Remediation of small spill of oil and hazardous materials (up to 10 gallons)
▪ Installation or replacement of antennas to existing structures	▪ Access road repair (within existing footprint)
	▪ Installation and repair of fences and gates

Table 3. Category C – Minor Additions or Modifications to Existing Infrastructure

• Adding access roads to structures (approximately 300 ft or less in length) • Relocation of existing access roads within the ROW • Installation of new culverts (for areas within jurisdictional waters) • Erosion control projects at existing facilities • Replacing existing conductor • Installation of rip-rap to recontour washes, creeks, or rivers	• Tower/pole relocation/realignment/replacement • Installation of inset structures and shoo-flys • Installation of underground and overhead water, power, or communication line (greater than 100 ft) • Remediation of small spill of oil and hazardous materials (greater than 10 gallons) • Application of approved herbicides

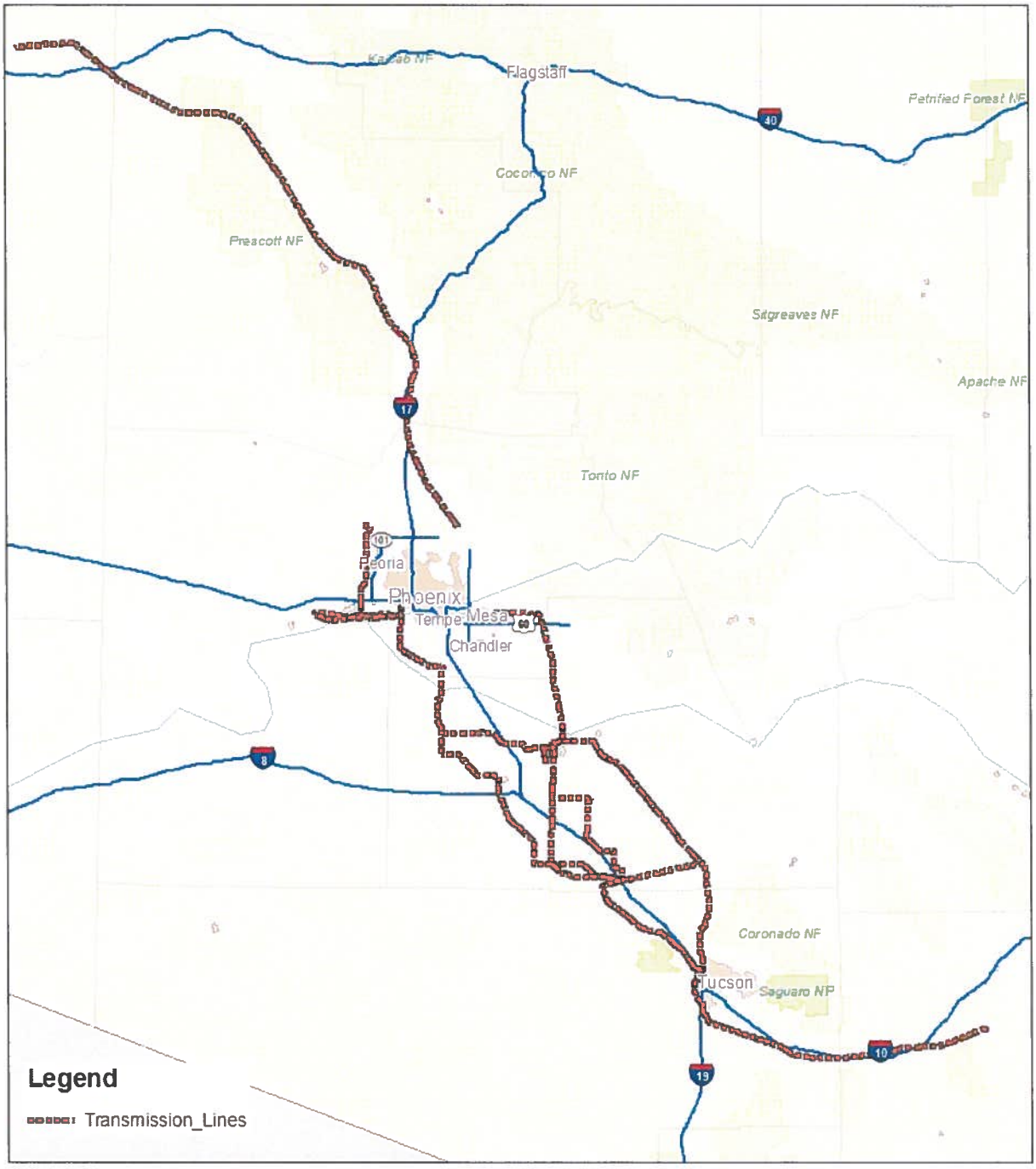

Figure 1-Proposed Action Location

APPENDIX A: CONCURRENCES/CONFERENCE REPORTS

This appendix contains our concurrences with your "may affect, not likely to adversely affect" determinations for the endangered California condor outside of the nonessential experimental population (10(j)) area, and the endangered lesser long-nosed bat. We are providing a conference report for the 10(j) population of the California condor. Additionally, we provide our conference report and concurrence that the proposed action will not likely adversely modify critical habitat for the northern Mexican gartersnake and the western yellow-billed cuckoo.

DESCRIPTION OF THE PROPOSED ACTION

The proposed action is described above in the Biological Opinion (BO) and is incorporated herein by reference. In summary, the proposed action is to continue Western's Operations and Management (O&M) program and to institute an Integrated Vegetation Management (IVM) program for the existing Parker-Davis Transmission System in Arizona. O&M activities are preventative and involve inspections and repair of Parker-Davis infrastructure and maintenance of access roads. The IVM program is needed to eliminate the threat of vegetation interference with operation of the transmission system.

California Condor (inside and outside the nonessential experimental area)

Condors in Arizona, specifically within the Grand Canyon complex along the Colorado River corridor and Kaibab Plateau, are part of the 10(j) nonessential experimental population, and as such are treated as though they are proposed for listing for section 7 consultation purposes. No proposed action impacting a population so designated could lead to a jeopardy determination for the entire species. However, when condors extend beyond the experimental population boundaries, they are fully protected as endangered.

No known condor records exist within the action area and suitable canyon and gorge habitat for condors is limited to northern portions of the action area. These areas lie outside the 10(j) nonessential experimental population area. The nearest reported condor sightings are from north of Sedona, in Yavapai and Coconino Counties, Arizona (C. Parish, The Peregrine Fund, pers. comm.), also outside the nonessential experimental population area and the action area.

Conservation Measures

Program Conservation Measures (PCMs), as outlined in Western's PBA (section 10, page 76) will be implemented to reduce, mitigate, or prevent direct and indirect project effects to condors, as follows:

- If condors occur at a project site, Western will cease all activity until condors leave on their own. There will be no hazing or "shooing" of birds.

- Western and contract personnel will clean project sites at the end of each day to avoid attracting condors.

- Western will not conduct project activities within 1 mi of a nest site between February 1 and June 30. No activities will be conducted within 0.5 mi of communal roosts while

occupied by condors. Avoidance periods will be adjusted at the discretion of FWS or Western's Environmental Affairs Division.

- Western will require awareness training for all crews and contractors working within potential condor habitats.

DETERMINATION

We concur with your determination that the proposed action will not likely adversely affect the California condor outside of the 10(j) population area, and agree that the proposed action will not jeopardize the continued existence of the condor within the 10(j) area for the following reasons:

- Although condors have not been observed in the action area, there is the possibility of a rare interaction between condors and O&M and IVM ground crews conducting hazard vegetation removal, routine vegetation maintenance, vegetation disposal, inspections of vegetation and line facilities, maintenance and repair of line facilities, vehicle travel associated with all of these activities, and maintenance of access routes. We think these instances will be rare. As a result, any disturbance to condors associated with on-the-ground O&M or IVM activities (i.e., flushing a condor from a perch or carcass) is anticipated to be insignificant and discountable.

- Aerial monitoring (helicopter and fixed-wing reconnaissance and patrol flights) will also occur throughout the action area each year; thus, it is not unreasonable to anticipate that aircraft may briefly disrupt condors (i.e. startle or flush them). Again, however, these incidents will be rare and overall the effects of these disturbances to condors are anticipated to be insignificant and discountable.

- No nesting areas for condors occur outside of the non-essential experimental boundary, and all nests in Arizona have occurred on cliffs. As a result, no nesting areas or nesting habitat would be impacted by the proposed action.

Lesser Long-nosed Bat

Nine major lesser long-nosed bat roosts and several hundred smaller roosts occur in Arizona. However, no known roosts occur in the action area. The nearest known roosts are at the Bluebird and Copper Mines in western Pima County, and Old Mammon mine in southwestern Pinal County, >15 mi from the Parker-Davis line.

Portions of the action area in western and central Maricopa County—about 60 mi of the Parker-Davis line—pass through the current range of the species and within suitable habitat (Sonoran Desert scrub). Caves and abandoned mines potentially suitable as roost sites are likely present in the project vicinity, but none occur within the action area. Saguaros *(Carnegiea gigantea)* are rare to locally common in the action area. Agaves occur rarely in the action area where it overlaps the bat's range.

Conservation Measures

Program Conservation Measures (PCMs), as outlined in Western's PBA (section 10, page 77) will be implemented to reduce, mitigate, or prevent direct and indirect project effects to bats, as follows:

- Columnar cacti and agave will be avoided to the extent practicable. If avoidance is not possible, agave and small (<10-ft) cacti may be relocated within the ROW outside of disturbance areas.

DETERMINATION

We concur with your determination that the proposed action will not likely adversely affect the lesser-long-nosed bat for the following reasons:

- Because there are no known roosts in the action area, there will be no known effects on roosting bats. Project activities would occur more than 15 mi from the nearest known roosts. Although bats may forage in the southeastern extent of the action area, project activities will be restricted to daytime hours and would not affect foraging individuals.

- PCMs will provide for the avoidance of forage species wherever practicable; therefore, effects to forage plants will be negligible relative to the remaining suitable forage species in the project area.

Northern Mexican Gartersnake

Proposed Critical Habitat

Critical habitat for the gartersnake has been proposed in 14 units in portions of Arizona and New Mexico totaling 421,423 ac. Within these areas, the primary constituent elements (PCEs) of the physical and biological features essential to gartersnake conservation are:

1. Aquatic or riparian habitat that includes:
   a. Perennial or spatially intermittent streams of low to moderate gradient that possess appropriate amounts of in-channel pools, off-channel pools, or backwater habitat, and that possess a natural, unregulated flow regime that allows for periodic flooding or, if flows are modified or regulated, a flow regime that allows for adequate river functions, such as flows capable of processing sediment loads; or
   b. Lentic wetlands such as livestock tanks, springs, and cienegas; and
   c. Shoreline habitat with adequate organic and inorganic structural complexity to allow for thermoregulation, gestation, shelter, protection from predators, and foraging opportunities (e.g., boulders, rocks, organic debris such as downed trees or logs, debris jams, small mammal burrows, or leaf litter); and
   d. Aquatic habitat with characteristics that support a native amphibian prey base, such as salinities less than 5 parts per thousand, pH greater than or equal to 5.6, and pollutants

absent or minimally present at levels that do not affect survival of any age class of the gartersnake or the maintenance of prey populations.

2. Adequate terrestrial space (600 ft lateral extent to either side of bankfull stage) adjacent to designated stream systems with sufficient structural characteristics to support life-history functions such as gestation, immigration, emigration, and brumation.
3. A prey base consisting of viable populations of native amphibian and native fish species.
4. An absence of nonnative fish species of the families Centrarchidae and Ictaluridae, bullfrogs, and/or crayfish (*O. virilis, P. clarki*, etc.), or occurrence of these nonnative species at low enough levels such that recruitment of northern Mexican gartersnakes and maintenance of viable native fish or soft-rayed, nonnative fish populations (prey) is still occurring.

Status of and Factors Affecting Proposed Critical Habitat in the Action Area

Here we focus on two units proposed as gartersnake critical habitat within the action area. The Parker-Davis System crosses Cienega Creek approximately 16 mi west of Benson, Arizona, 1.5 mi south of I-10, in Pima County. The line also crosses the San Pedro River two mi east of Benson, one mi north of I-10, in Cochise County, Arizona. At the two units combined, the Parker-Davis System crosses 0.5 mi of proposed gartersnake critical habitat. The units at these sites include the Cienega Creek Subbasin Unit and San Pedro River Subbasin Unit (78 FR 41550).

Cienega Creek Subbasin Unit

The Cienega Creek Subbasin Unit consists of springs, seeps, streams, stock tanks, and terrestrial space within 50,393 ac of proposed critical habitat in the Las Cienegas National Conservation Area, the Cienega Creek Natural Preserve (NP), and a 7.1 mi segment of Cienega Creek between the Las Cienegas National Conservation Area and NP.

The Parker-Davis System crosses the Cienega Creek Subbasin Unit inside the 7.1-mi segment. This area consists of 1,113 ac of proposed critical habitat. The Cienega Creek Subbasin Unit occurs on lands managed by the Arizona State Land Department and a small amount of private land. Native fish and both Chiricahua (*L. chiricahuensis*) and lowland (*L. yavapaiensis*) leopard frog populations provide prey for the gartersnake, and ongoing bullfrog eradication in the area has reduced the threat of bullfrogs within this subunit (78 FR 41550).

Our examination of aerial photographs at the Cienega Creek crossing (Google Earth, accessed June 25, 2015) indicates that the crossing itself is a dry creek bed. Water is present here probably only in response to recent rains. Google Earth images of the proposed crossing, reported in another BO, the Proposed Southline Transmission Line BO (02EAAZ00-2014-F-0140), show that water was not present on any of the following dates: November 14, 1992; May 31, 1996; September 20, 2003; May 30, 2005; June 15, 2006; June 20, 2007; September 9, 2010; and June 11, 2011. These dates were inclusive of all dates reported (i.e., on no occasion was water present at the Cienega Creek crossing).

Our examination of Google Earth imagery on June 25, 2015, also indicates that there is little to no riparian vegetation at the crossing. Vegetation here appears to be mostly Arizona Upland

Sonoran Desertscrub habitat, possibly with one or two stringers of tamarisk. Thus, the Cienega Creek crossing itself appears to have few of the PCEs of gartersnake critical habitat: there are no perennial flows; no aquatic or riparian habitat; and probably no permanent, viable prey populations, native or nonnative. However, gartersnakes may move through the crossing when they are foraging or dispersing between more suitable habitat areas, in spite of the lack of perennial flows. When intermittent flows occur, the chances of gartersnake prey being present and the chances of gartersnake use will increase.

San Pedro River Subbasin Unit

The San Pedro River Subbasin Unit consists of 23,690 ac along 165 mi of proposed critical habitat along the San Pedro River and Bear Creek. Here, we focus on the portion of the subbasin unit that contains the Parker-Davis System crossing of the San Pedro River (the San Pedro River Subunit).

The San Pedro River Subunit includes 22,669 ac of critical habitat along 158.4 mi of the river, from its confluence with the Gila River at Winkelman, upstream (south) to the International Border, in Cochise, Pima, and Pinal Counties, Arizona. The subunit occurs predominately on private lands, with remaining lands managed by the U.S. Bureau of Land Management. Native fish and lowland leopard frogs occur throughout the San Pedro River and provide a prey base for gartersnakes, with prey population densities increasing in the downstream direction (north). Crayfish, bullfrogs, and nonnative, spiny-rayed fish occur predominately upstream (south) of the I-10 crossing (the Parker-Davis System crosses the San Pedro River one mi north of I-10).

Our examination of aerial photographs at the crossing (Google Earth, accessed June 25, 2015) indicates that the Parker-Davis System crosses a dry creek bed. Water is present here probably only in response to recent rains. Google Earth images of the proposed crossing reported in the BO mentioned above (02EAAZ00-2014-F-0140) indicate that water was not present on any of the following dates: November 14, 1992; May 31, 1996; October 5, 2002; September 20, 2003; December 22, 2005; June 20, 2007; May 23, 2009; September 9, 2010; April 29, 2011; and June 11, 2011. Water was present in the channel on October 1, 2006.

Our examination of Google Earth imagery on June 25, 2015 also indicates that there is little to no riparian vegetation at the San Pedro River crossing. Vegetation consists of a stringer of dense tamarisk on the east bank. Upland vegetation on the east bank, beyond the stringer, and on the west bank, is typical of Arizona Upland Sonoran Desertscrub habitat. Scattered velvet mesquite (*P. velutina*) is present on the west bank and upstream and downstream of the crossing on both banks. Dense stands of tamarisk occur upstream and downstream of the crossing on both banks as well. Thus, the San Pedro River crossing appears to have few of the PCEs of gartersnake critical habitat: there are no perennial flows; no aquatic or riparian habitat; and probably no permanent, viable prey populations, native or nonnative. However, gartersnakes may move through the crossing when they are foraging or dispersing between more suitable habitat areas, in spite of the lack of perennial flows. When intermittent flows occur, the chances of gartersnake prey being present and the chances of gartersnake use will increase.

Conservation Measures

PCMs, as outlined in Western's PBA (section 10, pages 77-78) will be implemented to reduce, mitigate, or prevent direct and indirect project effects to gartersnake critical habitat, as follows:

- Suitable habitat will be flagged or mapped for avoidance by a qualified biologist.
- Only manual vegetation removal will be allowed within the flagged or mapped areas.
- Vegetation management will be confined to the minimum area necessary to facilitate O&M and IVM activities.
- Movement of heavy equipment will be confined to existing roadways to minimize habitat disturbance.

DETERMINATION

We concur with your determination that the proposed action will not likely adversely affect proposed northern Mexican gartersnake critical habitat for the following reasons:

- The Cienega Creek and San Pedro River crossings are usually dry and appear to have few of the PCEs of proposed gartersnake critical habitat.

- Vegetation management would involve topping of trees that may contact the power line and would have little to no effect on the gartersnake.

- No ground disturbing activities will occur during routine O&M and IVM activities at the crossings. Effects of emergency activities would be rare and discountable.

Western Yellow-billed Cuckoo

Proposed Critical Habitat

Critical habitat for the cuckoo has been proposed in 80 units in California, Arizona, New Mexico, Colorado, Utah, Idaho, Nevada, Wyoming, and Texas totaling 546,335 ac (79 FR 48548). Within these areas, the PCEs of the physical and biological features essential to cuckoo conservation are:

1. *Riparian woodlands.* Riparian woodlands with mixed willow-cottonwood vegetation, mesquite-thorn forest vegetation, or a combination of these that contain habitat for nesting and foraging in contiguous or nearly contiguous patches that are greater than 325 ft (100 m) in width and 200 ac (81 ha) or more in extent. These habitat patches contain one or more nesting groves, which are generally willow-dominated, have above average canopy closure (>70 percent), and have a cooler, more humid environment than the surrounding riparian and upland habitats.

2. *Adequate prey base.* Presence of a prey base consisting of large insect fauna (for example, cicadas, caterpillars, katydids, grasshoppers, large beetles, dragonflies) and tree frogs for adults and young in breeding areas during the nesting season and in post-breeding dispersal areas.

3. *Dynamic riverine processes.* River systems that are dynamic and provide hydrologic processes that encourage sediment movement and deposits that allow seedling germination and promote plant growth, maintenance, health, and vigor (e.g. lower gradient streams and broad floodplains, elevated subsurface groundwater table, and perennial rivers and streams). This allows habitat to regenerate at regular intervals, leading to riparian vegetation with variously aged patches from young to old.

Status of and Factors Affecting Proposed Critical Habitat in the Action Area

Here we focus on four units proposed as cuckoo critical habitat within the action area. The Parker-Davis System parallels the north side of the Gila River in Maricopa County, Arizona, intersecting proposed critical habitat near Goodyear, near the confluence of the Salt River. The line also crosses Cienega Creek, at the same location discussed above for the gartersnake, north and south of proposed cuckoo critical habitat units (79 FR 48548). Finally, the line crosses proposed critical habitat at the San Pedro River, at the same location as we discussed above for the gartersnake.

Gila/Salt River Unit

The proposed critical habitat unit on the Gila and Salt Rivers is a 26-mi-long, 17,585-ac continuous segment extending from Arlington, on the Gila River, east (upstream) to the confluence of the Salt River, then continuing upstream on the Salt River for 4 mi towards the southern boundary of Phoenix. About 1.25 mi of the Parker-Davis System passes through this proposed critical habitat unit. The critical habitat unit is mostly privately-owned, but portions are also owned or managed by the Arizona State Lands Department, U.S. Bureau of Land Management, and Salt River Pima-Maricopa Indian Community.

The ROW is 0.5 m north of the Gila River and crosses through an area that is characteristic of Arizona Upland Sonoran Desertscrub habitat. Vegetation along the ROW includes creosotebush (*Larrea tridentata*), burage (*Ambrosia dumosa*), cactus, mesquite, and palo verde (*Parkinsonia* spp.). Riparian habitats nearby (at the river) are composed of scattered, mixed stands of cottonwood-willow and mesquite, but much of the vegetation here consists of dense stands of tamarisk. Thus, the Parker-Davis System crosses an area that lacks any of the PCEs of proposed cuckoo critical habitat, and PCEs are ≥0.5 mi away.

Cienega Creek

The Upper Cienega Creek Proposed Critical Habitat Unit is a 5,204-acre area approximately seven mi south of the Parker-Davis crossing of Cienega Creek and encompasses the Las Cienegas National Conservation Area, managed by the U.S. Bureau of Land Management. The Lower Cienega Creek Proposed Critical Habitat Unit is 2,360 ac in extent and is 0.7 mi north of the crossing. This lower unit is within the Cienega Creek Natural Preserve, managed by Pima County. As we discussed above for the gartersnake, the Parker-Davis crossing itself lacks permanent or semi-permanent water flows and riparian vegetation; thus, the crossing lacks two of three PCEs of proposed cuckoo critical habitat. However, because cuckoos are more flexible in their habitat use during migration, and the area probably supports large insect prey, cuckoos could occur here during dispersal and migration.

San Pedro River

The Upper San Pedro River Proposed Critical Habitat Unit is an approximately 83-mi-long, 21,786-ac segment of the San Pedro River extending from the border with Mexico north (downstream) to Saint David, in Cochise County, Arizona. Lands in the critical habitat unit are privately owned or managed by the Arizona State Lands Department and U.S. Bureau of Land Management.

As we discussed above for the gartersnake, vegetation at the San Pedro River crossing consists of upland desertscrub, dense tamarisk, and scattered mesquite trees. Thus, vegetation in this area lacks the multiple layers of canopy and subcanopy and well developed understory that constitute the riparian woodland PCE of proposed critical habitat that is preferred by cuckoos for breeding. Also lacking are the dynamic riverine processes and native tree species (willow, cottonwoods) that are important components to breeding habitat. Because cuckoos are more flexible in their habitat use during migration, and the area probably supports large insect prey, it is possible cuckoos would occur here during dispersal and migration.

Conservation Measures

Conservation measures involving effects to habitat are not outlined in the PBA.

DETERMINATION

We concur with your determination that the proposed action will not likely adversely affect proposed western yellow-billed cuckoo critical habitat for the following reasons:

- The Parker-Davis intersection of the Salt/Gila River critical habitat unit is desert scrub and has none of the PCEs of proposed cuckoo critical habitat.

- The Cienega Creek and San Pedro River crossings are usually dry and appear to have few of the PCEs of proposed cuckoo critical habitat.

- The PCE of dynamic riverine processes do not occur within the ROW, and are not expected to develop during the project's lifetime.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Southern Nevada Fish and Wildlife Office
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Ph: (702) 515-5230 ~ Fax: (702) 515-5231

September 21, 2015
File Nos. 84320-2015-F-0120 &
84320-2015-I-0121

Linda Marianito, Environmental Manager
Western Area Power Administration
U.S. Department of Energy
Post Office Box 6457
Phoenix, Arizona 85005-6457

Subject: Programmatic Biological Opinion and Informal Consultation for Western Area Power Administration (Western) West Area Operations and Maintenance Programs, Nevada, Arizona, and California

Dear Ms. Marianito:

This transmits the enclosed Fish and Wildlife Service's (Service) programmatic biological opinion (PBO) based on our review of programmatic activities proposed in your December 8, 2014, programmatic biological assessment (Enclosure A). This consultation evaluates potential effects on the federally threatened Mojave desert tortoise (*Gopherus agassizii*) and its critical habitat, in accordance with section 7 of the Endangered Species Act of 1973, as amended (Act; 16 U.S.C. 1531 et seq.).

The enclosed programmatic biological opinion (Enclosure A) was prepared in response to your December 9, 2014, request for formal consultation and in accordance with the Act and 50 CFR § 402 of our interagency regulations governing section 7 of the Act. This biological opinion is based on information provided in your letter and attachments received on December 16, 2014; emails and discussions between Western Area Power Administration (Western) and the Fish and Wildlife Service (Service); draft Service guidance for programmatic consultations and biological opinions (Service 2003); and our files. A complete consultation file is available in our Southern Nevada Fish and Wildlife Office in Las Vegas.

Western also requests Service concurrence through informal consultation (File No. 84320-2015-F-0121) that the proposed projects *may affect, but is not likely to adversely affect* the endangered lesser long-nosed bat (*Leptonycteris curasoae yerbabuenae*), Northern Mexican garter snake (*Thamnophis eques megalops*), endangered southwestern willow flycatcher (*Empidonax traillii extimus*), or threatened yellow-billed cuckoo (*Coccyzus americanus*). Western also requests technical assistance for the Sonoran desert tortoise (*Gopherus morafkai*). Our informal and technical assistance response is enclosed (Enclosure B).

If we can be of further assistance regarding this consultation, please contact Michael Burroughs in the Southern Nevada Fish and Wildlife Office in Las Vegas at (702) 515-5230.

Sincerely,

Michael J. Senn
Field Supervisor

Enclosures (2)

cc:
Supervisory Biologist - Habitat, Nevada Department of Wildlife, Las Vegas, Nevada
Assistant Field Supervisor, Palm Springs Office, Fish and Wildlife Service, Palm Springs, California
Assistant Field Supervisor, Northern Arizona Office, Fish and Wildlife Service, Flagstaff, Arizona
Assistant Field Supervisor, Arizona Ecological Services Field Office, Fish and Wildlife Service, Phoenix, Arizona

Enclosure A.

PROGRAMMATIC BIOLOGICAL OPINION, INFORMAL CONSULTATION, AND TECHNICAL ASSISTANCE FOR WESTERN AREA POWER ADMINISTRATION'S WEST AREA OPERATION AND MAINTENANCE

File Numbers 84320-2015-F-0120 and 84320-2015-I-0121

Issued to:
Desert Southwest Customer Service Region

By:
U.S. Fish and Wildlife Service
Southern Nevada Fish and Wildlife Office
Las Vegas, Nevada

September 21, 2015

Contents

A. CONSULTATION HISTORY

On December 16, 2014, the Fish and Wildlife Service (Service) received a request from the Western Area Power Administration (Western) for formal consultation on their proposal to operate and maintain existing electrical transmission line infrastructure in Arizona, southern California, and southern Nevada and implement a vegetation management program. Western determined that proposed activities *may adversely affect* the Mojave desert tortoise (*Gopherus agassizii*). Western also requested Service concurrence that the proposed action *may affect, but is not likely to adversely affect* the southwestern willow flycatcher (*Empidonax traillii extimus*), Yuma clapper rail (*Rallus longirostris yumanensis*), northern Mexican gartersnake (*Thamnophis eques megalops*), lesser long-nosed bat (*Leptonycteris curasoae yerbabuenae*), and yellow-billed cuckoo (*Coccyzus americanus*). Western requested technical assistance for the Sonoran desert tortoise (*Gopherus morafkai*). Informal consultation and technical assistance (Service File No. 84320-2015-I-121) is provided for these six species in Enclosure B.

Western provided additional information to the Service on the proposed action on February 18, February 26, March 4, March 24, March 31, and April 16, 2015. The Service determined that the information provided through March 31, 2015, was sufficient to initiate formal consultation and complete informal consultation for the proposed action.

B. PROGRAMMATIC AND PROJECT/ACTIVITY CONSULTATION PROCESS

This programmatic biological opinion (PBO) was prepared in accordance with the July 16, 2003, draft guidance for programmatic-level consultations (Service 2003). The programmatic-level and project-level consultation processes are based on the *appended programmatic consultation approach* in our 2003 draft guidance.

Routine activities that do not exceed the effect threshold identified in this document and proposed minimization measures as described in the *Description of the Proposed Action* section of this PBO (Category A and B activities) may be implemented without following the project-level append process or further review by the Service beyond the programmatic level. In such case, Western will require appropriate protective measures in accordance with the measures and terms and conditions of this PBO. Western will track this activity and include it in the annual report provided to the Service within the required timeframe. Western must retain discretion over the action and provide sufficient oversight to ensure compliance with this PBO. Reasonable and prudent measures with terms and conditions are provided and incidental take exempted for these actions (Category A and B only) in the Incidental Take Statement of this PBO. The Service anticipates that these activities result in predictable, low-level effects to the desert tortoise and its critical habitat.

Category C activities may result in a higher level of effect to the desert tortoise and its critical habitat and exceed the effects analysis and threshold for low-level effect actions (i.e., Category A and B actions). Consultation for Category C activities will require project-specific documentation that is physically appended to this PBO before the action occurs. After Western submits an action to the Service to be appended to this PBO, the Service will determine the anticipated incidental take for the action at the project level, as a subset of the incidental take anticipated in the PBO for the appropriate program. The PBO, together with the appended documentation, fulfills the consultation requirements for implementation of both program-level and project-level actions.

Reports prepared by Western and submitted to the Service for review ensure that the effects analysis in the PBO are accurate including a comprehensive review of how the PBO is working, and whether its implementing procedures are in compliance. During this review, the environmental baseline should be reviewed and updated as needed to account for unanticipated effects or the lack of anticipated effects. Western shall be responsible for accurately reporting any incidental take of listed species to the Service that occurs in association with actions covered under this PBO. During this process it may be determined that the program-level biological opinion is functioning as anticipated and, therefore, activities may continue to be appended to the PBO. Western will submit information on all actions under this PBO in annual reports, due February 15th for the preceding calendar year.

Appending Projects to the Programmatic Biological Opinion

In general, Category C actions will follow the appended procedures described below. Specific future activities under Category C may follow the same procedures for Category A and B activities with concurrence from the Service. All future Western Operations and Maintenance (O&M) actions are expected to fall within this PBO. When a project or Federal action is proposed that involves more than one Federal agency, the agencies will decide how the actions will be covered. If more than one PBO is involved, the agencies may agree to include the action under each to properly track effects and baseline for the respective action areas. For example, if Western proposes a project that requires habitat disturbance outside their existing BLM right-of-way, BLM would likely authorize the action through a right-of-way grant amendment and require remuneration fees based on acreage of disturbance and standard agency measures to minimize effects to the desert tortoise. In this case, the action would be covered under BLM's PBO and not Western's.

The following general steps should be followed for future actions to be appended to this PBO:

Step 1. Western will submit a request by hard copy or email to the Field Supervisor, Southern Nevada Fish and Wildlife Office or Assistant Field Supervisor, Palm Springs Office (California only actions), to append the action to the PBO. Part A of the form provided in Appendix A should be completed for each action to be appended to the PBO.

Step 2. The Service will review the request and determine if the information is sufficient. If the information is insufficient, the Service will promptly notify Western. Incomplete information

will likely delay the Service's response. If the information is sufficient, the Service will prepare a response (Part B to be provided with response) appending the action to the PBO. Prompt processing of appended actions will be dependent upon complete information on the project including all minimization measures and status of the desert tortoise and its critical habitat in the action area including survey results.

Step 3. The Service will respond to Western and a copy will be filed in the appropriate Fish and Wildlife Office. The regulatory timeframe to complete formal consultation and deliver the biological opinion to the Federal agency is 135 days. However, the estimated time required for the project-level consultation under programmatic consultation procedures is based on the scope of the action and the potential effects to listed species and their critical habitat. Based on workload and size and complexity of the appended action, most actions may be appended in 30 to 45 days.

Step 4. Once the Service response has been received, Western may proceed with the proposed action.

Projects Not Appended to the Programmatic Biological Opinion

Projects under Category A or B or if a project under Category C will result in a level of potential effect similar to Category A or B and do not exceed the effects threshold identified in this document and proposed minimization measures as described in the *Description for the Proposed Action* section of this PBO, are not anticipated to be appended to this PBO as described above. All actions that fall within the scope of this PBO and not appended will be included in the annual report required for this PBO.

C. DESCRIPTION OF THE PROPOSED ACTION

The proposed O&M program would consist of aerial and ground patrols to locate and correct problems, regular and preventive maintenance, inspections and repairs to protect against operational hazards, and road repair to provide access for maintenance and emergencies. The need for repairs, replacement, and other preventative maintenance procedures to the West Area infrastructure would be based on the results of inspections or other reports. Activities may occur within Arizona, southern California, and southern Nevada, though this PBO is limited to activities that may adversely affect the Mojave desert tortoise in California and Nevada. Examples of transmission system repairs, replacement, and preventative maintenance could include: replacing insulators; tightening, replacing, or repairing towers/poles or hardware; and replacing existing conductors. The type of equipment needed for these activities could include a light-duty helicopter, pickup truck, bulldozer, backhoe, bucket truck, and hand tools, and would depend on the required repair or maintenance. Some activities may require work outside of the ROW (e.g., hazard tree removal, conductor pulling and tensioning sites, washout repair, installation of culverts, etc.). Western would coordinate with the applicable land management agency or landowner for work outside of the ROW but within 500 meters of the ROW or footprint boundaries.

The proposed action for this programmatic consultation includes three programs or categories of O&M activities within the action area (Figure 1): 1) Category A- inspection and minor maintenance activities, 2) Category B- routine maintenance, and 3) Category C- minor additions or modifications to existing infrastructure. A map of the action area is provided in Figure 1. Also included in the proposed action are vegetation management activities and emergency responses or actions. Details and additional information is provided in the programmatic biological assessment (Western 2014).

Operation and Maintenance Activity Categories

The following is a list of the Transmission System O&M activities according to their associated activity category. Note that substation and facility maintenance activities are restricted to the confines of the existing fenced substation or facility perimeter. The programmatic biological assessment (Western 2014) and Tables 1 through 3 provide details of the proposed action and activities conducted within each of the O&M categories summarized below:

- **Category A – Inspection and Minor Maintenance Activities**. Category A maintenance activities are primarily inspection-type actions, with some minor repairs that would not cause substantial soil or other disturbance. Substation and facility maintenance activities included in Category A are restricted to the existing fenced substation or facility perimeter. Details on Category A activities are provided in Table 1.

- **Category B – Routine Maintenance Activities**. Category B maintenance activities include some of the typical repair tasks that occur along transmission lines. Category B maintenance equipment may include rubber-tired vehicles such as bucket trucks, backhoes, front-end loaders, cranes, auger trucks, bobcats, line trucks, and pole trucks. Category B activities occur within the disturbed ROW and do not involve more than 0.5 acre of new habitat disturbance. Details on Category B activities are provided in Table 2.

- **Category C – Minor Additions or Modifications to Existing Infrastructure**. Category C tasks are generally those activities that would disturb large areas and would use heavy equipment to complete particular tasks. Category C maintenance equipment may include the use of light-duty helicopters, steel-tracked and/or rubber-tired bulldozers, graders, backhoes, and front-end loaders. Details on Category C activities are provided in Table 3. Category C activities will be appended to the PBO as described above.

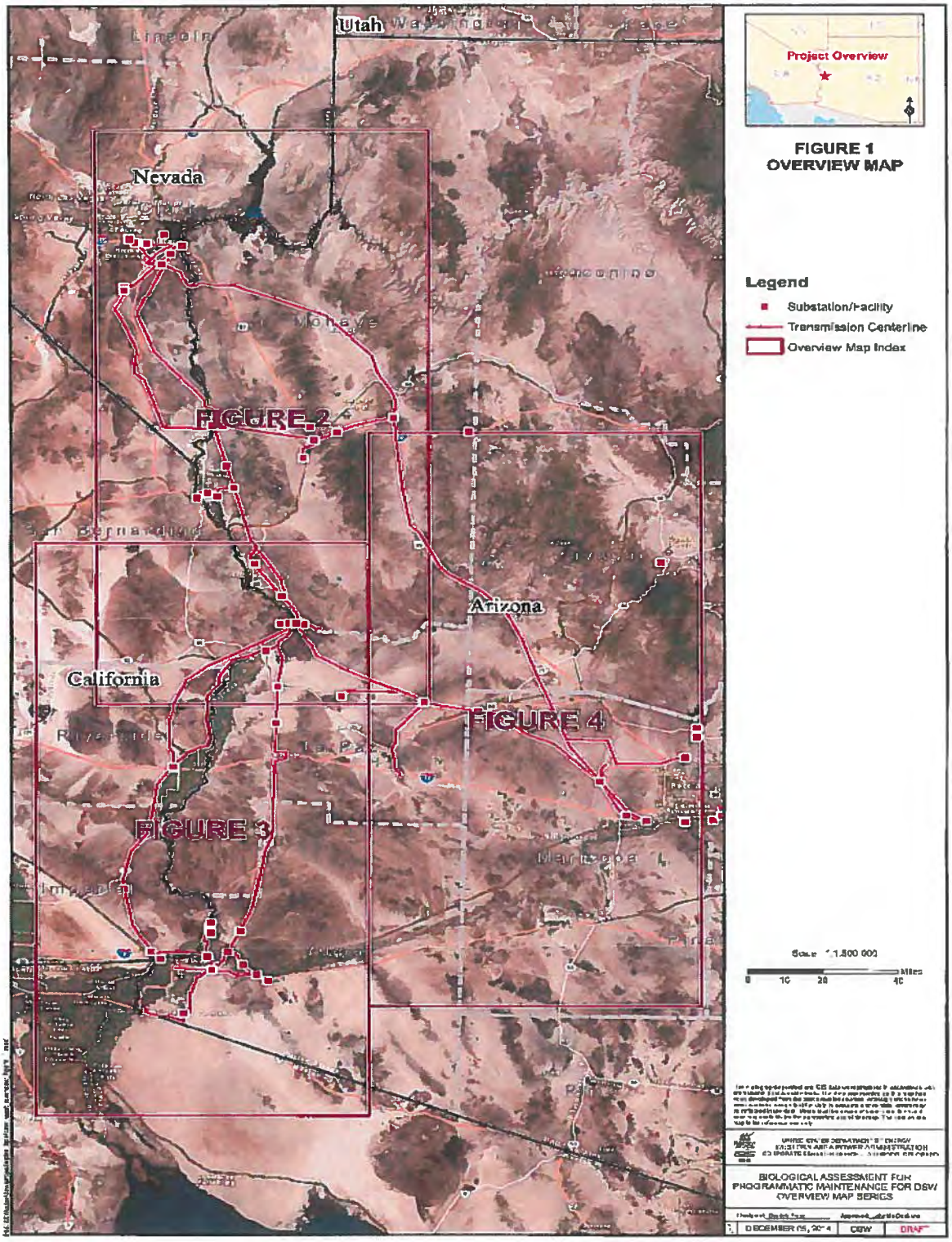

Figure 1. Overview map. Figures 2-4 identified on map can be found in the biological assessment.

Table 1. Category A – Inspection and Minor Maintenance Activities

Substation and Facilities Maintenance	
• Building maintenance including interior and exterior painting; and roof, ceiling, floor, window, and door maintenance • Main station battery bank maintenance and installation • Clearing vegetation by hand within the fenced boundary of maintenance facilities • Application of herbicides within the fenced property boundary of maintenance facilities • Substation inspections • Maintenance and replacement of transformers and breakers • Servicing and testing of equipment at existing substations, including oil change-outs • Installation or replacement of brushings • Cleaning or replacement of capacitor banks • Maintenance or installation of switches (manual and motor-operated), interrupters, voltage regulators, reactors, reclosers, and valves • Replacement of wiring in substations and switch yards	• Replacement of existing substation equipment including regulators, capacitors, switches, wave traps, radiators, instrument transformers, and lightning arresters • Installation of cut-out fuses Adjustments and cleaning disconnect switches • Placement of temporary transformer • Maintenance, installation, and removal of solar power array and controller • Installation of foundation for storage buildings above ground mat within existing substation yard • Maintenance or installation of propane tanks within a substation yard • New footings • Ground mat repairs • Clearing vegetation by hand within the property boundary of a substation • Application of soil sterilants and herbicides within the fenced property boundary of a substation • Application of pesticides and rodenticides inside buildings • Remediation of small spill of oil (less than 1 gallon)
Transmission Line Maintenance	
• Ground and aerial patrols • Climbing inspection and tightening hardware on wood and steel transmission line structures • Ground wire maintenance • Aircraft warning device maintenance (e.g., light beacons, aerial marker balls, etc.) • Insulator maintenance • Bird guard maintenance • Cross arm maintenance on wood pole transmission line structures • Emergency hand removal and/or pruning of danger trees or vegetation • Maintenance or replacement of steel members of steel transmission line structures	• Hardware on wood and steel transmission line structures • Cross brace and knee brace maintenance • Wood pole testing • Ground rod maintenance • Armor rod maintenance and clipping-in structures • Conductor maintenance • Wood preservative maintenance on wooden pole structures • Antenna maintenance • Structure mile-marker maintenance • Remediation of small spill of oil (less than 1 gallon)

Protection and Communication System Maintenance	
• Generator maintenance • Maintenance and inspection of microwave radio towers and dishes • Maintenance and inspection of communication towers, antennae, and appurtenant equipment • Panel additions and removals, wiring changes, and controls modifications	• Maintenance and inspection of parabolic dishes • Light beacon maintenance • Refilling of propane tanks, and maintenance of associated gauges and switches • Above-ground foundation and footings maintenance

Table 2. Category B - Routine Maintenance Activities	
Transmission Line Maintenance	
• Maintenance and repair of existing culverts • Installation of new culverts (for areas outside of jurisdictional waters) • Installation of new foundation for storage building at existing facilities • Cross arms replacements on wood pole structures • Remove soil deposition around tower legs • Ground anchors maintenance • Wood pole maintenance and replacement • Fill in erosional features on access roads • Remediation of small spill of oil and hazardous materials (up to 10 gallons) • Grading existing access roads (within existing road footprint)	• Installation of minor rip-rap on washes, creeks, and rivers • Place fill or rock(s) around existing culverts • Place fill or rock(s) around existing towers or structures • Vehicle and equipment staging • Installation and repair of fences and gates • Installation of underground and overhead water, power, communication, or ground electrical line (less than 100 feet) • Hand removal and/or pruning of danger trees or vegetation • Mechanical vegetation management by means of bulldozers, masticators, or other mechanical equipment • Remediation of small spill of oil (between 1 and 10 gallons) • Spacer/dampener replacement
Substation, Facilities, Protection and Communication System Maintenance	
• Foundations or footings maintenance • Installation of underground and overhead water, power, communication, or ground electrical line (less than 100 feet) • Installation or replacement of antennas to existing structures	• Maintenance and repair of existing culverts • Remediation of small spill of oil and hazardous materials (up to 10 gallons)

Table 3. Category C – Minor Additions or Modifications to Existing Infrastructure	
• Adding access roads to structures (approximately 300 feet or less in length) • Relocation of existing roads within the ROW • Installation of new culverts (for areas within jurisdictional waters) • Erosion control projects at existing structures and facilities • Replacing existing conductor • Installation of rip-rap to recontour washes, creeks, or rivers	• Application of approved herbicides • Structure relocation/realignment/replacement • Installation of temporary inset guard structures and shoo-flys • Installation of underground and overhead water, power, or communication line (greater than 100 feet) • Remediation of small spill of oil and hazardous materials (greater than 10 gallons)

- **Emergency Actions**. Inspections often identify problems that may require immediate repair or replacement of transmission line hardware or vegetation management. Transmission infrastructure failure caused by vandalism, aging infrastructure, wildfire, avian interactions with infrastructure, and other unforeseen interference can also require immediate repairs. Furthermore, storms and other natural events may result in necessary emergency repairs within the project area. Typically, emergency repairs would follow the measures in this biological opinion when possible. However, if compliance with a standard Western protocol would require delayed repair of a transmission line, pole, etc., and it is an emergency situation (e.g., possibility of people without power or safety issues), then these measures may not be implemented. Environmental follow-up and appropriate consultation with the Service would be conducted after the emergency is resolved.

- **Integrated Vegetation Management.** Western's policy on Transmission Vegetation Management Program (Western Order 450.3A) specifies that:

  > *Western's desired condition beneath and adjacent to its transmission line facilities is characterized by stable, low growth plant communities free from noxious or invasive plants. These communities will typically be comprised of herbaceous plants and low growing shrubs which ideally are native to the local area. Vegetation on the bordering areas of transmission line rights-of-way can be managed so that increased tree height is allowed in relation to an increasing distance from the transmission line.*

  Western is developing its IVM program to ensure: (1) reliable, uninterrupted service to customers; (2) safe transmission and distribution of power along existing transmission lines; and (3) protection against wildfires that could result from vegetation coming into contact with or arcing to the transmission lines. Western's proposed vegetation management project includes routine vegetation management and danger tree removal. Failure to address vegetation clearance and fuels hazards could result in wildfires from transmission line flashovers, arcing, major power outages, or injury to life or property. Proper management of vegetation within the ROWs can minimize the chance of fire ignition by reducing available wildfire fuel sources.

  In most desert scrub habitats, vegetation removal would consist of removing isolated trees or other limited management. For applicable portions of the project area (those areas with denser vegetation), Western would adopt the two-step approach of initial treatment and subsequent maintenance to ROW vegetation management, as described in the following sections. Western proposes to conduct routine vegetation maintenance on a 5-year vegetation maintenance cycle in consideration of growth cycles specific to target species. Routine vegetation maintenance would involve the identification and removal of vegetation within or adjacent to the ROWs that are incompatible with Western's desired condition. All work would be conducted using predominantly mechanical mowers, with

hand crews used only in areas where the mowers cannot access or where Protective Conservation Measures (PCMs) require.

Clearance pads, generally a minimum of 50 feet but sometimes up to 70 feet around transmission structure bases, are maintained to be free of shrubs, trees, or other such vegetation (grasses and/or forbs in this area would be acceptable) that could pose a potential fire threat to transmission structures or associated hardware. This clearance pad is intended to provide a fire break, to minimize arcing of electricity or burning of structures during a fire under or near the transmission lines. Clearing around the bases of the transmission structures may also be necessary to provide access for maintenance vehicles. This clearance area would also maintain the integrity of the transmission structures by minimizing the potential for trees or vegetation falling on the structures.

Western may use herbicides as part of the vegetation management program as approved by land managers and local agencies. Western proposes using only herbicides that have been approved for use (by applicable land management agencies such as BLM or BOR) in ROW maintenance (including access roads) based on evaluations of toxicity, solubility, soil absorption potential, and persistence in water and soil. These herbicides must be registered for use by the U.S. Environmental Protection Agency. Western would use only employees or contractors with required applicator licenses/certificates. Further, Western would coordinate with land managers and local agencies to ensure that its use of herbicides would be consistent with the agencies' approved herbicides and recommended application procedures. Application methods Western would use include stump treatment, basal spray treatment, foliage spray treatment, soils treatment, and under-surfacing materials treatment.

Proposed Measures to Minimize the Potential Effects of the Action

Western proposes to minimize the potential effects of the proposed action by implementing the measures provided below. These measures, or Standard Operating Procedures (SOPs) and PCMs, apply towards all activities as applicable to the proposed activity unless noted otherwise:

1. All contract crews will complete biological pre-activity awareness training to ensure they are familiar with sensitive biological resources and associated SOPs and PCMs. All supervisors and field personnel will have on file a signed agreement that they have completed the training, and understood and agreed to the terms. SOPs and applicable PCMs will be written into contracts for O&M work, and contractors will be held responsible for compliance.
2. Western crews will complete annual awareness training to ensure they are familiar with sensitive biological resources and associated SOPs and PCMs. All supervisors and field personnel will have on file a signed agreement that they have completed the training, and understood and agreed to the terms [of this Biological Opinion].

3. O&M excavations greater than 1 foot deep will be fenced, covered, or filled at the end of each working day, or have escape ramps (1:1 slope) provided to prevent the entrapment of wildlife. Trenches and holes will be inspected for entrapped wildlife before being filled. Any entrapped animals will be allowed to escape voluntarily before O&M activities resume, or they may be removed by qualified personnel, with an appropriate handling permit if necessary.
4. Vehicle traffic will be restricted to designated access routes and the immediate vicinity of O&M sites. Vehicle speeds will not exceed 25 mph on access and maintenance roads and 20 mph on unimproved access routes. Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas, to the maximum extent feasible.
5. No pets (except service animals) will be permitted at project sites.
6. At the end of each work day, O&M workers will leave work areas and adjacent habitats to minimize disturbance to actively foraging animals, and remove food-related trash from the work site in closed containers for disposal. Workers will not deliberately or inadvertently feed wildlife.
7. Nighttime O&M activities will be minimized to emergency situations. If nighttime O&M work is required, lights will be directed to the minimum area needed to illuminate project work areas.
8. Desert tortoise mortalities or injuries that occur as a result of project- or maintenance-related actions will be reported immediately to Western Environmental Affairs or other designated point of contact, who will instruct O&M personnel on the appropriate action, and who will contact the appropriate agency if the species is listed. The phone number for the Western Environmental Affairs or designated point of contact will be provided to maintenance supervisors and to the appropriate agencies.
9. If a pesticide label stipulates a buffer zone width for protection of natural resources that differs from that specified in a PCM, the buffer zone width that offers the greatest protection will be applied.
10. At completion of work and at the request of the land owner/manager, all work areas except access roads will be restored or left in a condition that will facilitate natural or appropriate vegetation, provide for proper drainage, and prevent erosion.
11. Prior to any application of herbicide, Western will query the California Department of Pesticide Regulation PRESCRIBE database or consult the EPA regulations online (depending on location of project), and will follow all use limitations provided to ensure compliance with applicable pesticide standards. The measures generated by the PRESCRIBE database or EPA regulations will supersede those in the PCMs where they are different. Application of herbicides would be evaluated under the National Environmental Policy Act.

In addition to the measures above, the following measures (PCMs) shall also apply to project activities in the range of the desert tortoise:

12. Category A activities: Project activities outside of fenced facilities will be scheduled between November 1 and February 28, as feasible. Aerial and ground patrols are permissible year-round. For all non-patrol project activities occurring during the tortoise activity season (March 1 to October 31), a qualified biologist shall conduct pre-construction surveys for Mojave desert tortoise in suitable habitat. The biologist shall survey all work areas, including staging/laydown areas and access routes. Tortoise burrows and other sensitive features identified during the pre-construction survey shall be flagged and monitored, as determined by Western Environmental Affairs. If tortoises are found in the work area, activities will be modified to avoid injury or harm.

13. Category A activities in critical habitat: A qualified biological monitor shall be present for all project activities occurring in designated critical habitat for Mojave desert tortoise. The biological monitor shall conduct pre-construction surveys for Mojave desert tortoise in suitable habitat. The biologist shall survey all work areas, including staging/laydown areas and access routes. Tortoise burrows and other sensitive features identified during the pre-construction survey shall be flagged and monitored by the biologist for avoidance.

14. Category B and C activities: Project activities outside of fenced facilities will be scheduled between November 1 and February 28, as feasible.

15. Category B and C activities: An authorized desert tortoise biologist will be onsite during all ground-disturbing project activities in suitable habitat during the active desert tortoise season (1 March-31 October). At other times, a qualified biological monitor may be present in place of an authorized biologist. The biologist(s) shall conduct pre-construction surveys for Mojave desert tortoise in suitable habitat. The biologist(s) shall survey all work areas, including staging/laydown areas and access routes. Tortoise burrows and other sensitive features identified during the pre-construction survey shall be flagged and monitored by the biologist for avoidance.

16. Category B and C activities: Tortoises discovered to be in imminent danger during project activities may only be moved out of harm's way by an authorized desert tortoise biologist and following the terms of any concurrence or biological opinion issued by the Service for the work. Desert tortoises shall be handled only by qualified individuals following recognized protocol (Service 2009, or current revisions).

17. Category B and C activities: Prior to starting operations each day in project areas which are not totally enclosed by tortoise-proof fencing and cattle guards, Western and any contract personnel shall be responsible for conducting a desert tortoise inspection in coordination with the authorized desert tortoise biologist or monitor using techniques approved by the Service. The inspection will determine if any desert tortoises are present in the following locations:

    a. around and under all equipment;

    b. in and around all routes of ingress and egress; and

    c. in and around all other areas where the operation might expand to during that day.

If a tortoise is discovered during this inspection or later in the day, the operator will immediately cease all operations in the immediate vicinity of the tortoise and will immediately notify the biologist.

18. Category B and C activities: Overnight parking and storage of equipment and materials, including stockpiling, will occur in previously-disturbed areas or areas to be disturbed that have been cleared by a qualified desert tortoise biologist. If not possible, areas for overnight parking and storage of equipment will be designated by Western based on recommendations of a qualified desert tortoise biologist.
19. Category B and C activities in critical habitat: An authorized biologist shall be present for road grading activities in designated critical habitat for Mojave desert tortoise during the tortoise activity season (1 March-31 October); a qualified biologist may be present at other times of the year. The biological monitor shall conduct pre-construction surveys for Mojave desert tortoise in suitable habitat. The biologist shall survey all work areas, including staging/laydown areas and access routes. Tortoise burrows and other sensitive features identified during the pre-construction survey shall be flagged and monitored by the biologist for avoidance.
20. Category B and C activities in critical habitat: Water or other substances used as dust suppressants shall not be allowed to pool.

Additional measures or modification of the measures above may be necessary for appended actions.

D. Analytical Framework for the Service's Determinations

Section 7(a)(2) of the Act requires that Federal agencies ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of listed species. "Jeopardize the continued existence of" means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species (50 CFR § 402.02).

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

Section 7(a)(2) of the Act also requires that Federal agencies ensure that any action they authorize, fund, or carry out does not result in the destruction or adverse modification of designated critical habitat. The action area includes all or portions of the Piute-Eldorado and Chuckwalla critical habitat units for the desert tortoise.

E. STATUS OF THE SPECIES AND ITS CRITICAL HABITAT RANGE-WIDE

Status of the Desert Tortoise

Section 4(c)(2) of the Endangered Species Act requires the Service to conduct a status review of each listed species at least once every 5 years. The purpose of a 5-year review is to evaluate whether the species' status has changed since it was listed (or since the most recent 5-year review); these reviews, at the time of their completion, provide the most up-to-date information on the range-wide status of the species. The following paragraphs provide a summary of the relevant information in the 5-year review. The complete 5-year review can be found at the following website:

http://ecos.fws.gov/docs/five_year_review/doc3572.DT%205Year%20Review_FINAL.pdf

If the 5-year review is not available, contact the Service's Southern Nevada Fish and Wildlife Office at (702) 515-5230.

In the 5-year review, the Service discusses the status of the desert tortoise as a single distinct population segment and provides information on the Federal Register notices that resulted in its listing and the designation of critical habitat. The Service also describes the desert tortoise's ecology, life history, spatial distribution, abundance, habitats, and the threats that led to its listing (i.e., the five-factor analysis required by section 4(a)(1) of the Endangered Species Act). In the 5-year review, the Service concluded by recommending that the status of the desert tortoise as a threatened species be maintained.

With regard to the status of the desert tortoise as a distinct population segment, the Service concluded in the 5-year review that the recovery units recognized in the original and revised recovery plans (Service 1994 and 2011, respectively) do not qualify as distinct population segments under the Service's distinct population segment policy (61 Federal Register 4722; February 7, 1996). We reached this conclusion because individuals of the listed taxon occupy habitat that is relatively continuously distributed, exhibit genetic differentiation that is consistent with isolation-by-distance in a continuous-distribution model of gene flow, and likely vary in behavioral and physiological characteristics across the area they occupy as a result of the transitional nature of, or environmental gradations between, the described subdivisions of the Mojave and Colorado deserts.

In the 5-year review, the Service summarizes information with regard to the desert tortoise's ecology and life history. Of key importance to assessing threats to the species and to developing and implementing a strategy for recovery is that desert tortoises are long lived, require up to

20 years to reach sexual maturity, and have low reproductive rates during a long period of reproductive potential. The number of eggs that a female desert tortoise can produce in a season is dependent on a variety of factors including environment, habitat, availability of forage and drinking water, and physiological condition. Predation seems to play an important role in clutch failure. Predation and environmental factors also affect the survival of hatchlings.

In the 5-year review, the Service also discusses various means by which researchers have attempted to determine the abundance of desert tortoises and the strengths and weaknesses of those methods. Due to differences in area covered and especially to the non-representative nature of earlier sample sites, data gathered by the Service's current range-wide monitoring program cannot be reliably compared to information gathered through other means at this time.

The range-wide monitoring that the Service initiated in 2001 is the first comprehensive attempt to determine the densities of desert tortoises across their range. The Service (2014) used annual density estimates obtained from this sampling effort to evaluate range-wide trends in the density of desert tortoises over time. This analysis indicates that densities in the Northeastern Mojave Recovery Unit have increased by approximately 13.6 percent per year since 2004, with the rate of increase apparently resulting from increased survival of adults and subadults moving into the adult size class. The analysis also indicates that the populations in the other 4 recovery units are declining: Upper Virgin River (-5.1 percent), Eastern Mojave (-6.0 percent), Western Mojave (-8.6 percent), and Colorado Desert (-3.4 percent; however, densities in the Joshua Tree and Piute Valley conservation areas within this unit seem to be increasing). Figure 2 shows linear trends in the log-transformed densities in each desert tortoise conservation area by recovery unit. Data for the Upper Virgin River Recovery Unit are from 1999 to the present; data for all other recovery units are from 2004 to the present.

Allison (2013) also evaluated changes in size distribution of desert tortoises since 2001. In the Western Mojave and Colorado Desert recovery units, the relative number of juveniles to adults indicates that juvenile numbers are declining faster than adults. In the Eastern Mojave, the number of juvenile desert tortoises is also declining, but not as rapidly as the number of adults. In the Upper Virgin River Recovery Unit, trends in juvenile numbers are similar to those of adults; in the Northeastern Mojave Recovery Unit, the number of juveniles is increasing, but not as rapidly as are adult numbers in that recovery unit. Juvenile numbers, like adult densities, are responding in a directional way, with increasing, stable, or decreasing trends, depending on the recovery unit where they area found.

(In this context, we consider "juvenile" desert tortoises to be animals smaller than 180 millimeters in length. The Service does not include juveniles detected during range-wide sampling in density estimations because they are more difficult to detect and surveyors frequently do not observe them during sampling. However, this systematic range-wide sampling provides us with an opportunity to compare the proportions of juveniles to adults observed between years.)

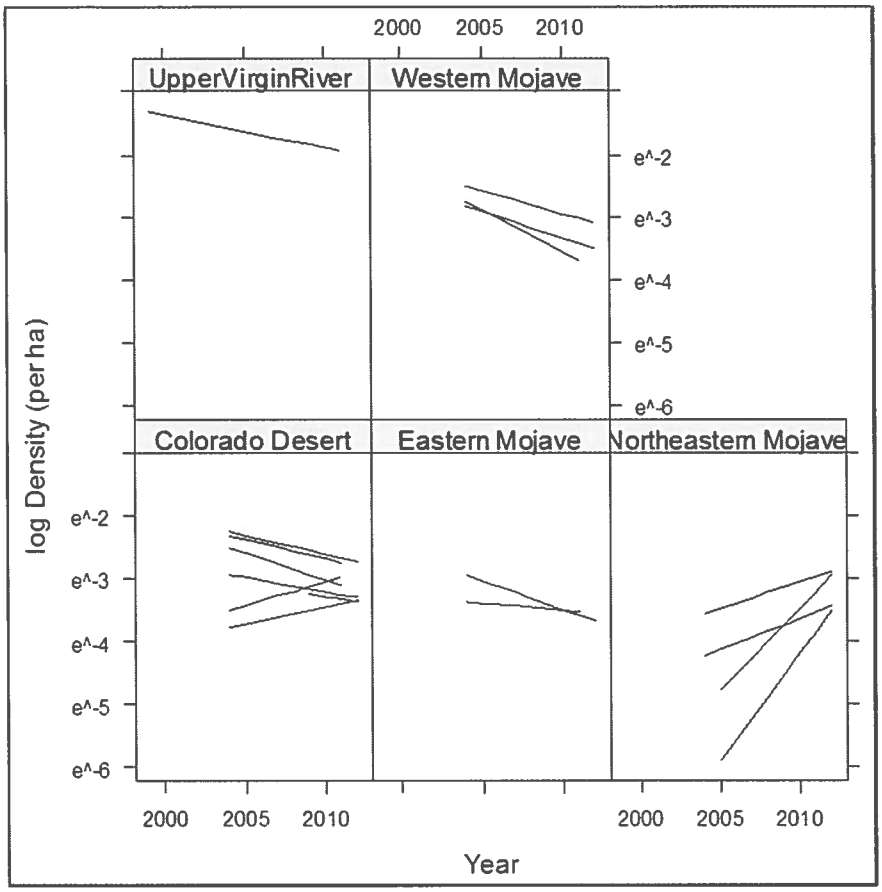

Figure 2. Range-wide trends in the density of desert tortoises.

In the 5-year review, the Service provides a brief summary of habitat use by desert tortoises; the revised recovery plan contains more detailed information (Service 2011). In the absence of specific and recent information on the location of habitable areas of the Mojave Desert, especially at the outer edges of this area, the 5-year review also describes and relies heavily on a quantitative, spatial habitat model for the desert tortoise north and west of the Colorado River that incorporates environmental variables such as precipitation, geology, vegetation, and slope and is based on occurrence data of desert tortoises from sources spanning more than 80 years, including data from the 2001 to 2005 range-wide monitoring surveys (Nussear *et al.* 2009). The model predicts the probability that desert tortoises will be present in any given location; calculations of the amount of desert tortoise habitat in the 5-year review and in this biological opinion use a threshold of 0.5 or greater predicted value for potential desert tortoise habitat. The model does not account for anthropogenic effects to habitat and represents the potential for occupancy by desert tortoises absent these effects.

To begin integrating anthropogenic activities and the variable risk levels they bring to different parts of the Mojave and Colorado deserts, the Service completed an extensive review of the threats known to affect desert tortoises at the time of their listing and updated that information with more current findings in the 5-year review. The review follows the format of the five-factor

analysis required by section 4(a)(1) of the Act. The Service described these threats as part of the process of its listing (55 Federal Register 12178; April 2, 1990), further discussed them in the original recovery plan (Service 1994), and reviewed them again in the revised recovery plan (Service 2011).

To understand better the relationship of threats to populations of desert tortoises and the most effective manner to implement recovery actions, the Desert Tortoise Recovery Office is developing a spatial decision support system that models the interrelationships of threats to desert tortoises and how those threats affect population change. The spatial decision support system describes the numerous threats that desert tortoises face, explains how these threats interact to affect individual animals and habitat, and how these effects in turn bring about changes in populations. For example, we have long known that the construction of a transmission line can result in the death of desert tortoises and loss of habitat.

We have also known that common ravens, known predators of desert tortoises, use the transmission line's pylons for nesting, roosting, and perching and that the access routes associated with transmission lines provide a vector for the introduction and spread of invasive weeds and facilitate increased human access into an area. Increased human access can accelerate illegal collection and release of desert tortoises and their deliberate maiming and killing, as well as facilitate the spread of other threats associated with human presence, such as vehicle use, garbage and dumping, and invasive plants (Service 2011). Changes in the abundance of native plants because of invasive weeds can compromise the physiological health of desert tortoises, making them more vulnerable to drought, disease, and predation. The spatial decision support system allows us to map threats across the range of the desert tortoise and model the intensity of stresses that these multiple and combined threats place on desert tortoise populations.

The threats described in the listing rule and both recovery plans continue to affect the species. Indirect impacts to desert tortoise populations and habitat occur in accessible areas that interface with human activity. Most threats to the desert tortoise or its habitat are associated with human land uses; research since 1994 has clarified many mechanisms by which these threats act on desert tortoises. As stated earlier, increases in human access can accelerate illegal collection and release of desert tortoises and deliberate maiming and killing, as well as facilitate the spread of other threats associated with human presence, such as vehicle use, garbage and dumping, and invasive weeds.

Some of the most apparent threats to the desert tortoise are those that result in mortality and permanent habitat loss across large areas, such as urbanization and large-scale renewable energy projects, and those that fragment and degrade habitats, such as proliferation of roads and highways, off-highway vehicle activity, and habitat invasion by non-native invasive plant species. However, we remain unable to quantify how threats affect desert tortoise populations. The assessment of the original recovery plan emphasized the need for a better understanding of the implications of multiple, simultaneous threats facing desert tortoise populations and of the relative contribution of multiple threats on demographic factors (i.e., birth rate, survivorship, fecundity, and death rate; Tracy *et al.* 2004).

The following map depicts the 12 critical habitat units of the desert tortoise, linkages between conservation areas for the desert tortoise, and the aggregate stress that multiple, synergistic threats place on desert tortoise populations (Figure 3). Conservation areas include designated critical habitat and other lands managed for the long-term conservation of the desert tortoise (e.g., the Desert Tortoise Natural Area, Joshua Tree National Park, and the Desert National Wildlife Refuge). The revised recovery plan (Service 2011) recommends connecting blocks of desert tortoise habitat, such as critical habitat units and other important areas, to maintain gene flow between populations. Linkages defined using least-cost path analysis (Averill-Murray *et al.* 2013) illustrate a minimum connection of habitat for desert tortoises between blocks of habitat and represent priority areas for conservation of population connectivity. This map illustrates that, across the range, desert tortoises in areas under the highest level of conservation management remain subject to numerous threats, stresses, and mortality sources.

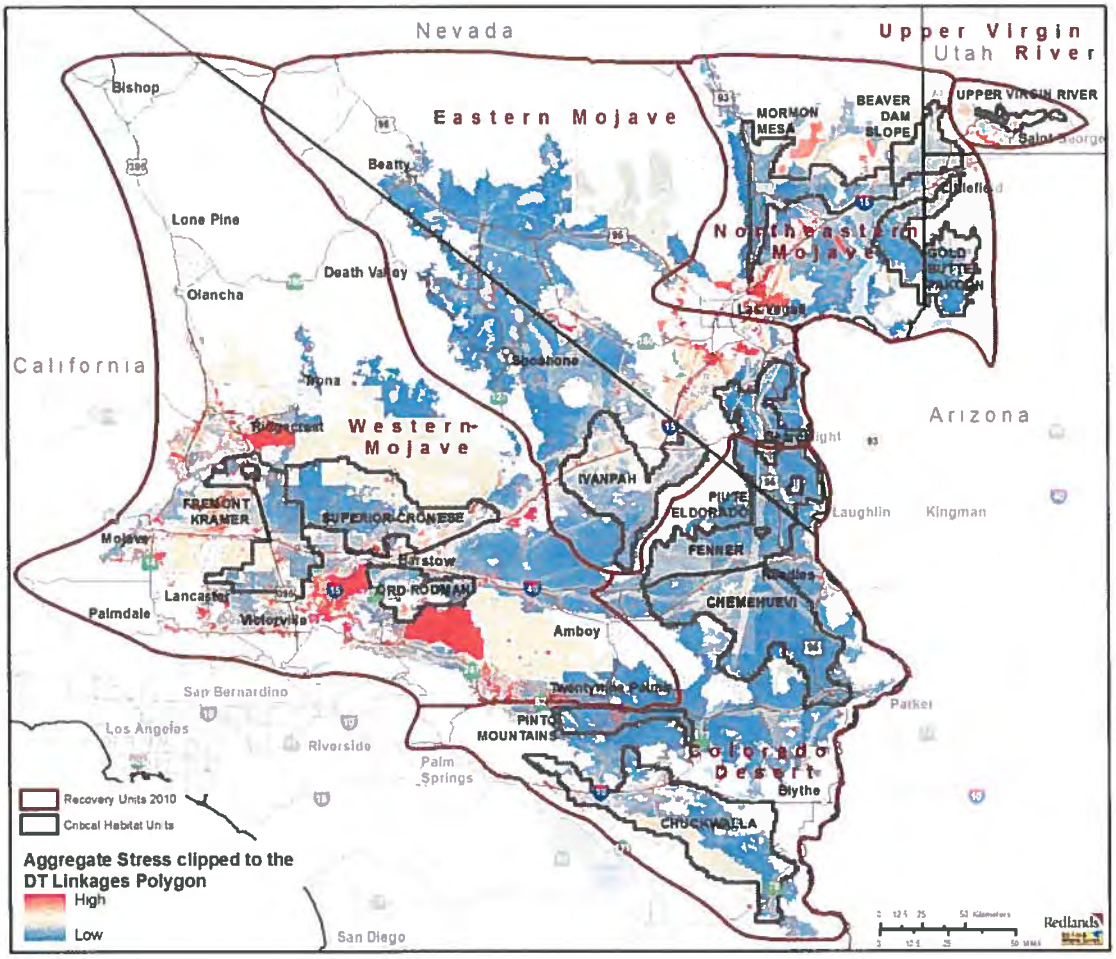

Figure 3. Critical habitat units of the desert tortoise, linkages between conservation areas for the desert tortoise, and the aggregate stress that multiple, synergistic threats place on desert tortoise populations.

Since the completion of the 5-year review, the Service has issued several biological opinions that affect large areas of desert tortoise habitat because of numerous proposals to develop renewable energy within its range. In aggregate, these projects would result in an overall loss of

approximately 37,503 acres of habitat of the desert tortoise. We also predicted that the project areas supported up to 3,483 desert tortoises; we concluded that most of these individuals were small desert tortoises, that most large individuals would likely be relocated from project sites, and that most mortalities would be small desert tortoises that were not detected during clearance surveys. To date, 560 desert tortoises have been observed during construction of projects; most of these individuals were relocated from work areas, although some desert tortoises have been killed. The mitigation required by the agencies permitting these facilities, will result in the acquisition of private land and funding for the implementation of various actions that are intended to promote the recovery of the desert tortoise. Most of these mitigation measures are consistent with recommendations in the recovery plans for the desert tortoise and the Service supports their implementation and expects, based on the best available scientific information, that they will result in conservation benefits to the desert tortoise; however, assessing how desert tortoise populations will respond is difficult because of the long generation time of the species.

In addition to the biological opinions issued for solar development within the range of the desert tortoise, the Service (2012a) also issued a biological opinion to the Department of the Army for the use of additional training lands at Fort Irwin. As part of this proposed action, the Department of the Army removed approximately 650 desert tortoises from 18,197 acres of the southern area of Fort Irwin, which had been off-limits to training. The Department of the Army would also use an additional 48,629 acres that lie east of the former boundaries of Fort Irwin; much of this parcel is either too mountainous or too rocky and low in elevation to support numerous desert tortoises.

The Service also issued a biological opinion to the Marine Corps that considered the effects of the expansion of the Marine Corps Air Ground Combat Center at Twentynine Palms (Service 2012b). We concluded that the Marine Corps' proposed action, the use of approximately 167,971 acres for training, was not likely to jeopardize the continued existence of the desert tortoise. Most of the expansion area lies within the Johnson Valley Off-highway Vehicle Management Area.

The incremental effect of the larger actions (i.e., solar development, the expansions of Fort Irwin, and the Marine Corps Air Ground Combat Center) on the desert tortoise is unlikely to be positive, despite the numerous conservation measures that have been (or will be) implemented as part of the actions. The acquisition of private lands as mitigation for most of these actions increases the level of protection afforded these lands; however, these acquisitions do not create new habitat and Federal, State, and privately managed lands remain subject to most of the threats and stresses we discussed previously in this section. Although land managers have been implementing measures to manage these threats that we expect, based on the best available scientific information, will provide conservation benefits to the desert tortoise, we have been unable, to date, to determine whether the expected benefits of the measures have yet been realized, at least in part because of the low reproductive capacity of the desert tortoise. Therefore, the conversion of habitat into areas that are unsuitable for this species continues the trend of constricting the desert tortoise into a smaller portion of its range.

As the Service notes in the 5-year review (Service 2010a), "(t)he threats identified in the original listing rule continue to affect the (desert tortoise) today, with invasive species, wildfire, and renewable energy development coming to the forefront as important factors in habitat loss and conversion. The vast majority of threats to the desert tortoise or its habitat are associated with human land uses." Oftedal's work (2002 in Service 2010a) suggests that invasive weeds may adversely affect the physiological health of desert tortoises. Current information indicates that invasive species pose a risk to a large portion of the desert tortoise's range (Figure 4). Furthermore, high densities of weedy species increase the likelihood of wildfires; wildfires, in turn, destroy native species and further the spread of invasive weeds.

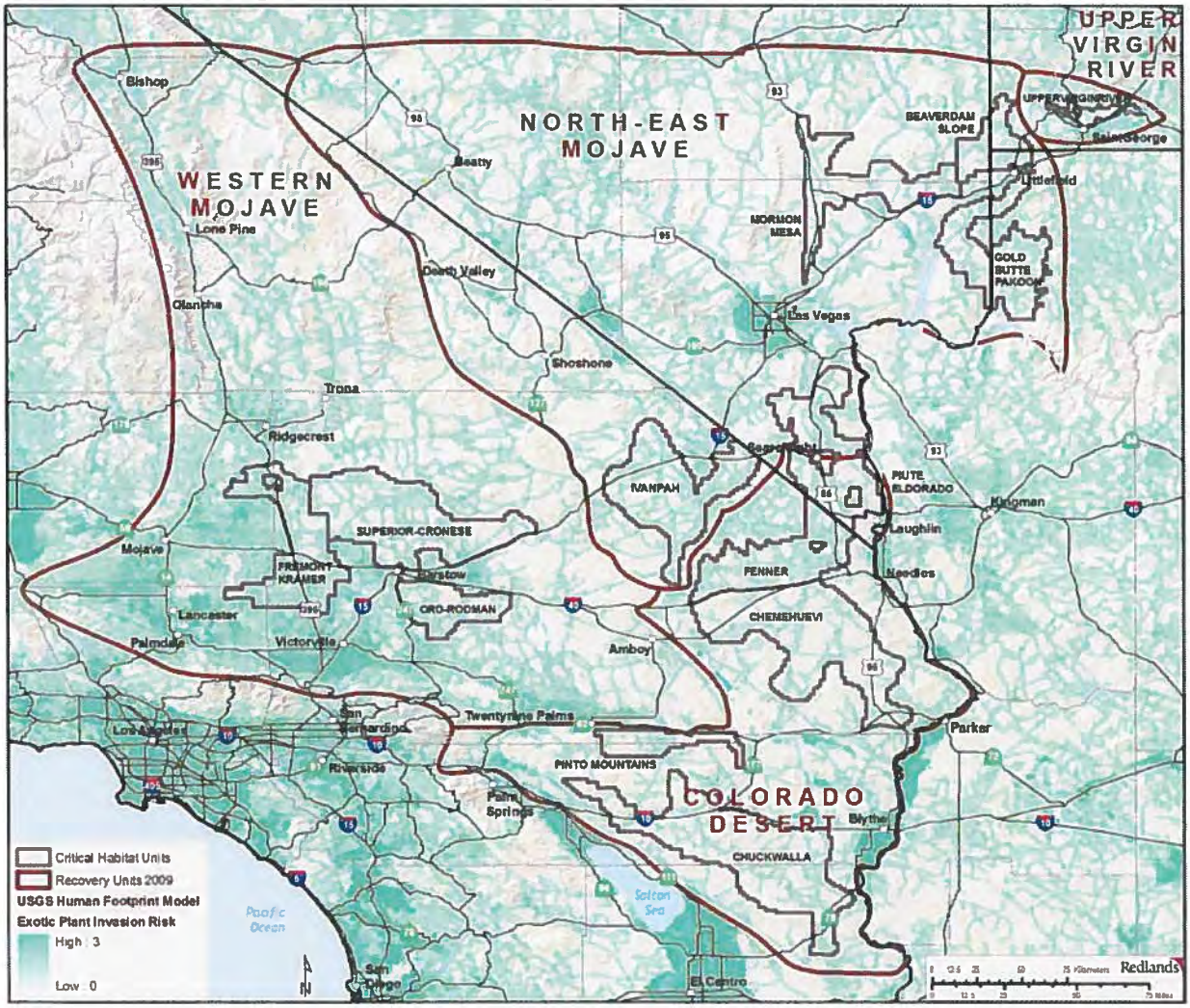

Figure 4. Invasion risk of non-native invasive plant species within the range of the desert tortoise.

Global climate change is likely to affect the prospects for the long-term conservation of the desert tortoise. For example, predictions for climate change within the range of the desert tortoise suggest more frequent and/or prolonged droughts with an increase of the annual mean temperature by 3.5 to 4.0 degrees Celsius. The greatest increases will likely occur in summer (June-July-August mean increase of as much as 5 degrees Celsius [Christensen et al. 2007 in

Service 2010a]). Precipitation will likely decrease by 5 to 15 percent annually in the region with winter precipitation decreasing by up to 20 percent and summer precipitation increasing by up to 5 percent. Because germination of the desert tortoise's food plants is highly dependent on cool-season rains, the forage base could be reduced due to increasing temperatures and decreasing precipitation in winter. Although drought occurs routinely in the Mojave Desert, extended periods of drought have the potential to affect desert tortoises and their habitats through physiological effects to individuals (i.e., stress) and limited forage availability. To place the consequences of long-term drought in perspective, Longshore et al. (2003) demonstrated that even short-term drought could result in elevated levels of mortality of desert tortoises. Therefore, long-term drought is likely to have even greater effects, particularly given that the current fragmented nature of desert tortoise habitat (e.g., urban and agricultural development, highways, freeways, military training areas, etc.) will make recolonization of extirpated areas difficult, if not impossible.

The Service notes in the 5-year review that the combination of the desert tortoise's late breeding age and a low reproductive rate challenges our ability to achieve recovery. When determining whether a proposed action is likely to jeopardize the continued existence of a species, we are required to consider whether the action would "reasonably be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species" (50 Code of Federal Regulations 402.02). Although the Service does not explicitly address these metrics in the 5-year review, we have used the information in that document to summarize the status of the desert tortoise with respect to its reproduction, numbers, and distribution. In the 5-year review, the Service notes that desert tortoises increase their reproduction in high rainfall years; more rain provides desert tortoises with more high quality food (i.e., plants that are higher in water and protein), which, in turn, allows them to lay more eggs. Conversely, the physiological stress associated with foraging on food plants with insufficient water and nitrogen may leave desert tortoises vulnerable to disease (Oftedal 2002 in Service 2010a), and the reproductive rate of diseased desert tortoises is likely lower than that of healthy animals. Young desert tortoises also rely upon high-quality, low-fiber plants (e.g., native annual plants) with nutrient levels not found in the invasive weeds that have increased in abundance across its range (Oftedal *et al.* 2002; Tracy *et al.* 2004). Compromised nutrition of young desert tortoises likely represents an effective reduction in reproduction by reducing the number of animals that reach adulthood. Consequently, although we do not have quantitative data that show a direct relationship, the abundance of weedy species within the range of the desert tortoise has the potential to affect the reproduction of desert tortoises and recruitment into the adult population in a negative manner.

Data from small-scale study plots (e.g., 1 square mile) established as early as 1976 and surveyed primarily through the mid-1990s indicate that localized population declines occurred at many sites across the desert tortoise's range, especially in the western Mojave Desert; spatial analyses of more widespread surveys also found evidence of relatively high mortality in some parts of the range (Tracy *et al.* 2004). Although population densities from the local study plots cannot be extrapolated to provide an estimate of the number of desert tortoises on a range wide basis, historical densities in some parts of the desert exceeded 100 adults in a square mile (Tracy *et al.*

2004). The Service (2010a) concluded that "appreciable declines at the local level in many areas, which coupled with other survey results, suggest that declines may have occurred more broadly."

The Service (2014) applied estimated densities within desert tortoise conservation areas surveyed during range-wide monitoring since 2004 to the estimated acreages of remaining habitat (see Table 4) within each recovery unit to estimate the change in numbers of individuals greater than 180 millimeters in carapace length. This calculation assumes that densities inside the surveyed conservation areas are similar to densities in habitat outside these areas, but any bias will be less than would have resulted from applying densities from much smaller study plots to the entire range. Although we presume densities are generally higher within conservation areas, we consider this a reasonable way to describe overall changes in the population given the lack of broad-scale data outside the conservation areas.

Table 4. Estimated number of desert tortoises greater than 180 millimeters in length in each recovery unit.

Recovery Units	2004	2012	Change	Percentage of Change
Western Mojave	152,967	76,644	-76,323	-50
Colorado Desert	111,749	85,306	-26,443	-24
Northeastern Mojave	13,709	40,838	+27,129	+198
Eastern Mojave	68,138	42,055	-26,083	-38
Upper Virgin River	12,678	8,399	-4,280	-34
Total	359,242	253,242	-106,000	-30

Table 5. Acreages of habitat (as modeled by Nussear *et al.* 2009, using only areas with a probability of occupancy by desert tortoises greater than 0.5 as potential habitat) within various regions of the desert tortoise's range and of impervious surfaces as of 2006 (Fry *et al.* 2011); calculations by Darst (2014). All units are in acres.

Recovery Units	Modeled Habitat	Impervious Surfaces*	Remaining Modeled Habitat
Western Mojave	7,585,312	1,989,843 (26%)	5,595,469
Colorado Desert	4,950,225	510,862 (10%)	4,439,363
Northeastern Mojave	3,012,293	386,182 (13%)	2,626,111
Eastern Mojave	4,763,123	825,274 (17%)	3,937,849
Upper Virgin River	231,460	84,404 (36%)	147,056
Total	20,542,413	3,796,565 (18%)	16,745,848

* Impervious surfaces include paved and developed areas and other disturbed areas that have zero probability of supporting desert tortoises.

The distribution of the desert tortoise has not changed substantially since the publication of the original recovery plan in 1994 (Service 2010a) in terms of the overall extent of its range. Prior to 1994, desert tortoises were extirpated from large areas within their distributional limits by urban and agricultural development (e.g., the cities of Barstow and Lancaster, California; Las Vegas, Nevada; and St. George, Utah; etc.; agricultural areas south of Edwards Air Force Base and east of Barstow), military training (e.g., Fort Irwin, Leach Lake Gunnery Range), and off-road vehicle use (e.g., portions of off-road management areas managed by the BLM and unauthorized use in areas such as east of California City, California). Since 1994, urban development around Las Vegas has likely been the largest contributor to habitat loss throughout the range. Desert tortoises have also been essentially removed from the 18,197-acre southern expansion area at Fort Irwin (Service 2012a).

In conclusion, we have used the 5-year review (Service 2010a), revised recovery plan (Service 2011), and additional information that has become available since these publications to review the reproduction, numbers, and distribution of the desert tortoise. The reproductive capacity of the desert tortoise may be compromised to some degree by the abundance and distribution of invasive weeds across its range; the continued increase in human access across the desert likely continues to facilitate the spread of weeds and further affect the reproductive capacity of the species. Prior to its listing, the number of desert tortoises likely declined range wide, although we cannot quantify the extent of the decline; since the time of listing, data suggest that declines continue to occur throughout most of the range, although recent information suggests that densities may have increased in the Northeastern Mojave Recovery Unit. The continued increase in human access across the desert continues to expose more desert tortoises to the potential of being killed by human activities. The distributional limits of the desert tortoise's range have not changed substantially since the issuance of the original recovery plan in 1994; however, desert tortoises have been extirpated from large areas within their range (e.g., Las Vegas, other desert cities). The species' low reproductive rate, the extended time required for young animals to reach breeding age, and the multitude of threats that continue to confront desert tortoises combine to render its recovery a substantial challenge.

Status of Critical Habitat of the Desert Tortoise

The Service designated critical habitat for the desert tortoise in portions of California, Nevada, Arizona, and Utah in a final rule published February 8, 1994 (59 Federal Register 5820). The Service designates critical habitat to identify the key biological and physical needs of the species and key areas for recovery and to focus conservation actions on those areas. Critical habitat is composed of specific geographic areas that contain the biological and physical features essential to the species' conservation and that may require special management considerations or protection. These features, which include space, food, water, nutrition, cover, shelter, reproductive sites, and special habitats, are called the primary constituent elements of critical habitat. The specific primary constituent elements of desert tortoise critical habitat are: sufficient space to support viable populations within each of the six recovery units and to provide for movement, dispersal, and gene flow; sufficient quality and quantity of forage species and the proper soil conditions to provide for the growth of these species; suitable

substrates for burrowing, nesting, and overwintering; burrows, caliche caves, and other shelter sites; sufficient vegetation for shelter from temperature extremes and predators; and habitat protected from disturbance and human-caused mortality.

Critical habitat of the desert tortoise would not be able to fulfill its conservation role without each of the primary constituent elements being functional. As examples, having a sufficient amount of forage species is not sufficient if human-caused mortality is excessive; an area with sufficient space to support viable populations within each of the six recovery units and to provide for movement, dispersal, and gene flow would not support desert tortoises without adequate forage species.

The final rule for designation of critical habitat did not explicitly ascribe specific conservation roles or functions to the various critical habitat units. Rather, it refers to the strategy of establishing recovery units and desert wildlife management areas recommended by the recovery plan for the desert tortoise, which had been published as a draft at the time of the designation of critical habitat, to capture the "biotic and abiotic variability found in desert tortoise habitat" (59 Federal Register 5820, see page 5823). Specifically, we designated the critical habitat units to follow the direction provided by the draft recovery plan (Service 1993) for the establishment of desert wildlife management areas. The critical habitat units in aggregate are intended to protect the variability that occurs across the large range of the desert tortoise; the loss of any specific unit would compromise the ability of critical habitat as a whole to serve its intended function and conservation role.

Despite the fact that desert tortoises do not necessarily need to move between critical habitat units to complete their life histories, both the original and revised recovery plans highlight the importance of these critical habitat units and connectivity between them for the recovery of the species. Specifically, the revised recovery plan states that "aggressive management as generally recommended in the 1994 Recovery Plan needs to be applied within existing (desert) tortoise conservation areas (defined as critical habitat, among other areas being managed for the conservation of desert tortoises) or other important areas … to ensure that populations remain distributed throughout the species' range …. (desert tortoise) conservation areas capture the diversity of the Mojave population of the desert tortoise within each recovery unit, conserving the genetic breadth of the species, providing a margin of safety for the species to withstand catastrophic events, and providing potential opportunities for continued evolution and adaptive change …. Especially given uncertainties related to the effects of climate change on desert tortoise populations and distribution, we consider (desert) tortoise conservation areas to be the minimum baseline within which to focus our recovery efforts (pages 34 and 35, Service 2011a)."

The 12 critical habitat units range in area from 85 to 1,595 square miles. However, the optimal reserve size recommended to preserve viable desert tortoise populations was 1,000 square miles (Service 1994); only 4 critical habitat units meet this threshold. Consequently, for some smaller critical habitat units, their future effectiveness in conserving the desert tortoise is largely dependent on the status of populations immediately adjacent to their boundaries or within

intervening linkages that connect these smaller critical habitat units to other protected areas. Although the Service (1994) recommended the identification of buffer zones and linkages for smaller desert tortoise conservation areas, land management agencies have generally not established such areas.

Population viability analyses indicate that reserves should contain from 10,000 to 20,000 adult desert tortoises to maximize estimated time to extinction (i.e., approximately 390 years, depending on rates of population change; Service 1994). However, during the three most recent years of monitoring within the critical habitat units, only three (in 2009 and 2010) to five (in 2008) of the critical habitat units met this target. Some critical habitat units share boundaries and form contiguous blocks (e.g. Superior-Cronese and Fremont-Kramer Critical Habitat Units), and those blocks in California include combined estimated abundances of over 10,000 adult desert tortoises. These blocks are adjacent to smaller, more isolated units (e.g., Ord-Rodman Critical Habitat Unit) that are not currently connected to other protected habitat by preserved habitat linkages.

We did not designate the Desert Tortoise Natural Area and Joshua Tree National Park in California and the Desert National Wildlife Refuge in Nevada as critical habitat because they are "primarily managed as natural ecosystems" (59 Federal Register 5820, see page 5825) and provide adequate protection to desert tortoises. Since the designation of critical habitat, Congress increased the size of Joshua Tree National Park and created the Mojave National Preserve. A portion of the expanded boundary of Joshua Tree National Park lies within critical habitat of the desert tortoise; portions of other critical habitat units lie within the boundaries of the Mojave National Preserve.

Within each critical habitat unit, both natural and anthropogenic factors affect the function of the primary constituent elements of critical habitat. As an example of a natural factor, in some specific areas within the boundaries of critical habitat, such as within and adjacent to dry lakes, some of the primary constituent elements are naturally absent because the substrate is extremely silty; desert tortoises do not normally reside in such areas. Comparing the acreage of desert tortoise habitat as depicted by Nussear et al.'s (2009) model to the gross acreage of the critical habitat units demonstrates quantitatively that the entire area within the boundaries of critical habitat likely does not support the primary constituent elements (Table 6). The acreage for modeled habitat is for the area in which the probability that desert tortoises are present is greater than 0.5. The acreages of modeled habitat do not include loss of habitat due to human-caused impacts. The difference between gross acreage and modeled habitat is 653,214 acres; that is, approximately 10 percent of the gross acreage of the designated critical habitat is not considered modeled habitat.

Table 6. Acres of gross and modeled habitat per critical habitat unit

Critical Habitat Unit	Gross Acreage	Modeled Habitat
Superior-Cronese	766,900	724,967
Fremont-Kramer	518,000	501,095
Ord-Rodman	253,200	184,155
Pinto Mountain	171,700	144,056
Piute-Eldorado	970,600	930,008
Ivanpah Valley	632,400	510,711
Chuckwalla	1,020,600	809,319
Chemehuevi	937,400	914,505
Gold Butte-Pakoon	488,300	418,189
Mormon Mesa	427,900	407,041
Beaver Dam Slope	204,600	202,499
Upper Virgin River	54,600	46,441
Totals	6,446,200	5,792,986

Condition of the Primary Constituent Elements of Critical Habitat

Human activities can have obvious or more subtle effects on the primary constituent elements. The grading of an area and subsequent construction of a building removes the primary constituent elements of critical habitat; this action has an obvious effect on critical habitat. The revised recovery plan identifies human activities such as urbanization and the proliferation of roads and highways as threats to the desert tortoise and its habitat; these threats are examples of activities that have a clear effect on the primary constituent elements of critical habitat.

We have included the following paragraphs from the revised recovery plan for the desert tortoise to demonstrate that other anthropogenic factors affect the primary constituent elements of critical habitat in more subtle ways. All references are in the revised recovery plan (i.e., in Service 2011); we have omitted some information from the revised recovery plan where the level of detail was unnecessary for the current discussion.

Surface disturbance from [off-highway vehicle] activity can cause erosion and large amounts of dust to be discharged into the air. Recent studies on surface dust impacts on gas exchanges in Mojave Desert shrubs showed that plants encrusted by dust have reduced photosynthesis and decreased water-use efficiency, which may decrease primary production during seasons when photosynthesis occurs (Sharifi et al. 1997). Sharifi et al. (1997) also showed reduction in maximum leaf conductance, transpiration, and water-use efficiency due to dust. Leaf and stem temperatures were also shown to be higher in plants with leaf-surface dust. These effects may also impact desert annuals, an important food source for [desert] tortoises.

[Off-highway vehicle] activity can also disturb fragile cyanobacterial-lichen soil crusts, a dominant source of nitrogen in desert ecosystems (Belnap 1996). Belnap (1996) showed that

anthropogenic surface disturbances may have serious implications for nitrogen budgets in cold desert ecosystems, and this may also hold true for the hot deserts that [desert] tortoises occupy. Soil crusts also appear to be an important source of water for plants, as crusts were shown to have 53 percent greater volumetric water content than bare soils during the late fall when winter annuals are becoming established (DeFalco et al. 2001). DeFalco et al. (2001) found that non-native plant species comprised greater shoot biomass on crusted soils than native species, which demonstrates their ability to exploit available nutrient and water resources. Once the soil crusts are disturbed, non-native plants may colonize, become established, and out-compete native perennial and annual plant species (DeFalco et al. 2001, D'Antonio and Vitousek 1992). Invasion of non-native plants can affect the quality and quantity of plant foods available to desert tortoises. Increased presence of invasive plants can also contribute to increased fire frequency.

Proliferation of invasive plants is increasing in the Mojave and Sonoran deserts and is recognized as a substantial threat to desert tortoise habitat. Many species of non-native plants from Europe and Asia have become common to abundant in some areas, particularly where disturbance has occurred and is ongoing. As non-native plant species become established, native perennial and annual plant species may decrease, diminish, or die out (D'Antonio and Vitousek 1992). Land managers and field scientists identified 116 species of non-native plants in the Mojave and Colorado deserts (Brooks and Esque 2002).

Increased levels of atmospheric pollution and nitrogen deposition related to increased human presence and combustion of fossil fuels can cause increased levels of soil nitrogen, which in turn may result in significant changes in plant communities (Aber et al. 1989). Many of the non-native annual plant taxa in the Mojave region evolved in more fertile Mediterranean regions and benefit from increased levels of soil nitrogen, which gives them a competitive edge over native annuals. Studies at three sites within the central, southern, and western Mojave Desert indicated that increased levels of soil nitrogen can increase the dominance of non-native annual plants and promote the invasion of new species in desert regions. Furthermore, increased dominance by non- native annuals may decrease the diversity of native annual plants, and increased biomass of non-native annual grasses may increase fire frequency (Brooks 2003).

This summary from the revised recovery plan (Service 2011) demonstrates how the effects of human activities on habitat of the desert tortoise are interconnected. In general, surface disturbance causes increased rates of erosion and generation of dust. Increased erosion alters additional habitat outside of the area directly affected by altering the nature of the substrate, removing shrubs, and possibly destroying burrows and other shelter sites. Increased dust affects photosynthesis in the plants that provide cover and forage to desert tortoises. Disturbed substrates and increased atmospheric nitrogen enhance the likelihood that invasive species will become established and outcompete native species; the proliferation of weedy species increases the risk of large-scale fires, which further move habitat conditions away from those that are favorable to desert tortoises.

The following paragraphs generally describe how the threats described in the revised recovery plan affect the primary constituent elements of critical habitat of the desert tortoise.

Sufficient space to support viable populations within each of the six recovery units and to provide for movement, dispersal, and gene flow.

In considering the following discussion, bear in mind the information provided previously in this biological opinion regarding the recommended and actual sizes of critical habitat units for the desert tortoise. The original recovery team based the recommended size of desert wildlife management areas on the amount of space required to maintain viable populations. (The recovery plan [Service 1994] defined conservation areas for the desert tortoise as 'desert wildlife management areas;' we based the boundaries of critical habitat on the recovery team's general recommendation for the desert wildlife management areas.) The current low densities of desert tortoises within critical habitat units exacerbate the difficulties of effecting recovery within these areas.

Urban and agricultural development, concentrated use by off-road vehicles, and other activities of this nature completely remove habitat. Although we are aware of local areas within the boundaries of critical habitat that have been heavily disturbed, we do not know of any areas that have been disturbed to the intensity and extent that this primary constituent element has been compromised. To date, the largest single loss of critical habitat is the use of 18,197 acres of additional training land in the southern portion of Fort Irwin. In our biological opinion for that proposed action (Service 2012e), we stated:

The proposed action would essentially eliminate the primary constituent elements from approximately 2.40 percent of the Superior-Cronese Critical Habitat Unit; additionally, the conservation role of the remainder of this critical habitat unit and the other critical habitat units has been compromised by substantial human impact on the second and sixth primary constituent elements. However, the protective measures that the Army implemented as part of the proposed action offset, at least to some extent, the adverse effects of the use of the additional training lands in the southern expansion area.

Consequently, we have concluded that, although the second and sixth primary constituent elements are not functioning appropriately throughout most of designated critical habitat of the desert tortoise and the proposed action would result in substantial disturbance to 18,197 acres of the Superior-Cronese Critical Habitat Unit, the change in the condition of critical habitat brought about by the Army's proposed action (i.e., use of the southern expansion area for training and implementation of the conservation actions) is not likely to cause an overall decrease in the conservation value and function of the Superior-Cronese Critical Habitat Unit. The widening of existing freeways likely caused the second largest loss of critical habitat. Despite these losses of critical habitat, which occur in a linear manner, the critical habitat units continue to support sufficient space to support viable populations within each of the six recovery units.

In some cases, major roads likely disrupt the movement, dispersal, and gene flow of desert tortoises. Highways 58 and 395 in the Fremont-Kramer Critical Habitat Unit and Fort Irwin Road in the Superior-Cronese Critical Habitat Unit are examples of large and heavily travelled roads that likely disrupt movement, dispersal, and gene flow. Roads that have been fenced and provided with underpasses may alleviate this fragmentation to some degree; however, such facilities have not been in place for sufficient time to determine whether they will eliminate fragmentation.

The threats of invasive plant species described in the revised recovery plan generally do not result in the removal of this primary constituent element because they do not convert habitat into impervious surfaces, as would urban development.

Sufficient quality and quantity of forage species and the proper soil conditions to provide for the growth of these species.

This primary constituent element addresses the ability of critical habitat to provide adequate nutrition to desert tortoises. As described in the revised recovery plan and 5-year review, grazing, historical fire, invasive plants, altered hydrology, drought, wildfire potential, fugitive dust, and climate change/temperature extremes contribute to the stress of "nutritional compromise." Paved and unpaved roads through critical habitat of the desert tortoise provide avenues by which invasive native species disperse; these legal routes also provide the means by which unauthorized use occurs over large areas of critical habitat. Nitrogen deposition from atmospheric pollution likely occurs throughout all the critical habitat units and exacerbates the effects of the disturbance of substrates. Because paved and unpaved roads are so widespread through critical habitat, this threat has compromised the conservation value and function of critical habitat throughout the range of the desert tortoise, to some degree. See the Status of the Desert Tortoise section of this biological opinion for a map that depicts the routes by which invasive weeds have access to critical habitat; the routes shown on the map are a subset of the actual number of routes that actually cross critical habitat of the desert tortoise.

Suitable substrates for burrowing, nesting, and overwintering.

Surface disturbance, motor vehicles traveling off route, use of OHV management areas, OHV events, unpaved roads, grazing, historical fire, wildfire potential, altered hydrology, and climate change leading to shifts in habitat composition and location, storms, and flooding can alter substrates to the extent that they are no longer suitable for burrowing, nesting, and overwintering. Erosion caused by these activities can alter washes to the extent that desert tortoise burrows placed along the edge of a wash, which is a preferred location for burrows, could be destroyed. We expect that the area within critical habitat that is affected by off-road vehicle use to the extent that substrates are no longer suitable is relatively small in relation to the area that desert tortoises have available for burrowing, nesting, and overwintering; consequently, off-road vehicle use has not had a substantial effect on this primary constituent element.

Most livestock allotments have been eliminated from within the boundaries of critical habitat. Of those that remain, livestock would compact substrates to the extent that they would become unsuitable for burrowing, nesting, and overwintering only in areas of concentrated use, such as around watering areas and corrals. Because livestock grazing occurs over a relatively small portion of critical habitat and the substrates in most areas within livestock allotments would not be substantially affected, suitable substrates for burrowing, nesting, and overwintering remain throughout most of the critical habitat units.

Burrows, caliche caves, and other shelter sites.

Human-caused effects to burrows, caliche caves, and other shelter sites likely occur at a similar rate as effects to substrates for burrowing, nesting, and overwintering for the same general reasons. Consequently, sufficient burrows, caliche caves, and other shelter sites remain throughout most of the critical habitat units.

Sufficient vegetation for shelter from temperature extremes and predators.

In general, sufficient vegetation for shelter from temperature extremes and predators remains throughout critical habitat. In areas where large fires have occurred in critical habitat, many of the shrubs that provide shelter from temperature extremes and predators have been destroyed; in such areas, cover sites may be a limiting factor. The proliferation of invasive plants poses a threat to shrub cover throughout critical habitat as the potential for larger and more frequent wildfires increases.

In 2005, wildfires in Nevada, Utah, and Arizona burned extensive areas of critical habitat (Service 2010a). Although different agencies report slightly different acreages, the following table provides an indication of the scale of the fires.

Critical Habitat Unit	Total Area Burned (acres)	Percent of the Critical Habitat Unit Burned
Beaver Dam Slope	53,528	26
Gold-Butte Pakoon	65,339	13
Mormon Mesa	12,952	3
Upper Virgin River	10,557	19

The revised recovery plan notes that the fires caused statistically significant losses of perennial plant cover, although patches of unburned shrubs remained. Given the patchiness with which the primary constituent elements of critical habitat are distributed across the critical habitat units and the varying intensity of the wildfires, we cannot quantify precisely the extent to which these fires disrupted the function and value of the critical habitat.

Habitat protected from disturbance and human-caused mortality.

In general, the Federal agencies that manage lands within the boundaries of critical habitat have adopted land management plans that include implementation of some or all of the recommendations contained in the original recovery plan for the desert tortoise (see pages 70 to 72 of Service 2010a). To at least some degree, the adoption of these plans has resulted in the implementation of management actions that are likely to reduce the disturbance and human-caused mortality of desert tortoises. For example, these plans resulted in the designation of open routes of travel and the closure (and, in some cases, physical closure) of unauthorized routes. Numerous livestock allotments have been relinquished by the permittees and cattle no longer graze these allotments. Because of these planning efforts, the BLM's record of decision included direction to withdraw some areas of critical habitat from mineral entry. Because of actions on the part of various agencies, many miles of highways and other paved roads have been fenced to prevent desert tortoises from wandering into traffic and being killed. The Service and other agencies of the Desert Managers Group in California are implementing a plan to remove common ravens that prey on desert tortoises and to undertake other actions that would reduce subsidies (i.e., food, water, sites for nesting, roosting, and perching, etc.) that facilitate their abundance in the California Desert (Service 2008).

Despite the implementation of these actions, disturbance and human-caused mortality continue to occur in many areas of critical habitat (which overlap the desert wildlife management areas for the most part and are the management units for which most data are collected) to the extent that the conservation value and function of critical habitat is, to some degree, compromised. For example, many highways and other paved roads in California remain unfenced. Twelve desert tortoises were reported to be killed on paved roads from within Mojave National Preserve in 2011, and we fully expect that desert tortoises are being killed at similar rates on many other roads, although these occurrences are not discovered and reported as diligently as by the National Park Service. Employees of the Southern California Gas Company reported two desert tortoises in 2011 that were crushed by vehicles on unpaved roads.

Unauthorized off-road vehicle use continues to disturb habitat and result in loss of vegetation within the boundaries of critical habitat (e.g., Coolgardie Mesa in the Western Mojave Recovery Unit); although we have not documented the death of desert tortoises as a direct result of this activity, it likely occurs. Additionally, the habitat disturbance caused by this unauthorized activity exacerbates the spread of invasive plants, which displace native plants that are important forage for the desert tortoise, thereby increasing the physiological stress faced by desert tortoises.

Although the BLM has approved, through its land use planning processes, the withdrawal of areas of critical habitat from mineral entry, it has not undertaken the administrative procedures to complete withdrawals in all areas. Absent this withdrawal, new mining claims can be filed and further disturbance of critical habitat could occur.

Finally, the BLM has not allowed the development of solar power plants on public lands in California or Nevada within the boundaries of its desert wildlife management areas (which largely correspond to the boundaries of critical habitat). Conversely, the County of San Bernardino is considering the approval of the construction and operation of at least two such facilities within the boundaries of the Superior-Cronese Critical Habitat Unit north of Interstate 15 near the Minneola Road exit.

Summary of the Status of Critical Habitat of the Desert Tortoise

As noted in the revised recovery plan for the desert tortoise and 5-year review (Service 2011, 2010a), critical habitat of the desert tortoise is subject to landscape level impacts in addition to the site-specific effects of individual human activities. On the landscape level, atmospheric pollution is increasing the level of nitrogen in desert substrates; the increased nitrogen exacerbates the spread of invasive plants, which out-compete the native plants necessary for desert tortoises to survive. As invasive plants increase in abundance, the threat of large wildfires increases; wildfires have the potential to convert the shrubland-native annual plant communities upon which desert tortoises depend to a community with fewer shrubs and more invasive plants. In such a community, shelter and forage would be more difficult for desert tortoises to find.

Invasive plants have already compromised the conservation value and function of critical habitat to some degree with regard to the second primary constituent element (i.e., sufficient quality and quantity of forage species and the proper soil conditions to provide for the growth of these species). These effects likely extend to the entirety of critical habitat, given the numerous routes by which invasive plants can access critical habitat and the large spatial extent that is subject to nitrogen from atmospheric pollution. (See maps from previous sections of this biological opinion regarding the extent of the threat of invasive plants and the aggregate stress that multiple threats, including invasive plants, place on critical habitat.)

Critical habitat has been compromised to some degree with regard to the last primary constituent element (i.e., habitat protected from disturbance and human-caused mortality) as a result of the wide variety of human activities that continues to occur within its boundaries. These effects result from the implementation of discrete human activities and are thus more site-specific in nature.

Although the remaining primary constituent elements have been affected to some degree by human activities, these impacts have not, to date, substantially compromised the conservation value and function of the critical habitat units. We have reached this conclusion primarily because the effects are localized and thus do not affect the conservation value and function of large areas of critical habitat.

Land managers have undertaken actions to improve the status of critical habitat. For example, as part of its efforts to offset the effects of the use of additional training maneuver lands at Fort Irwin, the Army acquired the private interests in the Harper Lake and Cronese Lakes allotments, which are located within critical habitat in the Western Mojave Recovery Unit; as a

result, cattle have been removed from these allotments. Livestock have been removed from numerous other allotments through various means throughout the range of the desert tortoise.

The retirement of allotments assists in the recovery of the species by eliminating disturbance to the primary constituent elements of critical habitat by cattle and range improvements.

F. ENVIRONMENTAL BASELINE

Definition of the Action Area

The action area is defined, *as all areas to be affected directly or indirectly by the Federal action including interrelated and interdependent actions, and not merely the immediate area involved in the action* (50 CFR § 402.02). The action area only includes affected areas potentially occupied by threatened, endangered, or proposed species or their proposed or designated critical habitat, or that provide biotic or abiotic resources for such species or habitats. Subsequent analyses of the environmental baseline, effects of the action, cumulative effects, and levels of incidental take are based upon the action area as determined by the Service.

The action area for this consultation is defined as corridors, substations, and access roads within the range of the Mojave desert tortoise in Nevada and California (Figure 1) and 1,640 feet (500 meters) surrounding these areas where displaced tortoises may be released or where tortoises may travel between adjacent habitat and work areas.

The action area includes approximately 570 miles of access road in Nevada and California. Approximately 23 miles of transmission line ROW and 28 miles of associated access road occurs in the Chuckwalla CHU. Approximately 97 miles of transmission line ROW and 170 miles of associated access roads occur within the Piute-Eldorado CHU (J. Dockens 2015).

Status of Desert Tortoise and its Critical Habitat in the Action Area

Mojave desert tortoises are known to occur throughout the action area. Biological resource surveys of the action area were conducted between April and October 2013. Survey crews drove access roads, collected GIS data for access roads and transmission line structures, and ground-truthed aerial imagery and known habitat types. Habitats were ground-truthed using Brown (1994) and Southwest Regional Gap Analysis Project (SWReGAP) data. Habitats were assessed for their potential to support desert tortoise and other sensitive species. Focused or protocol species-specific surveys were not conducted specifically; however, Western has conducted numerous project-specific surveys in support of biological resource assessments. Surveys of areas potentially affected by actions to be appended to this PBO (most Category C activities) will be performed in support of project-level consultation.

Suitable habitat for Mojave desert tortoise exists within the majority of the action area in California and Nevada. About 79 percent of the project area comprises Mojave or Sonoran Desertscrub habitat. Western's infrastructure crosses about 398,000 acres of Mojave and

Sonoran Desertscrub habitat within the range of the Mojave desert tortoise. This estimate is based on SWReGAP data within 100 feet of centerline, which overestimates some ROWs.

Desert tortoise surveys will be performed for actions to be appended to this PBO. The Service will use this survey information to assess the status of the desert tortoise in the action area for appended projects during project-level consultation.

Factors Affecting the Desert Tortoise and its Critical Habitat in the Action Area

The initial construction dates for infrastructure in the action area range from 1936 to the present, with an average age of 50 years. The majority of transmission lines and substations have in-service dates prior to 1990.

Western's substations vary in size from less than 1 acre to up to 170 acres. All facilities were constructed using standard practices and are currently surrounded by either a chain-link or block wall fence with locked gates. All substation yards were constructed with an electric grounding grid (also called a ground mat) buried several feet below the current ground surface and extending three feet beyond the fence or wall. Due to the method of installation of the ground mat, the area within the facility perimeter and extending 5 to 15 feet beyond the fence or wall was disturbed during construction. The ground mat was subsequently covered with compacted fill and gravel to create a level surface for the substation buildings and equipment. Staffed substations have multiple separate switchyards or switchyards with an adjoining office building and work area. Work areas were bladed, leveled, and compacted during construction, but may not contain a grounding grid. Therefore, substation facilities are considered highly disturbed and modified within the fenced or walled perimeter.

Most transmission lines, substations, and communication sites within the project area have associated access roads or are accessed directly off of existing publicly maintained roadways. Western's ROW access roads are unimproved dirt roadways, typically 16-20 feet in width. The public may use these roads which may result in adverse effects to tortoise populations. Humans use the desert for off-road exploration, casual shooting and target practice, personal or commercial collection of animals and plants, searches and digging for minerals and gems, geocaching (GPS guided stash hunts), and even the production of illegal drugs. Desert tortoise shells found in the Mojave Desert with bullet holes were examined forensically and it was determined that these tortoises were alive when they were shot (Berry 1986).

Previous Federal actions that have occurred in the action area since 2003 and the disturbance of desert tortoise habitat are identified in Table 7. Programmatic biological opinions issued to the BLM, Federal Highway Administration, and National Park Service also include actions in the action area. The action area includes non-Federal land covered by the Clark County, Nevada multiple species habitat conservation plan (MSHCP) and Lower Colorado River Multi-Species Conservation Program (MSCP).

Table 7. Project-level biological opinions issued that involve desert tortoise in the action area.

Project Name (Service File No.)	**Date of Biological Opinion**	**Habitat Disturbance**
Phase II of the Hoover Dam By-pass Project, Clark County, Nevada (1-5-04-F-400)	October 22, 2003	32 acres
Blythe-Headgate Rock 161-kV Transmission Line Pole Replacement, La Paz County, Arizona and San Bernardino and Riverside Counties, California (1-6-05-F-3067)	December 21, 2005	
Reconductoring Electrical Transmission Lines between the Mead and Davis Substations, Mohave County, Arizona and Clark County, Nevada (84320-2008-F-0008; reinitiation of consultation- 84320-2010-F-0005)	October 19, 2007 April 21, 2010	Minimal; unquantified (rehabilitated)
Mead-Marketplace 500-kV Transmission Line Fiber Optic Line Replacement, Clark County, Nevada (84320-2010-F-0368)	September 24, 2010	3 acres
Proposed Rice Solar Energy Project, Riverside County, California (ERIV-08B0279-11F0276)	July 27, 2011	1,368 acres
Facilities Rating Project for Hoover-Mead Number 1 and 5 and Mead-Marketplace Transmission Lines, Clark County, Nevada (84320-2013-F-0043)	March 5, 2013	49 acres
McCoy Solar Power Project (ERIV-10B0592-13F0179)	March 6, 2013	4,533 acres
Demolition of the Mead Substation Administrative Building in Boulder City, Clark County, Nevada (84320-2014-F-0117)	March 5, 2014	No desert tortoise habitat disturbed.
Blythe Solar Energy Project (ERIV-09B0186-10F0880-R002)	December 11, 2014	4,070 acres

The Service issued an incidental take permit (TE-034927) to Clark County for their MSHCP on November 22, 2000. The incidental take permit allows incidental take of desert tortoise for a period of 30 years on 145,000 ac of non-Federal land in Clark County, and within the Nevada Department of Transportation's ROW, south of the 38th parallel in Nevada. As partial mitigation under the MSHCP, the County purchased a conservation easement from Boulder City in 1994. The term of the Boulder City Conservation Easement (BCCE) is for 50 years and it will be retained in a natural condition for recovery of the desert tortoise and conservation of other species in the area. Certain uses shall be prohibited within the BCCE including motor vehicle activity off designated roads, livestock grazing, and any activity that is inconsistent with the purposes of the BCCE. Much of the BCCE also is designated desert tortoise critical habitat. Within the boundary of the BCCE, Boulder City reserved an area for energy development projects in addition to existing adjacent energy generation facilities.

The Lower Colorado River MSCP includes specific programs or actions in the Lower Colorado River area, undertaken by the six Federal agencies, including implementation of the Conservation Plan by Bureau of Reclamation. The incidental take permit for non-Federal actions described in the MSCP involved 27 covered species, one of which was the Mojave desert tortoise

for a period of 50 years. The Lower Colorado MSCP identified 192 acres of desert tortoise habitat that may be disturbed under the MSCP and incidental take permit.

Approximately 23 miles of transmission line (Blythe-Knob 161-kV, on wood H-frame and 3-pole turning structures) with about 28 miles of associated access road occur within the Chuckwalla CHU. One small substation, the Gold Mine Tap (about 0.8 acre) is also located within the Chuckwalla Unit.

Approximately 97 miles of transmission line (Davis-McCullough, Davis-Mead, and Mead-Liberty 230-kV lines on steel lattice) and about 170 miles of associated access roads occur in the Piute-Eldorado CHU. There are no Western substations in the Piute-Eldorado CHU or other critical habitat units in Nevada or any infrastructure in the California portion of that CHU.

Raven Predation in the Action Area

In 1995, the Clark County Desert Conservation Program funded an investigation of raven predation on desert tortoises in Eldorado and Piute Valleys. The study areas occur within or near the action area for this biological opinion. This study was originally conducted in 1995 and repeated in 2011.

In 2011, four sections of electrical transmission lines were surveyed in Eldorado and Piute Valleys for the presence of avian predation on juvenile Mojave desert tortoises. The survey protocol followed McCullough Ecological Systems (1995). The base of each transmission line tower, and an area extending out 10 meters from the base, was systematically searched for skeletal and other body parts of juvenile desert tortoises. Towers were also investigated for evidence of use as avian perch sites and nest sites. When nests or carcasses were noted, the tower on any adjacent transmission line was also surveyed.

A total of 205 towers were searched along 56.3 miles of transmission line. Table 8 compares 1995 and 2011 data. In 2011, remains of 18 juvenile desert tortoises were found beneath 14 towers. The number of remains per tower site ranged from 0 to 4. Tower 14-3 on the Piute Valley East line, had an intact nest, raven feathers and 4 juvenile desert tortoise carcasses observed at the tower. Evidence of the use of transmission towers as perch sites for ravens or raptors was recorded at 128 of the 205 towers surveyed (Tables8 and 9).

Table 8. Comparison of 1995 and 2011 data. Predator sign includes the presence of a nest, bird perched, bird flying, or feathers or avian fecal on the ground below the tower.

	1995	**2011**	**Change**
Total no. of carcasses	78	18	-80%
No. of towers with carcasses	23	14	-39%
Highest no. of carcasses at single tower	17	4	-77%
No. of towers with predator sign	205	128	-38%
No. of intact nests	6	13	+216%

Table 9. Percentage of towers on each electrical transmission line exhibiting juvenile Mojave desert tortoise carcasses or predator sign in November 2011 (data were collected by Nevada Department of Wildlife and Service's Southern Nevada Field Office).

	Eldorado Valley		**Piute Valley**	
	North Line	**South Line**	**West Line**	**East Line**
No. Towers	41	50	55	59
Carcasses	7%	8%	6%	10%
Intact Nests	0%	0%	9%	12%
Disarticulated Nests	7%	0%	6%	2%
Predator Sign (excluding avian fecal)	27%	18%	29%	22%
Predator Sign (including avian fecal)	39%	46%	95%	63%

No intact nests were observed on either of the Eldorado Valley transmission lines, although some disarticulated nests were noted. All intact nests were observed on the Piute Valley transmission lines despite the towers on the Piute Valley West line being outfitted with perch deterrents. The total number of intact nests noted increased 216 percent from 1995 to 2011; this is the only measured variable that increased from 1995.

Compared to the 1995 study, evidence of predation of juvenile Mojave desert tortoises by ravens in the vicinity of electrical transmission lines in Eldorado and Piute valleys has decreased (Table 6). This decrease may be due to one or more reasons. First, more powerlines have been developed, thus avian predation of juvenile desert tortoises could have 'spread out' and is not as concentrated or easily detectable as it may have been in 1995 with less power line sites. And second, the long-term presence of power lines, or other separate or cumulative anthropogenic induced impacts may have negatively impacted desert tortoises in Eldorado and Piute Valleys and there simply are less desert tortoises in these areas, including hatchlings available to ravens. Considering the number of intact raven nests more than doubled since 1995, it is more likely the number of desert tortoises has decreased and not the number of ravens.

G. EFFECTS OF THE PROPOSED ACTION ON THE MOJAVE DESERT TORTOISE

Effects by Category of Activity

Category A activities will occur primarily without the use of heavy equipment, allowing for better visibility and ease of vehicle maneuvering in work areas. Many of these activities provide for flexibility in staging, allowing for greater avoidance of burrows and other habitat features than Category B and C activities.

Ground disturbing activities associated with Category B and C activities present an increased risk to tortoises resulting from vehicle strikes and the potential destruction of burrows. These

activities may result in the incidental take of tortoises resulting from the capture, handling, or relocation of desert tortoises found in harm's way; however, the primary goal would be avoidance of tortoises and burrows wherever possible. Tortoises would only be handled by qualified individuals as authorized by the Service and following accepted protocols.

Category B and C activities may also result in an increase of noxious and invasive plant species in the area following ground disturbing activities. The introduction of invasive species causes the displacement of native forage species for tortoises, as well as increase fine fuels and the risk of fire. Maintenance equipment may facilitate the spread of existing noxious or invasive species in the project area by incidentally transporting seeds and plant parts. However, SOPs such as vehicle washing will reduce these effects.

Category C activities may result in new disturbance to critical habitat outside of established work areas. These new disturbance areas would likely be variable in size, and temporary to permanent depending on the nature of the activity. Temporary work areas would be restored to pre-work contours where feasible. Long-term habitat disturbance effects may occur as a result of activities such as the installation of inset structures, new or repaired footings, erosion control features, or new antenna towers. This type of work would involve localized disturbance in small (1-2 acre) patches and occur infrequently. If excavations are required, tortoises may fall into those that remain open. The risk to tortoises from open excavations is proportionate to the level of tortoise activity, size of excavation, and how long the excavation is open and available to tortoises. Constant monitoring or fencing the area to exclude tortoises, or covering the open areas to prohibit tortoise access are the most effective measures.

General Effects of O&M Activities

Linear projects and activities may affect tortoises at levels well beyond those of many point sources of impacts (Boarman 2002). Studies suggest that differences in the extent of the threat are related to the scale of the project, the ability of crews to avoid disturbing burrows, and timing of activities to avoid peak activity periods of tortoises (Boarman 2002). In addition to the discrete disturbance points formed by towers and lines, maintenance roads and repeated operations can (1) introduce continuous sources of disturbance and (2) provide potential sites for invasion of nonnative species. ROWs can cause habitat destruction and alteration where vegetation is minimal, possibly increasing mortality, directly or indirectly (Boarman 2002).

In a retrospective evaluation of results of 234 biological opinions in California and Nevada (LaRue and Dougherty 1999), 80 percent (47/59) of the tortoises reported killed in California and Nevada were killed along utility corridors. Most of those were along the Kern-Mojave Pipeline (Olson et al. 1993, Olson 1996). Considerable habitat destruction or alteration occurs when pipelines and transmission lines are constructed and the impacts are repeated during some O&M activities.

O&M activities that occur during and immediately after rainfall may result in adverse effects to desert tortoises which may be attracted to roads or project areas to drink or may be disturbed to the extent that they fail to drink thus affecting their survival. During previous projects in the action area, desert tortoises were known to become highly active during spring, summer, and fall precipitation events resulting in tortoise mortalities and many tortoises captured and moved from harm's way. The risk to tortoises in association with precipitation rises substantially during this time.

Effects of Ravens

Although the proposed action does not include construction of new infrastructure such as power transmission lines, existing linear ROWs for power transmission towers and poles, fences, buildings, and other structures, provide perching, roosting, and nesting opportunities for ravens and other avian tortoise predators. The presence of transmission towers in areas otherwise devoid of other raven nesting substrates (e.g., Joshua trees, palo verdes, cliffs), may introduce heavy predation to an area previously immune to such predation (Boarman 1993). Western's infrastructure has mostly been in place for 50 years or longer and therefore is part of the existing conditions (no new perch sites introduced); however, construction of new transmission infrastructure may subsidize nest sites for ravens and is beyond the scope of the programmatic biological opinion for O&M activities.

Project activities may provide food in the form of trash and litter which attracts important tortoise predators such as the common raven, kit fox, and coyote (Boarman and Berry 1995). The majority of raven predation occurs during the spring and is most likely accomplished by breeding birds (Boarman 2002). By one estimate, ravens probably do most (75 percent) of their foraging within 0.25 mile of their nest (Sherman 1993) where raven predation pressure is notably intense (Kristan and Boarman 2001).

Effects of Project Roads, Vehicles, and Equipment

The greatest potential threat to desert tortoises resulting from proposed O&M activities is from vehicles and equipment activity on existing access roads. Project vehicles may strike and kill or injure desert tortoises on access roads. If vehicles travel at excessive speeds on access roads, tortoises are more likely to be run over. Vehicles and equipment that stray from existing roads or designated areas may kill or injure tortoises, or crush their burrows. Tortoises could also be killed or injured as a result of being crushed by worker vehicles commuting to and from the project area. Tortoises in harm's way and not found and relocated before project activities commence, or not avoided by vehicles, could also be killed or injured. Tortoises that shelter under parked vehicles or equipment may be killed or injured when the vehicles or equipment are moved.

Effects that Result from Handling Tortoises in Harm's Way

Tortoises may be taken by capture and relocated from harm's way. If not located and removed, tortoises could be killed by most O&M activities. Desert tortoises that are captured and moved

out of project areas to prevent mortality or injury could be inadvertently harmed if not handled properly. Urine and large amounts of urates may be voided during handling and may represent a severe water loss, particularly to juveniles (Luckenbach 1982). Overheating can occur if tortoises are not placed in the shade when ambient temperatures equal or exceed temperature maximums for the species (Service 2009). Measures proposed by Western as part of the proposed action to provide authorized desert tortoise biologists to handle tortoises and conduct clearance surveys should minimize these effects.

Other Effects

Take of tortoises adjacent to the work areas may occur as a result of increased levels of noise and ground vibrations produced by blasting, vehicles, and heavy equipment (Bondello 1976; Bondello, et al. 1979).

If the project biologist or monitor is unfamiliar with the location and boundaries of designated work areas and protective measures required for the activity or fails to provide appropriate oversight and project activity monitoring, avoidable take of desert tortoises and habitat disturbance may occur.

Desert Tortoise Critical Habitat Effects

Although Category B activities may result in relatively more ground disturbing activities than Category A, these activities will occur within existing disturbed ROWs, including existing access roads and work pads associated with transmission line structures. Developed areas, such as roads, are not considered critical habitat as they do not contain the PCEs of suitable tortoise habitat. Therefore, no long-term effects to critical habitat are anticipated as a result of Category A or B activities.

Category C activities include relocation and construction of access roads up to 300 feet in length; relocation of structures; installation of underground and overhead water, power, and communication lines greater than 100 feet in length; replacing conductors; apply herbicide; installation of culverts, erosion control, and rip-rap; remediation of small spills. Because the proposed action is O&M activities including vegetation management mostly within existing ROWs, habitat disturbance is expected to be minor. Based on the proposed action, we anticipate all actions under this PBO will result in less than 5 acres of new disturbance of desert tortoise critical habitat.

Effects of Minimization Measures

Overall, we expect death and injury of tortoises to be avoided during O&M activities through implementation and compliance of minimization measures in this PBO. Measures intended to minimize injury and mortality of desert tortoises include, but are not limited to, avoidance of desert tortoise burrows, use of fencing to exclude desert tortoises from project areas; assignment of an authorized desert tortoise biologist to monitor and oversee project activities and compliance with protective measures; timing of activities to minimize effects to desert tortoises

(e.g., conduct activities during the inactive season and when temperatures are above desert tortoise activity thresholds); move or translocate tortoises from harm's way; worker awareness training; conduct pre-activity surveys to locate desert tortoises on-site; check under vehicles and equipment for tortoises; and restrict vehicles to access roads with enforceable speed limits.

Measures proposed by Western as part of the proposed action should minimize these effects, which include: 1) providing a desert tortoise biologist and tortoise awareness program, 2) avoiding shrubs as feasible, 3) imposing and enforcing a 25 mph speed limit, 4) use previously disturbed areas where possible, and 5) conducting a tortoise clearance survey to remove all tortoises from harm's way. Western's O&M activities would be planned when tortoises are least active (i.e., November through February) outside of the tortoise active season, as feasible, to reduce the likelihood of tortoise interactions with workers and equipment.

Timely reporting of tortoise takes may avoid additional take of tortoises if measures are insufficient to address the cause of such take. Removing materials and trash following a project or action would avoid potential ingestion of foreign materials by tortoises, entrapment or entanglement of tortoises, and attraction of desert tortoise predators such as common ravens and coyotes. Project-related material may provide shelter for tortoises. Inspection for tortoises prior to moving such material should minimize potential injury or mortality of tortoises sheltering underneath.

G. CUMULATIVE EFFECTS

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

Most of the action area is Federal land administered by the BLM, National Park Service, or Bureau of Reclamation. Because the action area consists of ROWs and adjacent areas, most of which is Federally-managed lands, substantial cumulative effects are not anticipated. In Nevada, most cumulative effects that could occur should fall under purview of the Clark County Multiple Species Habitat Conservation Program and incidental take permit.

H. CONCLUSION

After reviewing the current status of the desert tortoise and its critical habitat, the environmental baseline for the action area, the effects of the proposed project, and the cumulative effects, it is the Service's biological opinion that Western's operation and maintenance program, as proposed and analyzed, is not likely to jeopardize the continued existence of the threatened Mojave desert tortoise.

The Service's conclusion of no jeopardy is based on the following:

1. Activities will occur within an existing utility corridor ROW.
2. Project-level analysis will occur for most Category B and C activities when Western requests an action be appended to this PBO.
3. The acreage of habitat disturbance and number of desert tortoises affected by the proposed action (all categories) is small; the Service estimated that no more than 50 acres of Mojave desert tortoise habitat will be disturbed during this consultation which includes less than 5 acres of Mojave desert tortoise critical habitat.
4. Measures have been proposed by Western to further minimize any effects of the proposed action to the desert tortoise.
5. The proposed project would not result in tortoise mortality, or other take of desert tortoise that would significantly affect the rangewide number, distribution, or reproduction of the species.

We have determined that the proposed action is not likely to destroy or adversely modify designated critical habitat for the desert tortoise. We have reached this conclusion because:

1. Less than 5 acres of critical habitat will be disturbed.
2. Western will minimize disturbance and Category A, B, and C activities will occur within an existing utility corridor ROW. Project-level analysis of critical habitat effects will occur for most Category B and C activities when Western requests an action be appended to this PBO.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act, as amended, prohibits take (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of listed species of fish or wildlife without a special exemption. "Harm" is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering (50 CFR § 17.3). "Harass" is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering (50 CFR § 17.3). Incidental take is any take of listed animal species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant. Under the terms of sections 7(b)(4) and 7(o)(2) of the Act, taking that is incidental to and not intended as part of the agency action is not considered a prohibited taking provided that such taking is in compliance with the Terms and Conditions of this Incidental Take Statement.

The measures described below are nondiscretionary and must be implemented by Western, or other jurisdictional Federal agencies as appropriate, so that they become binding conditions of any project, contract, grant, or permit issued by Western, or other jurisdictional Federal agencies as appropriate, in order for the exemption in section 7(o)(2) to apply. We include all protective measures in the incidental take statement (terms and conditions), including those measures proposed by Western to ensure that all measures will be incorporated into their approval documents. The Service's evaluation of the effects of the proposed actions includes consideration of the measures developed by Western, to minimize the adverse effects of the proposed action on the desert tortoise. Any subsequent changes in the minimization measures proposed by Western, or other jurisdictional Federal agencies as appropriate, may constitute a modification of the proposed action and may warrant reinitiation of formal consultation, as specified at 50 CFR § 402.16. The Reasonable and Prudent Measures (RPMs) below are intended to clarify or supplement the protective measures that were proposed by Western as part of the proposed action.

Western, or other jurisdictional Federal agencies as appropriate, has a continuing duty to regulate the activity that is covered by this Incidental Take Statement. If Western, or other jurisdictional Federal agencies as appropriate, fails to adhere to the Terms and Conditions of the incidental take statement through enforceable terms that are added to permits or grant documents, and/or fails to retain oversight to ensure compliance with these Terms and Conditions, the protective coverage of section 7(o)(2) may lapse.

Incidental take of desert tortoise is exempted in this Incidental Take Statement only for Category A and B activities (and potentially some Category C activities through mutual agreement between Western and the Service), which are anticipated to consist of routine, low-effects activities. Project-specific protocol surveys will be performed and provided with Western's request to append Category C activities to this PBO at which time, incidental take may be exempted.

Amount or Extent of Take Anticipated

Based on the scope of the proposed action, the desert tortoise occurrence and distribution data, analysis of impacts provided above, measures proposed by Western, the Service anticipates that the following take could occur as a result of Category A and B activities, and certain Category C activities with written concurrence from the Service:

1. All desert tortoises in harm's way may be taken by capture then moved from harm's way. During each calendar year of activities, we estimate up to 5 desert tortoises will be captured and relocated. If the number of tortoises captured and moved exceeds our estimate, Western shall notify the Service to evaluate the risk of injury and mortality to tortoises and determine if any additional measures are appropriate. We anticipate desert tortoises will be handled and moved from harm's way in accordance with procedures in

the Desert Tortoise Field Manual (Service 2009) and remain in their home range with no long-term effects.

2. We will consider the amount or extent of take to be exceeded if more than one desert tortoise is killed or injured as a direct or indirect result of project activities within any calendar year or more than a total of three are killed or injured for all activities during the term of this programmatic biological opinion.

3. An unknown number of desert tortoises will be taken in the form of indirect mortality through predation by ravens or other subsidized predators drawn to the project area.

4. No desert tortoise nests with eggs are anticipated to be disturbed as a result of project activities.

Effect of Take

In the accompanying biological opinion, the Service has determined that this level of anticipated take is not likely to jeopardize the continued existence of the desert tortoise.

Reasonable and Prudent Measures with Terms and Conditions

The Service believes that the following Reasonable and Prudent Measures (RMPs) and Terms and Conditions are necessary and appropriate to minimize take of desert tortoise. These measures shall apply towards actions not individually appended to the programmatic biological opinion (i.e., Category A and B activities, and certain Category C activities with written concurrence from the Service). Individually appended actions (most Category C actions) may include the measures below and additional measures as specified in the append document.

Additional measures are proposed in the Biological Assessment (Western 2014) to minimize effects to other species and will be implemented by Western, some of which are part of the informal consultation for the proposed action.

RPM 1: *Western shall ensure implementation of measures to minimize tortoise habitat disturbance and tortoise take as a direct or indirect result of projects including capture and handling of desert tortoises.*

Terms and Conditions:

1.a. Present desert tortoise awareness training (based on proposed measure 1, page 12): Prior to initiation of an activity within desert tortoise habitat, a desert tortoise awareness program shall be presented to all personnel who will be onsite, including but not limited to contractors, contractors' employees, supervisors, inspectors, and subcontractors. This program will contain information concerning the biology and

distribution of the desert tortoise and other sensitive species, their legal status and occurrence in the project area; the definition of "take" and associated penalties; speed limits; the terms and conditions of this biological opinion including speed limits; the means by which employees can help facilitate this process; responsibilities of workers, monitors, biologists, etc.; and reporting procedures to be implemented in case of desert tortoise encounters or non-compliance with this biological opinion.

1.b. Western crews will complete annual awareness training as proposed in measure 2 (page 12).

1.c. Excavations will be managed to ensure tortoises are not harmed as proposed in measure 3 (page 12).

1.d. Tortoises discovered to be in imminent danger during projects or activities covered under this biological opinion, may be moved out of harm's way. Desert tortoises shall be handled by or under the supervision of an authorized biologists following Service-approved protocol (Service 2009). If a tortoise is injured as a direct or indirect result of project activities, it shall be immediately transported to a veterinarian and the Service contacted.

1.e. Desert tortoises shall be treated in a manner to ensure that they do not overheat, exhibit signs of overheating (e.g., gaping, foaming at the mouth, etc.), or are placed in a situation where they cannot maintain surface and core temperatures necessary for their well-being. Desert tortoises will be kept shaded at all times until it is safe to release them. No desert tortoise will be captured, moved, transported, released, or purposefully caused to leave its burrow for whatever reason when the ambient air temperature is above 95°F. Ambient air temperature will be measured in the shade, protected from wind, at a height of 2 inches above the ground surface. No desert tortoise will be captured if the ambient air temperature is anticipated to exceed 95°F before handling and relocation can be completed. If the ambient air temperature exceeds 95°F during handling or processing, desert tortoises will be kept shaded in an environment that does not exceed 95°F and the animals will not be released until ambient air temperature declines to below 95°F.

1.f. Establish and enforce speed limits as proposed in measure 4 (page 13)

1.g. Workers shall heck underneath vehicles and equipment if stopped or parked in areas accessible by desert tortoises. All project activities will cease in areas where a tortoise is discovered in work areas.

1.h. Park vehicles and store equipment (e.g., staging areas) in designated areas as proposed measure in 18 (page 14).

1.j. If a desert tortoise occurs on the project site, the authorized desert tortoise biologist shall inform workers in the area to be particularly watchful for the tortoise as it may return to the work area. Workers shall exercise caution when commuting to work areas.

1.k. All work areas (except access roads), at request of the land owner/manager, shall be

restored upon completion of work as proposed in measure 10 (page 13).

1.l. Category A activities outside fenced facilities (except patrols) shall be scheduled and modified as necessary to minimize effects to the desert tortoise and surveyed for desert tortoise and sign as proposed in measure 12 (page 13).

1.m. Category A activities outside fenced facilities (except patrols) and inside critical habitat will require an authorized desert tortoise biologist or qualified biological monitor as proposed in measure 13 (page 14)unless determined unnecessary by the Service.

1.n. Category B activities outside fenced facilities will be scheduled between November 1 and February 28, as feasible (measure 14, page 14).

1.o. Category B activities outside fenced areas: Conduct desert tortoise surveys in suitable habitat prior to starting operations and cease activities if a desert tortoise is discovered (proposed measure 17, page 14).

1.p. Category B activities: Park and store equipment as proposed in measure 18 (page 14)

1.q. Category B activities in critical habitat: An authorized biologist shall be present for road grading activities and perform a tortoise survey work of areas as described in proposed measure 19 (page 15).

1.r. Category B activities in critical habitat: Water or other substances used as dust suppressants shall not be allowed to pool as proposed in measure 20 (page 15).

1.s. Category B activities in critical habitat: Vehicles and equipment shall be cleaned with a high pressure washer prior to arrival in desert tortoise habitat and prior to departure from areas of known invasive weed and nonnative grass infestations to prevent or at least minimize the introduction or spread of these species. In remote areas and for short O&M jobs (e.g.1-2 days), workers shall inspect and remove of any clumps of soil or vegetation.

Because incidental take is not exempted for all or most Category C activities at the programmatic level of this biological opinion, these actions will be appended separately and include at a minimum terms and conditions 1.n – 1.s. above.

RPM 2: *Western shall ensure implementation of measures to minimize effects of pesticide and herbicide application on the desert tortoise.*

2.a. Establish and follow pesticide application buffers as proposed in measure 9 (page 13).

2.b. Investigate and implement use limitations for herbicide applications as proposed in measure 11 (page 13).

RPM 3: *Western shall ensure implementation of measures to minimize predation on tortoises by ravens or other desert tortoise predators attracted to the project area.*

Terms and Conditions:

3.a. A litter control program shall be implemented as proposed in measure 6 (page 13).

3.b. Raven management will be addressed within a step-down regional Avian Protection Plan. To aid in this effort, baseline nesting bird information will be gathered during O&M activities. Information will include stick nest locations, tower number, and notation of species nesting (if possible). Western or on-site biological monitors will conduct follow-up monitoring to determine if juvenile tortoise carcasses or bones are located underneath any observed stick nests and report this information the Service.

Western will inform field workers to instruct field workers to report all observations of raven nests on power transmission infrastructure and promptly notify the Service to coordinate its removal.

RPM 4: *Western shall ensure implementation of measures to ensure compliance with the RPMs, Terms and Conditions, reporting requirements, and reinitiation requirements contained in this biological opinion.*

Terms and Conditions:

4.a. An authorized desert tortoise biologist shall record each observation of handled desert tortoises. The authorized desert tortoise biologist also shall include the names of all monitors approved for the project, and the activities and level of involvement during the project.

4.b. Western shall ensure that a report documenting desert tortoise encounters, incidental take (including mortalities, injuries, captures and relocations) is prepared. For Category A and B activities (i.e., not specifically appended to the PBO), the report will be submitted annually to the Service's Southern Nevada Fish and Wildlife Office in Las Vegas.

[For Category C activities (i.e., individually appended to the PBO), the report shall be submitted within 30 days of completion of the project.]

4.c. Desert tortoise mortalities or injuries that occur as a result of project- or maintenance-related actions will be reported immediately to Western Environmental Affairs or other designated point of contact, who will instruct O&M personnel on the appropriate action, and who will contact the appropriate agency. The phone number for the Western Environmental Affairs or designated point of contact will be provided to maintenance supervisors and to the appropriate agencies. The incident will also be included in the appropriate project report in accordance with Term and Condition 4.b.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

REINITIATION REQUIREMENT

This concludes formal consultation on the actions outlined in your request received December 16, 2014. As required by 50 CFR § 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over an action has been retained (or is authorized by law) and if: (1) The amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

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APPENDIX A (OF ENLOSURE A). FORM TO BE USED TO APPEND FUTURE ACTIONS

Request to Append a Proposed Action to Western's Programmatic Biological Opinion (File No. 84320-2015-F-0120)

This consultation document consists of the programmatic biological opinion (PBO), Western's request to append the proposed action to the PBO with project-specific information (Part A, below), and the Fish and Wildlife Service's response (Part B to be provided with response).

Fish and Wildlife Service File No. for Proposed Action:

_____

(Provided by Fish and Wildlife Service)

Part A: Information provided by Western

Date of request:
Western contact name:
Phone number:

Project/action title:
Proponent/applicant:

Program:
Species/critical habitat affected:
No. of acres to be affected: Non-critical: Critical:

Description of Proposed Action

- What is the Federal action (e.g., right-of-way, permit, lease, etc.)?
- When would the action begin/end?
- What are the specific activities that would be implemented; how will they affect listed species and their critical habitat?
- How will access to work areas be accomplished?

Proposed Minimization Measures:

[Terms and conditions for desert tortoise in the PBO may be referenced by number with a brief summary (e.g., T&C 1.a. Designate and require a field contact representative); additional measures may be proposed by BLM beyond those in the PBO.]

Survey Summary and Results:

- Describe in detail, the pre-project survey results including description or condition of the habitat, dominant vegetation, and existing disturbance.
- Attach survey data sheets and maps.

Description of existing factors affecting the species in the project (action) area not discussed in the PBO:

- Describe current and prior human uses or activities in the action area. Include reference to previous consultations in the action area and reports of such actions submitted to the Service.

ENCLOSURE B. INFORMAL CONSULTATION FOR AVIAN SPECIES AND TECHNICAL ASSISTANCE FOR THE SONORAN DESERT TORTOISE

Western Area Power (Western) requests Fish and Wildlife Service (Service) concurrence through informal consultation that the proposed operation and maintenance activities *may affect, buy are not likely to adversely affect* the lesser long-nosed bat (*Leptonycteris curasoae yerbabuenae*), Northern Mexican garter snake (*Thamnophis eques megalops*), southwestern willow flycatcher (*Empidonax traillii extimus*), and yellow-billed cuckoo (*Coccyzus americanus*).

1. **Lesser long-nosed bat**: The Service concurs with Western's determination of effect for this species.

2. **Northern Mexican garter snake**: Based on the February 18, 2018, revision to the Northern garter snake section of the Biological Assessment, we concur with Western's determination of effect for this species.

3. **Southwestern willow flycatcher and Western yellow-billed cuckoo:** Direct effects to the listed birds include injury or mortality to individual birds from contact with project vehicles, buildings, towers, and transmission lines. Birds may also be affected by lighting and noise. Western will seasonally avoid suitable habitat where feasible; presence/absence surveys will be conducted prior to project activities which may occur during the avoidance period. Migrating and dispersing birds may also be impacted by noise disturbance which alters normal foraging behavior; however, these effects would be short-term, as birds could move away from the noise to other suitable foraging habitats adjacent to work areas.

Any potential habitat modifications would not be from a natural, pristine condition. Suitable habitat for flycatchers in the action area is limited to patches of riparian woodland and scrubland habitats associated with the Lower Colorado River, the Bill Williams River, and the Gila River; however, at most of these crossings, patch size and structure does not currently contain elements of suitable breeding habitat for the species. No breeding records for southwestern willow flycatchers or yellow-billed cuckoos are known in the action area.

Based on the information provided above and in the Biological Assessment, the potential direct and indirect effects posed by the proposed action to the bird species are expected to be negligible. In consideration of the above, we concur with Western's determination that the proposed projects may affect, but are not likely to adversely affect the southwestern willow flycatcher or yellow-billed cuckoo.

4. **Sonoran Desert Tortoise**

The Service recommends the following measures taken from a document developed by the Arizona Interagency Desert Tortoise Team to minimize potential effects to the Sonoran desert tortoise. Additional information is available in the *Candidate Conservation Agreement for the Sonoran Desert Tortoise (Gopherus morafkai) in Arizona* available on the internet at:

http://www.luke.af.mil/shared/media/document/AFD-150625-068.pdf

RECOMMENDED STANDARD MITIGATION MEASURES FOR PROJECTS IN SONORAN DESERT TORTOISE HABITAT

Priority 1: Avoid the Impacts

To the extent possible, project features should be located in previously disturbed areas or outside of desert tortoise habitat.

If impacts cannot be avoided, then:

Priority 2: Minimize the Impacts

A. Schedule Activities to Reduce Potential Adverse Effects:

To the extent possible, project activities should be scheduled when tortoises are inactive (typically November 1 to March 1).

B. Inform and Educate Project Personnel:

A desert tortoise protection education program should be presented to all employees, inspectors, supervisors, contractors, and subcontractors who carry out proposed activities at the project site. The education program should include discussions of the following:

1. The legal and sensitive status of the tortoise;
2. a brief discussion of tortoise life history and ecology;
3. mitigation measures designed to reduce adverse effects to tortoises;
4. and protocols to follow if a tortoise is encountered, including appropriate contact points.

C. Designate a Tortoise Coordinator:

The project proponent should designate a desert tortoise coordinator (DTC) who should be responsible for overseeing compliance with the mitigation program, coordination with permitting agencies, land managers, and Arizona Game and Fish Department; and as a contact point for personnel that encounter desert tortoises. The DTC should be on site during project activities and should be familiar with and have a copy of the desert tortoise mitigation plan.

D. Remove Harm to Tortoises on Project Sites:

If a tortoise is found in a project area, activities should be modified to avoid injuring or harming it. If activities cannot be modified, tortoises in harm's way should be moved in accordance with Arizona Game and Fish Department's "Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects", revised October 23, 2007 (or the latest revision). Take,

possession, or harassment of a desert tortoise is prohibited by State law, unless specifically authorized by Arizona Game and Fish Department.

E. Minimize Project Footprint:

1. Vehicle use should be limited to existing or designated routes to the extent possible.

2. Areas of new construction or disturbance should be flagged or marked on the ground prior to construction. All construction workers should strictly limit their activities and vehicles to areas that have been marked. Construction personnel should be trained to recognize markers and understand the equipment movement restrictions involved.

F. Limit Habitat Disturbance within the Project Footprint:

1. Blading of new access or work areas should be minimized to the extent possible. Disturbance to shrubs should be avoided if possible. If shrubs cannot be avoided during equipment operation or vehicle use, wherever possible they should be crushed rather excavated or bladed and removed.

2. Project features that might trap or entangle desert tortoises, such as open trenches, pits, open pipes, etc. should be covered or modified to prevent entrapment. [This may only be necessary during the tortoise active season and may be unnecessary if an on-site biologist is monitoring activities.]

G. Prevent Attraction of Predators or Enhancement of Predator Populations:

Construction sites should be maintained in a sanitary condition at all times. The project proponent should be responsible for controlling and limiting litter, trash, and garbage by immediately placing refuse in predator-proof, sealable receptacles. Trash and debris should be removed when construction is complete.

Priority 3: Rectify the Impacts

A. Removal of Hazards:

After completion of the project, trenches, pits, and other features in which tortoises could be entrapped or entangled, should be filled in, covered, or otherwise modified so they are no longer a hazard to desert tortoises.

B. Habitat Restoration:

After project completion, measures should be taken to facilitate restoration. Restoration techniques should be tailored to the characteristics of the site and the nature of project impacts identified in the mitigation plan as developed by project biologists, Arizona Game and Fish Department, and permitting State and Federal agencies. Techniques may include removal of equipment and debris, recontouring, replacing boulders that were moved during construction; and seeding, planting, transplanting of cacti and yuccas, etc. Only native plant species, preferably from a source on or near the project area, should be used in restoration.

Priority 4.- Reduce or Eliminate the Impacts over Time, and Provide Guidance and Information for Improving Future Mitigation Plans

A. Monitoring and Reporting Requirements:

The project proponent should submit a monitoring report to the Arizona Game and Fish Department and any permitting State or Federal agency within 90 days of project completion. For long-term or ongoing projects that may result in continuing impacts to tortoises and habitat, annual monitoring reports should be prepared. Monitoring reports should briefly document the effectiveness of the desert tortoise mitigation measures, actual acreage of desert tortoise habitat disturbed, the number of desert tortoises excavated from burrows, the number of desert tortoises moved from construction sites, and other applicable information on individual desert tortoise encounters. The report should make recommendations for modifying or refining the mitigation program to enhance desert tortoise protection and reduce needless hardship on the project proponents.

Priority 5: Compensate for Residual Impacts

In accordance with "Compensation for the Desert Tortoise" (Desert Tortoise Compensation Team 1991), signed by Desert Tortoise Management Oversight Group, authorizing agencies should require compensation for residual impacts to desert tortoise habitat.

The following mitigation measures are designed for specific project types or conditions. Most act to minimize project impacts (priority 2 measures).

<u>For Projects Involving Hazardous Materials:</u>

Oil, fuel, pesticides, and other hazardous material spills should be cleaned up and properly disposed of as soon as they occur in accordance with applicable State and Federal regulations. All hazardous material spills must be reported promptly to the appropriate surface management agencies and hazardous materials management authorities.

For Projects Conducted During the Tortoise Activity Period (typically March 1 to November 1)

1. Construction and operation activities should be monitored by a qualified desert tortoise biologist. The biologist should be present during all activities in which encounters with tortoises may occur. The biologist should watch for tortoises wandering into construction areas, check under vehicles, check at least three times per day any excavations that might trap tortoises, and conduct other activities necessary to ensure that death and injury of tortoises is minimized. This measure may only be warranted in areas of moderate to high tortoise density, category 1 or 2 habitat, or in Sonoran Desert Management Areas.

2. Unleashed dogs should be prohibited in project areas.

3. Temporary fencing, such as chicken wire, snow fencing, chain link, and other suitable materials should be used in designated areas to reduce encounters with tortoises on short-term projects, such as construction of power lines, burial of fiber optic cables, etc, where encounters with tortoises are likely.

For Long-term or Permanent Projects in Which Continued Encounters with Desert Tortoises Are Expected:

Construction of schools, factories, power plants, office buildings, and other permanent or long-term projects in moderate to high density desert tortoise habitat should be enclosed with desert tortoise barrier fencing to prevent tortoises from wandering onto the project site where they may be subject to collection, death, or injury. Barrier fencing should consist of wire mesh with a maximum mesh size of 1inch (horizontal) by 2-inch (vertical) fastened securely to posts. The wire mesh should extend at least 18 inches above the ground and preferably 12 inches below the surface of the ground. Where burial is not possible, the lower 12 inches should be folded outward, away from the enclosed site, and fastened to the ground so as to prevent tortoise entry. Any gates or gaps in the fence should be constructed and operated to prevent desert tortoise entry (such as installing "tortoise guards" similar to cattle guards, and/or keeping gates closed). Specific measures for tortoise-proofing gates and gaps should be addressed project by project. Fencing is a relatively expensive mitigation measure and may only be appropriate in areas of moderate to high tortoise density, category I or 2 habitats, or Sonoran Desert Management Areas.

For Projects in Which Encounters Between Vehicles and Tortoises are Likely:

In desert tortoise habitat project-related vehicles should not exceed 25 miles per hour on unpaved roads.

For Road and Railroad Construction or Improvements in Desert Tortoise Habitat:

1. New paved roads and highways or major modifications of existing roads through desert tortoise habitat should be fenced with desert tortoise barrier fencing (described above). Culverts, to allow safe passage of tortoises, should be constructed approximately every mile of new paved roads and railroads (culverts can also serve the more typical purpose of conducting water under roads and railroads). The culvert diameter needed to encourage tortoise use is correlated with culvert length, but generally short culverts of large diameter are most likely to be used. Culvert design should be coordinated with Arizona Game and Fish Department and authorizing State and Federal agencies. The floor of the culvert should be covered with dirt and maintenance should be performed as necessary to maintain an open corridor for tortoise movement. Fencing and culverts may only be warranted in areas of moderate to high tortoise densities, category 1 or 2 habitats, or in Sonoran Desert Management Areas.

2. Use of roads constructed for specific non-public purposes, such as access routes to microwave towers, should be limited to administrative use only.

3. Temporary access routes created during project construction should be modified as necessary to prevent further use. Closure of access routes could be achieved by ripping, barricading, posting the route as closed, and/or seeding and planting with native plants.