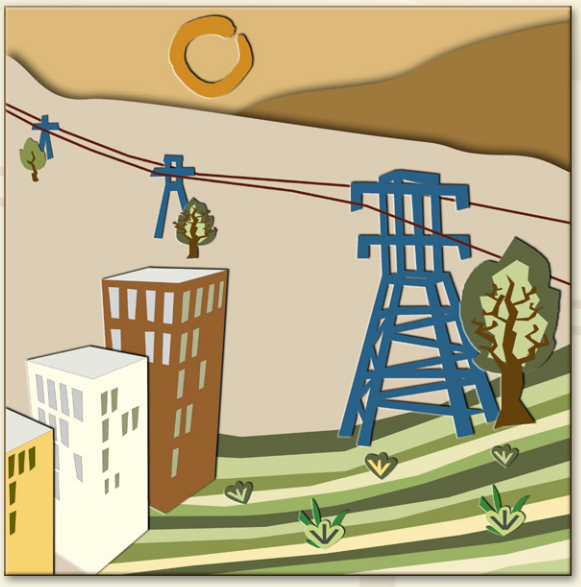

FINAL ENVIRONMENTAL ASSESSMENT for RIGHT-OF-WAY MAINTENANCE IN THE SACRAMENTO VALLEY, CALIFORNIA

August 2005

VOLUME II:
Appendices B through H and Mitigation Action Plan

Western Area Power Administration

DOE/EA-1395

Appendix B
Correspondence with the USFWS

MAR 1 5 2001

Mr. Wayne White
Field Supervisor
U.S. Fish and Wildlife Service
2800 Cottage Way, Room W-2605
Sacramento, CA 95825

RE: Request for Informal Consultation for the Sacramento Valley Vegetation Management Project

Dear Mr. White:

As we discussed in our meeting of November 9, 2000, the Western Area Power Administration (Western) proposes to perform maintenance work for several electrical transmission lines in the Sacramento Valley of California. The maintenance work includes repairing access roads and clearing the right-of-way (ROW) and access roads of woody vegetation and danger trees. This type of action does not normally require an Environmental Assessment (EA), however, because of the presence of designated critical habitat for the Valley Elderberry Longhorn Beetle, *desmocerus californicus dimorphus*, Western will prepare an EA. The EA will be prepared in accordance with the Department of Energy (DOE) National Environmental Protection Act (NEPA) Implementing Procedures (10 CFR 1021, as amended).

Western's biological opinion, *Formal Programmatic Consultation on the Operation and Maintenance Activities of the Western Area Power Administration*, dated May 27, 1998, (U.S. Fish and Wildlife Service File 1-1-97-F-0140) is applicable for the majority of this activity. However, the Elverta-Hurley 230-kilovolt (kV) line crosses the Sacramento River Zone that is designated Critical Habitat for the beetle, and the Folsom-Nimbus 230-kV line crosses the American River Parkway Zone essential habitat. According to our Programmatic Consultation with your office, in areas where critical habitat is present or where additional take may be necessary, the biological opinion requires further Section 7 consultation.

Western proposes to remove trees in the ROW that have grown into the clearance zone required for the safe operation and maintenance of the line. When trees are too close to the transmission line, they create a dangerous condition. As the trees grow closer to the line and/or the line sags due to increased heat and summer load, arcing from the

1

energized conductor may cause fires or jeopardize human safety and threaten the safe operation and reliability of the transmission line.

As part of the EA, we will prepare a long-term management plan for the maintenance of these transmission lines that addresses ongoing maintenance activities in areas where elderberry beetles and/or their habitat are present. Our intent is to work with you to determine the best method for meeting both the National Electric Safety Code requirements for safe operation of the transmission line requirements and the Endangered Species Act requirements to conserve the elderberry beetle and its habitat.

In addition, during recent patrols of the transmission lines, our maintenance crews found that trees located in the Sacramento River Zone will pose an imminent hazard when the ambient temperature reaches approximately 90 degrees Fahrenheit. These trees will need to be removed by early May 2001 to prevent fires, minimize electrocution potential and reduce the possibility of widespread outages in the Sacramento Area. Therefore, we request that the U.S. Fish and Wildlife assign staff and work with us on the immediate removal of these trees.

We would like to begin discussions concerning the EA, the long-term management plan and the trees to be cut by May 2001. Due to the short time frames required for this project, we propose to work hand-in-hand with your staff to expeditiously determine the best and most acceptable methods for managing these areas. We would like to arrange a field visit with you, our contractors and maintenance crews as soon as possible.

Please contact me at (916) 353-4537 so we can arrange the field visit, or you may contact Mr. John Bridges, our lead biologist for this project, at (720) 972-7255.

Sincerely,

ORIGINAL SIGNED BY

Nancy Werdel
Environmental Manager

cc:
Mr. Chris Nagano, Branch Chief
Sacramento Valley Endangered Species
U.S. Fish and Wildlife Service
2800 Cottage Way, Room W-2605
Sacramento, CA 95825

Mr. Dale Pierce
Assistant Field Supervisor
U.S. Fish and Wildlife Service
2800 Cottage Way, Room W-2605
Sacramento, CA 95825

bcc:
J. Bridges, A7400
N. Werdel, N0400

N0425:PMuir:pm:x4010:March 14, 2001
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Department of Energy
Western Area Power Administration
Sierra Nevada Region
114 Parkshore Dr.
Folsom, CA 95630-4710

APR 12 2001

Mr. Wayne S. White
Field Supervisor
U.S. Fish and Wildlife Service
2800 Cottage Way, Room W-2605
Sacramento, CA 95825

RE: Request for Informal Consultation for the Sacramento Valley Vegetation Management Project

Dear Mr. White:

In a letter to your office, dated March 15, 2001, Western Area Power Administration (Western) requested that a member of your staff be assigned for informal consultation on the Sacramento Valley Vegetation Management Project. This is a follow-up request to that letter and our proposal to remove hazard trees and to prepare an environmental assessment (EA) in accordance with the Department of Energy National Environmental Protection Act Implementing Procedures (10 CFR 1021, as amended).

Western's biological opinion, *Formal Programmatic Consultation on the Operation and Maintenance Activities of the Western Area Power Administration*, May 27, 1998, (U.S. Fish and Wildlife Service File 1.1-97-F-0140) is applicable for the majority of this activity. There are some areas, however, where critical habitat is present. The Elverta-Hurley 230-kilovolt (kV) line crosses the Sacramento River Zone and the Folsom-Nimbus 230-kV line crosses the American River Parkway Zone. These transmission lines navigate through areas that are designated critical habitat for the valley elderberry longhorn beetle *(Desmocerus californicus dimorphus)*. In accordance with our programmatic consultation, areas where critical habitat is present or where additional take may be necessary, the biological opinion requires further Section 7 consultation. Western has also identified several locations of trees that pose an imminent hazard when the ambient temperatures in the Central Valley start rising. Their proximity to the transmission lines poses the potential for safety concerns such as fire, outage, or a disruption of Western's system reliability. These trees are considered "hazard trees" and need to be removed by May 2001.

We would like to schedule a visit with you or a member of your staff during the week of April 16, 2001 to discuss this project. I would appreciate it if you could let me know when it would be convenient by contacting me at (916) 353-4537. If you have any project related questions, please contact Mr. Steve Tuggle at (916) 353-4549. We look forward to working with you and your staff on this project.

Sincerely,

ORIGINAL SIGNED BY

Nancy Werdel
Environmental Manager

cc:
Mr. Chris Nagano, Branch Chief
Sacramento Valley Endangered Species,
U.S. Fish and Wildlife Service,
2800 Cottage Way, Room W-2605,
Sacramento, CA 95825

Mr. Dale Pierce, Assistant Field Supervisor
U.S. Fish and Wildlife Service
2800 Cottage Way, Room W-2605
Sacramento, CA 95825

bcc:
N0400 N0415 File

MAY 9 2001

Mr. Wayne White, Field Supervisor
U.S. Fish and Wildlife Service
2800 Cottage Way, Room W-2605
Sacramento, California 95825

Dear Mr. White:

Western Area Power Administration (Western) request that your office provide a list of endangered, threatened, and candidate species that could occur within the vicinity of the Sacramento Valley, California (study map enclosed). Western proposes to perform maintenance work for several electrical transmission lines in the Sacramento Valley including repairing access roads and clearing the right-of-way (ROW) and access roads of woody vegetation and danger trees. Western owns and operates the Nimbus-Folsom, Folsom-Roseville, Roseville-Cottonwood, Roseville-Elverta, Elverta-Hurley, and Hurley-Tracy transmission lines. The proposed project would remove vegetation along the ROW that could grow into the transmission line and cause a human safety hazard or a fire hazard. These hazards could result in electrocution, damage to the transmission line, or force an outage which would interrupt service.

The information you provide will be used to assist us in complying with the Endangered Species Act and in preparing an environmental assessment for this project. If possible, please provide us with a species list within 30 days. If you have any questions, contact Mr. Steve Tuggle at (916) 353-4549.

Sincerely,

ORIGINAL SIGNED BY

Nancy Werdel
Environmental Manager

Enclosure

bcc:
J. Bridges, A7400, Lakewood, CO
N0412, N0415 (RF OF)

N0415:STuggle:x4549:clt:04/26/01
R:\Groups\W_PROCES\WP_DIRS\ENV\L&M\010401speciesrequest.doc

Department of Energy
Western Area Power Administration
Sierra Nevada Customer Service Region
114 Parkshore Drive
Folsom, California 95630-4710

COPY

DEC 26 2001

Mr. Wayne White, Field Supervisor
U.S. Fish and Wildlife Service
2800 Cottage Way, Room W-2605
Sacramento, California 95825

Dear Mr. White:

The Western Area Power Administration (Western) request that your office provide an updated list of endangered, threatened, and candidate species that could occur within the vicinity of the Sacramento Valley, California (study map enclosed). Western proposes to perform maintenance work for several electrical transmission lines in the Sacramento Valley including repairing access roads and clearing the right-of-way (ROW) and access roads of woody vegetation and danger trees. Western owns and operates the Nimbus-Folsom, Folsom-Roseville, Roseville-Cottonwood, Roseville-Elverta, Elverta-Hurley, and Hurley-Tracy transmission lines. The proposed project would remove vegetation along the ROW that could grow into the transmission line and cause a human safety hazard or a fire hazard. These hazards could result in electrocution, damage to the transmission line, or force an outage, which would interrupt service.

The information you provide us with will be used to assist us in complying with the Endangered Species Act and in preparing an environmental assessment for this project. If possible, please provide us with a species list within 30 days. If you have any questions, contact Mr. Steve Tuggle at (916) 353-4549.

Sincerely,

George W. McAlister

George W. McAlister
Acting Environmental Manager

Enclosure

EA Project Area

Approximately 120 miles of transmission line and access road rights-of-ways (ROWs) are being surveyed as part of the current Environmental Assessment. Seven transmission lines make up the current study area: Nimbus-Folsom, Folsom-Roseville, Roseville-Cottonwood (to Yuba County line), Roseville-Elverta, Elverta-Hurley, Hurley-Tracy (to San Joaquin County line), and Elverta-Keswick (to O'Banion substation). The width of transmission line ROWs varies from 125 ft to 225 ft. Access road ROWs are less than 100 ft. Most of the survey area is flat, with considerable portions covered by row crops and rice fields. There are also large areas of oak woodland and riparian habitat. Greater variation in topography exists in the eastern part of the study area, particularly along the Nimbus-Folsom, Folsom-Roseville lines.

For more information, contact:

Mr. Steve Tuggle
Environmental Protection Specialist
Western Area Power Administration
114 Parkshore Drive
Folsom, California 95630-4710
(916) 353-4549
(916) 985-1936 fax
E-mail: tuggle@wapa.gov

Website: www.wapa.gov

ENCLOSURE

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W2605
Sacramento, California 95825-1846

IN REPLY REFER TO:
1-1-02-SP-0582

January 14, 2002

Mr. Steve Tuggle
Western Area Power Administration
Sierra Nevada Region
114 Parkshore Drive
Folsom, California 95630-1934

Subject: Species List for Maintenance EA, Placer and Sacramento Counties, California.

Dear Mr. Tuggle:

We are sending the enclosed list in response to your January 2, 2002, request for information about endangered and threatened species (Enclosure A). The list covers the following U.S. Geological Survey 7½ minute quads Lodi North, Elk Grove, Galt, Folsom, Rio Linda, Sacramento East, Carmichael, Rocklin, Sheridan, Plaeasant Grove, Roseville, Nicolaus, Sutter Causeway, Verona, and Gilsizer Slough.

Please read *Important Information About Your Species List* (enclosed). It explains how we made the list and describes your responsibilities under the Endangered Species Act. Please contact Harry Mossman, Biological Technician, at (916) 414-6674, if you have any questions about the attached list or your responsibilities under the Endangered Species Act. For the fastest response to species list requests, address them to the attention of Mr. Mossman at this address. You may fax requests to him at 414-6712 or 6713.

Sincerely,

for Jan C. Knight
Chief, Endangered Species Division

Enclosures

Department of Energy
Western Area Power Administration
Sierra Nevada Customer Service Region
114 Parkshore Drive
Folsom, California 95630-4710

Mr. Wayne White, Field Supervisor
U.S. Fish and Wildlife Service
2800 Cottage Way, Room W-2605
Sacramento, CA 95825

Dear Mr. White:

The Western Area Power Administration's Sierra Nevada Customer Service Region (Western) is requesting to reinitiate formal consultation of the Sacramento Valley Rights-of-Way (ROW) Maintenance (Reference No. 1-1-01-SP-2047), the Biological Opinion, *Formal Programmatic Consultation on the Operation and Maintenance Activities of the Western Area Power Administration*, dated May 27, 1998, (U.S. Fish and Wildlife Service (USFWS) File 1.1-97-F-0140). This request is made under 50 CFR 402.16 (c) and (d), because the proposed maintenance action beyond that described in the Biological Opinion and new species have been listed in the vicinity of the proposed action.

This reinitiation request is for routine operation and maintenance activities within the Rights-of-Way of the transmission lines and access roads in the Sacramento Valley only. Because of financial budgeting limitations, the diversity of habitats and species found throughout Western's Customer Service Region (Figure 1) and a proposed Redding Area Maintenance ROW Environmental Assessment (EA) to begin Spring 2003, Western requests that the Biological Opinion dated May 27, 1998, remain in effect for Western's ROW outside of the Sacramento Valley Study Area. The proposed Sacramento Valley Row Maintenance Project includes all or a portion of six 230-kilovolt (kV) transmission lines and one 115-kV transmission line (Figure 2).

The above mentioned Biological Opinion addresses current operation and routine ROW maintenance practices for the Sacramento Valley transmission lines. The Biological Opinion identifies threatened and endangered species and their habitats and identifies mitigation measures to apply based on Western's current routine ROW maintenance methods. Western proposes expanding the scope of these maintenance methods by following our Biological Opinion in areas where critical habitat is present or where additional take may be necessary. Therefore, the Biological Opinion may require further Section 7 Consultation. The enclosed Biological Assessment and Environmental Assessment have been developed to support additional Endangered Species Act, Section 7 Consultation, which is required when Western conducts maintenance activities that are beyond those covered in the Biological Opinion.

Under the proposed action, Western would promote low-growing plant communities along the ROW. This would take place in a progressive approach that would require intense work in the short-term, as activities are conducted to reduce the occurrence of high-growth vegetation, but diminished work in the long term. A combination of manual, mechanical, and herbicide methods would be necessary to create initial conditions at the site favorable to the establishment of a low-growth plant community. Seeding or planting of low-growth native species may also be necessary, resulting in less maintenance crew traffic and a more stable vegetation community.

In order to improve its maintenance performance and practices, Western proposes shifting from the traditional condition-based maintenance approach to a more long-term ROW maintenance strategy. When the vegetation is too close to the transmission line, it creates a dangerous condition. As the vegetation grows closer to the line and/or the line sags due to increased heat and summer load, arcing from the energized conductor may cause a disruption in the otherwise reliable operation of the Federal Transmission System. If allowed to continue growing, the vegetation would become a danger and pose an immediate threat to safe operation and system reliability. It is also important to understand that vegetation in the ROW can grow into the clearance zone required by General Order 95 and by Western Order 430.1 for the safe operation and maintenance of the transmission line.

Western proposes that all elderberry (Sambucus) and vegetation be manually removed within 20 feet of transmission line towers and poles using manual methods. Stumps of removed elderberry and vegetation would then be spot treated with a herbicide to prevent root sprouting. This is necessary to ensure system reliability and public safety by 1) preserving structural integrity of transmission line towers, 2) allowing access to the tower perimeter or pole for routine maintenance or repairs, and 3) removing a "path to ground" that could cause arcing. Tall vegetation, interspersed with elderberry, may currently be trimmed or removed if the vegetation poses a threat to the transmission line. The USFWS prescribes a minimum setback of 20 feet from the dripline of each elderberry plant for routine vegetation management activities. Western proposes that in order to perform necessary routine maintenance, tall vegetation, interspersed with elderberry, may be manually trimmed or removed within 20 feet of an elderberry if the vegetation poses a threat to safe operation and system reliability.

The proposed action would result in impacts to habitat of the valley elderberry longhorn beetle (VELB) (*Desmocerus californicus dimorphus*), a Federally listed threatened species, namely through the manual removal of elderberry plants within 20 feet of the transmission tower. Western's programmatic agreement with the USFWS allows "incidental take" of up to 10 elderberry plants or plant clusters per year for routine maintenance activities (USFWS 1998). However, removal of elderberry would exceed Western's allowed incidental take. Because of the large number of elderberry plants proposed for removal, and because the narrow width of transmission line ROWs provides little opportunity for on-site elderberry mitigation, Western would mitigate

habitat loss through a mitigation bank. The process for determining and mitigating these impacts is detailed in this Mitigation Action Plan (MAP). These mitigation measures are identified as commitments in the Finding of No Significant Impact and, under Title 10, Code of Federal Regulations (CFR), Part 1021.33 1, have been incorporated into the MAP. The objective of a mitigation bank is to provide for the replacement of habitat that is lost as a result of authorized impacts. The new habitat is quantified as mitigation "credits," which are available for use by Western to compensate for the adverse project impacts.

Mitigation for VELB habitat loss is prescribed according to the ratios listed in Table 3-2 of the EA. A survey conducted in January and February 2002 identified elderberry bushes for removal along Western's ROWs and counted stems according to protocols described in the Conservation Guidelines for the VELB (USFWS 1999). A summary of required VELB mitigation is listed in Table 3-3 of the EA. The mitigation bank would be responsible for all post mitigation maintenance and monitoring, including ensuring the viability of planted elderberry seedlings. Western proposes using 25 percent of the total mitigation cost/units to fund research into the optimization of VELB as partial compensation for VELB habitat loss and a USFWS staff position in lieu of another 25 percent of the mitigation cost/units.

Western would fund research being prepared by the County of Sacramento, Department of Regional Parks, Recreation and Open Space entitled "The Valley Elderberry Longhorn Beetle Habitat Management Plan." This research money will enable the researchers to do more analyses, surveys, and field/lab work and to assess the distribution and abundance of VELB and to explore the physical, biotic, and management factors influencing VELB. The USFWS staff position will be filled part-time as one of the research positions on "The Valley Elderberry Longhorn Beetle Habitat Management Plan." Western believes that information compiled will provide a solid foundation for developing and improving the viability of the threatened VELB in California and will likely assist USFWS's efforts to establish more viable rare species mitigation requirements nation-wide.

Because of the high cost of mitigation, Western may need to spread the cost over 4 calendar years. Western proposes to remove all elderberry within 20 feet of the transmission towers and then make four annual payments to a mitigation bank for them to plant elderberry over a 4-year period. Western would also arrange for a higher percentage of money in the beginning of the 4-year period to help elderberry establish and grow at the mitigation bank and pay less at the end.

Western also proposes manual methods of trimming elderberry shrubs between transmission line towers. Western will trim the portion of the elderberry above the 3-meter level used by VELB larvae. Any trimming of elderberry would take place in the winter when soil moisture is typically higher and the VELB are not emerging (they emerge from elderberry in the spring when the elderberry is flowering). VELB typically

do not utilize parts of the bushes that are over 1 meter in height, thus trimming bushes to 3 meters in height should not harm the larvae as long as sufficient photosynthate is produced in the stem (Huxel 2001).

The 1999 Conservation Guidelines state "At the Service's discretion, ...a plant that would be extremely difficult to move because of access problems, may be exempted from transplantation. In cases where transplantation is not possible, the minimization ratios in Table 1 *may* be increased to offset the additional habitat loss." Western has made the determination that elderberry within or near towers may not be transplanted because of access problems, safety, system reliability, and effect on tower integrity (including footings) and, therefore, should be exempted from transplantation and should not be required to mitigate at a higher ratio.

Western is including the Mountain plover as a proposed Threatened Species in the Biological Assessment and would like to include it in the formal consultation in the event it is listed. Western prepared the enclosed Biological Assessment under USFWS regulations (50 CFR 402) for the following species:

Truckee barberry (*Berberis sonnei*)		Endangered
Antioch Dunes evening-primrose (*Oenothera deltoides howellii*)		Endangered
Slender Orcutt grass (*Orcuttia tenuis*)		Threatened
Sacramento Orcutt grass (*Orcuttia viscida*)		Endangered
Hartweg's golden sunburst (*Pseudobahia bahiifolia*)		Endangered
Vernal pool fairy shrimp (*Branchinecta lynchi*)		Threatened
Conservancy fairy shrimp (*Branchinecta conservatio*)		Endangered
Vernal pool tadpole shrimp (*Lepidurus packardi*)		Endangered
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)		Threatened
Designated Critical Habitat for the longhorn beetle		
Delta green ground beetle (*Elaphrus viridis*)		Threatened
Delta smelt (*Hypomesus transpacificus*)		Threatened
Winter run chinook salmon (*Oncorhynchus tshawytscha*)		Endangered
Central Valley spring-run chinook (*Oncorhynchus tshawytscha*)		Threatened
Central Valley steelhead (*Oncorhynchus mykiss*)		Threatened
Lahontan cutthroat trout (*Oncorhynchus (=Salmo) clarki henshawi*)		Threatened
Sacramento splittail (*Pogonichthys macrolepidotus*)		Threatened
California red-legged frog (*Rana aurora draytonii*)		Threatened
Giant garter snake (*Thamnophis gigas*)		Threatened
Bald eagle (*Haliaeetus leucocephalis*)		Threatened
Riparian woodrat (*Neotoma fuscipes riparia*)		Endangered
Riparian brush rabbit (*Sylvilagus bachmani riparius*)		Endangered
San Joaquin kit fox (*Vulpes macrotis mutica*)		Endangered
Mountain plover (*Charadrius montanus*)	Proposed	Threatened

As the lead Federal agency, Western considered the effects of the proposed action on the Federally protected species that may occur in the vicinity of the proposed action and prepared the enclosed Biological Assessment. Under regulation 50 CFR 402.14(b), Western has determined that the proposed rights-of-way maintenance activities in the Sacramento Valley, as described in the draft Environmental Assessment (enclosed), would not affect the Truckee barberry, the Antioch Dunes evening primrose, the Hartweg's golden sunburst, the Delta green ground beetle, any of the fish species, the Giant garter snake, the bald eagle, the mountain plover, the San Joaquin kit fox, the riparian woodrat, the riparian brush rabbit, the slender Orcutt grass, the Sacramento Orcutt grass, the Conservancy fairy shrimp, the vernal pool fairy shrimp, or the vernal pool tadpole shrimp. Western has determined, based on the lack of physical evidence, historical record of their presence, and proposed mitigation measures, Western's routine maintenance activities may affect but are not likely to adversely affect the red-legged frog. Western has determined the proposed routine maintenance activities may affect the valley elderberry longhorn beetle.

The 1998 Programmatic Biological Opinion granted Western a take of 10 elderberry bushes per year. As you can see from the enclosed EA/Mitigation Action Plan, there are over 500 stems within 20 feet of the transmission towers inside the Sacramento Valley ROWs. In an effort to maintain transmission line and access road ROWs and ensure that Western's maintenance crews have safe and all-weather access to transmission line structures, Western is requesting to keep the current incidental take amount of elderberry plants or plant clusters at 10 per year.

We request your concurrence with our findings, and we would appreciate a draft response within 90 days of receipt of this letter in order for the planning process to proceed on schedule. If you have any questions regarding this determination or the Biological Assessment, please contact Mr. Steve Tuggle at (916) 353-4549.

Sincerely,

James D. Keselberg
Regional Manager

3 Enclosures

cc:
Mr. Justin Ly
U.S. Fish & Wildlife Service
2800 Cottage Way, Room W-2605
Sacramento, CA 95825
(w/copy of enclosures)

Figure 1 - Location of Western's Customer Service Region

7

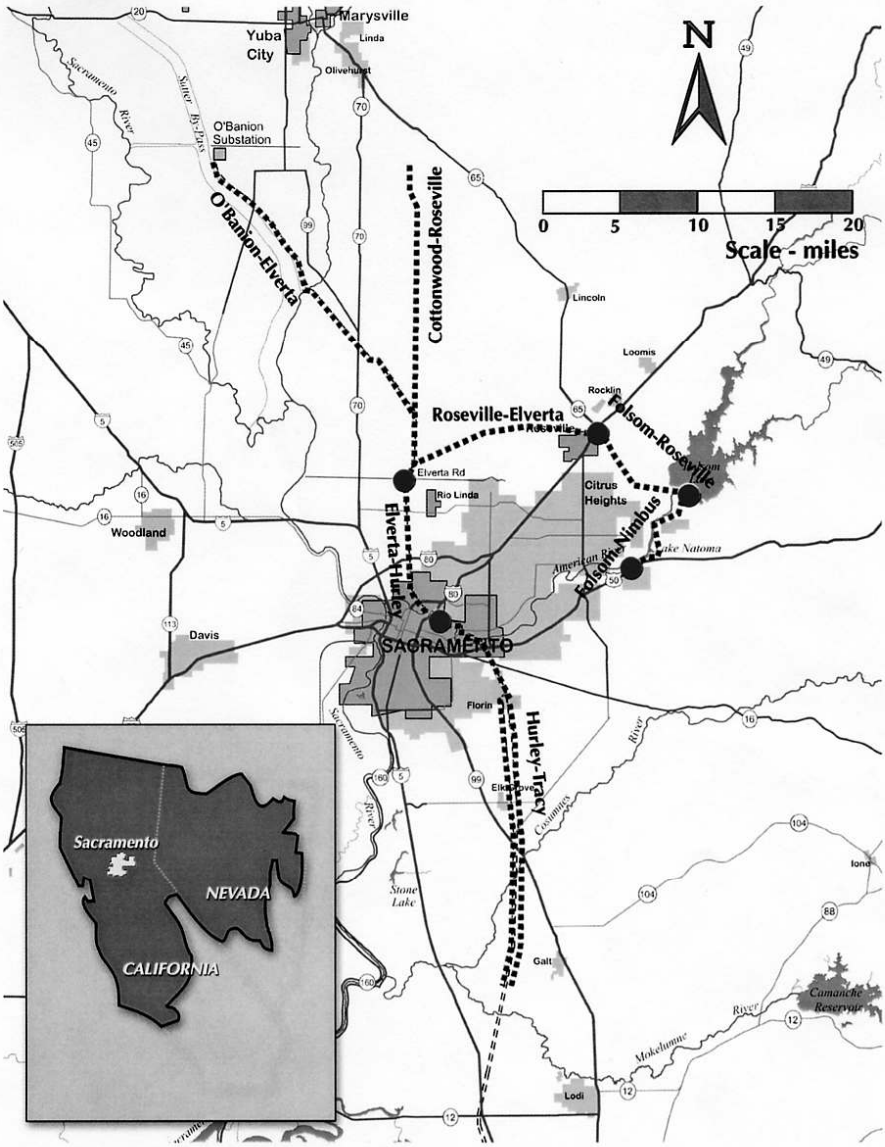

Figure 2 - Location of Study Area and Transmission Line Rights-of-way

The Western Area Power Administration's Biological Assessment for the Sacramento Valley Right-of-Way Maintenance Project

The Western Area Power Administration's Sierra Nevada Customer Service Region (Western) will be undertaking maintenance activities on its rights-of-way (ROWs) in the Sacramento Valley in Placer, Sacramento, and Sutter Counties, California. All of the affected transmission lines (see Figure 1) are either owned, operated, or maintained by Western and are covered under an existing Biological Opinion (1-1-97-F-140) issued May 27, 1998, by the U.S. Fish and Wildlife Service (USFWS), as amended by 1-1-02-F-0199 issued June 14, 2002. This Biological Assessment covers specific transmission line segments, communication sites, substations, legal access roads, and corresponding ROWs within the project area that Western owns, maintains, operates, or otherwise is responsible for. This new biological assessment was prepared under 50 CFR 402.16 (c) and (d), because the maintenance action is being modified beyond that described in the original Biological Assessment and Biological Opinion, and new species have been listed in the vicinity of the proposed action add that we have a 5 year review of the BO with USFWS. The proposed activities include vegetation management and other maintenance in the rights-of-way for both transmission lines and access roads, and outside rights-of-way at substations and communication sites. These activities include the removal of vegetation that may pose a human safety hazard, a fire hazard, or violate requirements of the General Order 95, Western Order 430.1, and the National Electric Safety Code. This is necessary to ensure system reliability and public safety by 1) preserving structural integrity of transmission line towers, 2) allowing access to the tower perimeter or pole for routine maintenance or repairs, and 3) removing a "path to ground" that could cause arcing. Elderberry plants and other woody species are currently growing into the conductors at mid-span resulting in a decrease in safe work areas and a decrease in line reliability. Additionally, these same species are growing into and around the steel towers, weakening and causing inaccessibility, which results in unsafe conditions for Western's maintenance crews and the public.

Consultation History

As mentioned above, the USFWS issued a Programmatic Biological Opinion to Western covering routine maintenance activities May 27, 1998. Western initially discussed this project with the USFWS in a meeting on November 9, 2000. Western requested a list of endangered, threatened, proposed and candidate species, and critical habitats that may occur in the vicinity of the Sacramento Valley transmission lines on March 15, 2001, May 9, 2001, and again on December 26, 2001. The USFWS provided a response on May 17, 2001, (01-SP-2047) and on January 14, 2002, (02-SP-0582) listing species known to occur in the counties where the transmission line rights-of-way occur. Preparation of the Biological Assessment began in early July 2001.

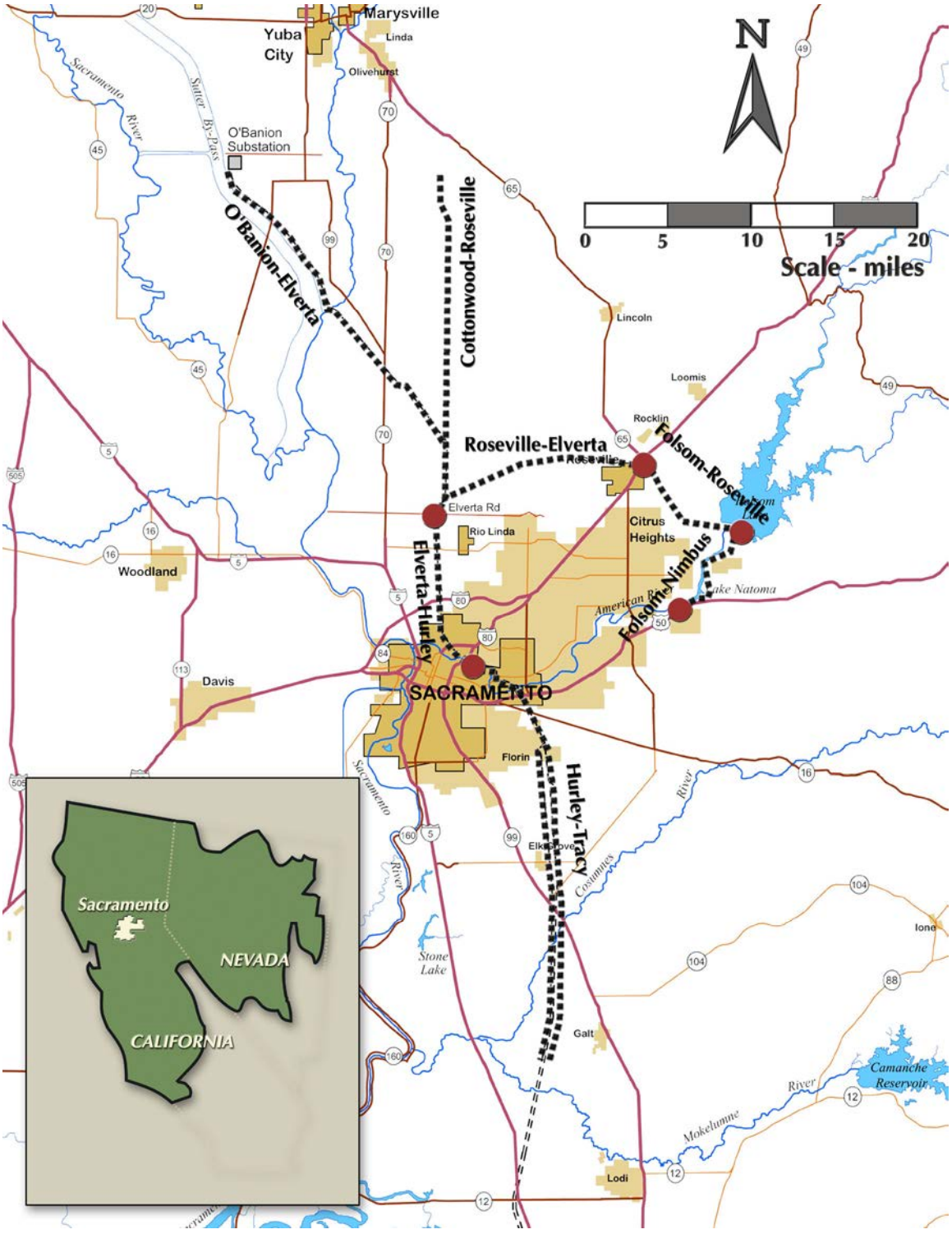

Figure 1. Location of Study Area and Transmission Line Rights-of-way

Methods

Field surveys were conducted to identify sensitive species and habitats along all of the ROWs. The biological surveys were conducted from September 11 through December 10, 2001. Focused surveys to collect detailed data on elderberry plants were conducted in January and February of 2002 (for areas where elderberry plants were identified during the previous surveys) and April 2004 (Cal-Expo area only). Two-person survey teams consisted of a biologist familiar with habitats and the endangered and threatened species in the study area, and a field technician responsible for operation of a handheld data collection device with an attached global positioning system (GPS) receiver. A meandering pedestrian survey of the entire 108 miles of transmission line ROWs and legal access roads recorded the locations of a variety of features of biological importance, including:

- vernal pools
- rivers and streams
- wetlands
- habitat of threatened and endangered species

Biological surveys were habitat-based, although significant biological observations were noted. Recorded features were also accompanied by comments regarding habitat conditions and/or problem areas. Before conducting fieldwork, Western collected and examined data on threatened and endangered species that may occur in the project area, including California Natural Diversity Database (CNDDB) records and the USFWS Biological Opinion (USFWS 1998). The survey methods and timing were discussed in advance with the USFWS to ensure that the data quality would be appropriate to support the Biological Opinion (Chris Nagano, Ken Fuller, and Justin Lee, personal communication 2001).

These surveys were conducted to identify sensitive habitats for this Biological Assessment, so Western could mitigate the environmental effects of ROWs maintenance activities by avoiding sensitive habitats and resources. However, in certain instances, Western's field survey also identified a sensitive habitat (*Sambucus* spp.) that needs to be removed in order to properly inspect, maintain system reliability, and ensure public and worker safety. Western would conduct periodic follow-up surveys to account for changing conditions along the ROWs. The results of the surveys are presented in tabular and graphical format located within this Biological Assessment and also presented in the Environmental Assessment.

Based on information provided by the USFWS and in-house literature, Western evaluated the effects of the proposed action on the following Federally listed plant and animal species:

Truckee barberry (*Berberis sonnei*)	Endangered
Antioch Dunes evening-primrose (*Oenothera deltoides howellii*)	Endangered
Slender Orcutt grass (*Orcuttia tenuis*)	Threatened

Sacramento Orcutt grass (*Orcuttia viscida*)	Endangered
Hartweg's golden sunburst (*Pseudobahia bahiifolia*)	Endangered
Vernal pool fairy shrimp (*Branchinecta lynchi*)	Threatened
Conservancy fairy shrimp (*Branchinecta conservatio*)	Endangered
Vernal pool tadpole shrimp (*Lepidurus packardi*)	Endangered
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	Threatened
Designated Critical Habitat for the VELB	
Delta green ground beetle (*Elaphrus viridis*)	Threatened
Delta smelt (*Hypomesus transpacificus*)	Threatened
Winter run Chinook salmon (*Oncorhynchus tshawytscha*)	Endangered
Central Valley spring-run Chinook (*Oncorhynchus tshawytscha*)	Threatened
Central Valley steelhead (*Oncorhynchus mykiss*)	Threatened
Lahontan cutthroat trout (*Oncorhynchus (=Salmo*) *clarki henshawi*)	Threatened
California red-legged frog (*Rana aurora draytonii*)	Threatened
Giant garter snake (*Thamnophis gigas*)	Threatened
Bald eagle (*Haliaeetus leucocephalis*)	Threatened
Riparian woodrat (*Neotoma fuscipes riparia*)	Endangered
Riparian brush rabbit (*Sylivagus bachmani riparius*)	Endangered
San Joaquin kit fox (*Vulpes macrotis mutica*)	Endangered

Habitats

A majority of the species listed above and discussed below occupy one of two important habitat types. These are wetlands and floodplains. The wetlands of most concern are vernal pools. Floodplains are of concern because any direct effects on floodplains could have both direct and indirect effects on riverine species, primarily fish, and the riparian habitats associated with floodplains.

Wetlands in the project area consist of palustrine emergent wetlands and vernal pools. Palustrine wetlands are marshy areas that are normally inundated most of the year and provide habitat for herptiles and waterfowl, shorebirds, and wading birds. The California red-legged frog and the giant garter snake utilize palustrine wetlands along with other habitat types.

Vernal pools are much more complex in their wet/dry cycle and the flora and fauna that inhabit them. Vernal pools consist of grass or mud-bottomed swales, earth sumps, or basalt flow depression pools in unplowed grasslands (USFWS 1992). They are generally small, seasonally aquatic ecosystems that are inundated in the winter and dry slowly in the spring and summer, making a harsh, unique environment. Cyclical wetting and drying creates an unusual ecological situation supporting a unique biota. Many plants and animals have evolved to possess such specific characteristics that they cannot live outside these temporary pools (USFWS 1997a).

The Central Valley of California consists of the Sacramento Valley in the north half of the State and the San Joaquin Valley in the south half. Within the Central Valley, vernal pools are found in four physiographic settings, each possessing an impervious soil layer relatively close to the surface. These four settings include high terraces with iron-silicate

or volcanic substrates, old alluvial terraces, basin rims with claypan soils, and low valley terraces with silica-carbonate claypans. Due to local topography and various geological populations, vernal pools are usually clustered into complexes.

Pools within a complex typically are separated by a distance of a few to several meters and may form dense, interconnected mosaics of small pools or a sparser scattering of large pools. Vernal pool habitats are found over a limited, discontinuous, fragmented area within the Central Valley (USFWS 1997a). There are 71 vernal pools totaling

16.2 acres occurring along the lines in the proposed action (see Table 1).

Table 1. Vernal pool habitat identified in the project area.

Transmission Line	Number of Vernal Pools	Area (acres)*
Hurley-Tracy	15	0.39
Elverta-Hurley	0	0
Roseville-Elverta/O'Banion-Elverta (segment N of Elverta Substation)	13	0.50
Cottonwood-Roseville (N-S portion N of split with O'Banion-Elverta)	4	0.07
O'Banion-Elverta (NW-SE portion)	2	0.01
Cottonwood-Roseville/Roseville-Elverta (E-W portion adjacent ROWs)	31	15.02
Folsom-Roseville	3	0.01
Folsom-Nimbus	3	0.20

*Totals: 71 vernal pools, 16.20 acres. There are 3 pools along the Cottonwood-Roseville/ Roseville-Elverta line (E-W portion) that are approximately 9 acres combined size.

Three invertebrate species (i.e. the vernal pool tadpole shrimp, conservancy fairy shrimp, and vernal pool fairy shrimp) and the Orcutt grasses are restricted to vernal pools. No close associations are known between the invertebrates and the plants. However, any action that would affect vernal pool habitat could adversely affect any or all of these five species.

Riparian habitats are the assemblage of species occurring along a waterway, generally within the floodplain. This habitat is found along all the major watercourses in the project area, including the American, Bear, Butte, Cosumnes, Feather, and Sacramento rivers and their tributaries.

An activity that affects riparian habitat could directly affect not only the plants and animals with the riparian zone but also indirectly affect species in the watercourse. This

would include the fish species listed above as well as the valley elderberry longhorn beetle and riparian woodrat and brush rabbit.

The acreages of the different habitats identified along the rights-of-way are shown in Table 2. This table illustrates the diversity of habitats crossed by Western's transmission lines in the Sacramento Valley region.

Table 2. Habitats found in Western's rights-of-way in the Sacramento Valley

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

The following discussion of endangered, threatened, and proposed species is based on the biological surveys and lists provided by the USFWS and those obtained from the CNDDB.

Plants

The Truckee barberry is known only from the Truckee River and does not occur in the vicinity of the proposed action.

The Antioch Dunes evening primrose is known only from Antioch Dunes National Wildlife Refuge and the Brannan State Recreation Area. Western's transmission lines do not cross either of these two areas.

Both Slender Orcutt grass and Sacramento Orcutt grass were listed as Threatened and Endangered, respectively, March 26, 1997. Both are found in vernal pool habitat, although slender Orcutt grass has a wider and more northerly distribution. Both have been collected in Sacramento County. Reason for decline of both species is loss of habitat. As noted in Table 1, several of the ROWs in the project area contain vernal pools. A biological survey conducted in late 2001 and a CNDDB query indicated that Orcutt grasses are not present in Western's ROWs.

Hartweg's golden sunburst was listed as Endangered February 6, 1997. It may have existed throughout the Central Valley of California from Yuba County in the north to Fresno County in the south (USFWS 1997b). The plant presently occurs only in the eastern San Joaquin Valley in Stanislaus, Madera, and Fresno Counties. The plant occurs on "Mima mounds," which are sometimes associated with vernal pool complexes.

Conversion of native habitat to residential development is the primary threat of this sunburst. To a lesser degree, agricultural development, competition from aggressive exotic plants, incompatible grazing practices, mining, and other human impacts threaten the species (USFWS 1997b). Hartweg's golden sunburst has not been identified nor is expected in the project area.

Invertebrates

The Conservancy fairy shrimp inhabits vernal pools with highly turbid water. The species is known from six disjunct populations in Tehama County, Solano County, Glenn County, Merced County, and northern Ventura County (USFWS 1994). The pools inhabited by the Conservancy fairy shrimp are large, such as the 89-acre Olcott Lake at Jepson Prairie (Eng, pers. comm., 1990 in USFWS 1994). The pools inhabited by this animal have very low conductivity, total dissolved solids, and alkalinity (USFWS 1994).

The majority of known populations of vernal pool fairy shrimp inhabit vernal pools with clear to tea-colored water, most commonly in grass or mud bottomed swales, or basalt flow depression pools in unplowed grasslands, but one population occurs in sandstone rock outcrops and another population in alkaline vernal pools. Populations of the vernal pool fairy shrimp extend from Stillwater Plain in Shasta County through most of the length of the Central Valley to Pixley in Tulare County, The water in pools inhabited by this species has low total dissolved solids, conductivity, alkalinity, and chloride (USFWS 1994).

The vernal pool tadpole shrimp is known from 18 populations in the Central Valley. These range from east of Redding in Shasta County through the Central Valley to the San Luis National Wildlife Refuge in Merced County. The vernal pool tadpole shrimp inhabits vernal pools containing clear to highly turbid water. These pools are located most commonly in grass bottomed swales of grasslands in old alluvial soils underlain by hardpan or in mud-bottomed pools containing highly turbid water. They range in size from 54 square feet (0.001 acre) in Sacramento County, to 89 acres at Jepson Prairie. The pools tend to have a very low conductivity, TDS, and alkalinity (USFWS 1994).

Reasons for decline of the vernal pool species include urban, water, flood control, highway, and utility projects, as well as conversion of wildlands to agricultural use. Changes in hydrologic pattern, overgrazing and off-road vehicle use also imperil this aquatic habitat and the four species listed here. Human activities that alter the watershed of vernal pools indirectly affect these animals. Other human activities that reduce the extent of the watershed or that alter runoff patterns (i.e., amounts and

seasonal distribution) may eliminate the animals, reduce their population sizes or reproductive success, or shift the location of sites inhabited by these animals.

The eggs and cysts of all these species can withstand heat, cold, and prolonged desiccation. However, any impacts to vernal pools would adversely affect the fairy shrimp and tadpole shrimp. This includes maintenance activities during both wet periods and dry periods.

The Valley elderberry longhorn beetle (VELB) (*Desmocerus californicus dimorphus*), a Federally listed threatened species, is restricted to elderberry (Sambucus spp.) bushes for most of its life cycle (USFWS 1984). The elderberry bush is found in riparian, elderberry savanna, and upland areas. Western conducted surveys of the ROWs in the project area and found 14 acres of elderberry savanna. Additionally, there were 130 acres of riparian habitat crossed through the ROWs. Within the project area, 422 stems greater than 1 inch in diameter are proposed for removal. These are stems within 40 feet of the center of lattice towers (approximately 20 feet from tower legs or pole structures).

The main reason for decline of the beetle is loss of habitat. Removal of any elderberry shrubs would affect the beetle. Western proposes that all elderberry (Sambucus) and vegetation be manually removed within 40 feet of lattice tower centers and within 20 feet of poles using manual and mechanical methods. Stumps of removed elderberry and vegetation would then be spot treated with a herbicide to prevent root sprouting. The proposed action would result in adverse impacts to VELB habitat namely through the manual removal of elderberry plants.

Critical Habitat for the Valley elderberry longhorn beetle has been mapped in Sacramento County; however, Western's ROWs are outside these Critical Habitats.

The Delta green ground beetle is another species dependent on vernal pools. It is known only from vernal pool habitat in Solano County (Lowe et al. 1990). Any actions that affect the vernal pools utilized by this beetle would affect it. None of the ROWs in the proposed action are located close to the known locations of the beetle.

Fish

The National Marine Fisheries Service (NMFS) listed winter-run Chinook salmon as endangered species January 4, 1994. NMFS has placed Chinook salmon in Evolutionarily Significant Units (ESU) because the species spawns and migrates in different seasons. The winter-run Chinook spawn in the upper Sacramento River after spending approximately 3 years in the Pacific Ocean. The distribution of the winter-run Chinook has been dramatically reduced, and Critical Habitat has been designated for this ESU of the species.

Central Valley spring-run Chinook was listed as a threatened species September 16, 1999. This ESU suffers from the same problems as other Pacific salmonids (NMFS 2001). Critical Habitat for the spring-run Chinook was designated February 16, 2000,

and includes all river reaches accessible to Chinook in the Sacramento River and its tributaries.

The Central Valley steelhead was listed as a threatened species March 19, 1998. The steelhead is an anadromous species, which migrate to sea as juveniles and return to inland waterways as 2- to 4-year olds to spawn (NMFS 2001). The various strains can be found as adults in fresh water every month of the year. Spawning occurs in the Sacramento River Basin from December through April. Juvenile steelhead emigrate downstream from November to May.

The Central Valley fall/late fall run Chinook salmon ESU was proposed for listing as threatened, but NMFS determined that the listing was not warranted (NMFS 2001).

Lahontan cutthroat trout was listed as a Threatened species in 1975. It is known only from the Humboldt, Truckee, Carson, and Walker rivers in California and Nevada. It was stocked in California Lakes from Inyo County to Modaoc County and may still be present in Granite Lake in Trinity County (McAfee 1966). It does not occur in the project area. The proposed action will not affect this subspecies of cutthroat trout.

The delta smelt was listed as a Threatened species March 5, 1993. It is restricted to the Sacramento-San Joaquin Estuary. Reasons for their decline include habitat modification, including quality and quantity of water and prey base, toxic materials, disease and competition and predation by non-native species. There will be no direct or indirect effects of the proposed action on the delta smelt because the range of the delta smelt does not extend into the project area.

Water development projects, poor water quality, and agricultural activities have adversely affected all of the fish species. Introduction of non-native predators and/or competitors has also had deleterious effects. Any increase in sedimentation and silt load or decrease in water quality would adversely affect the fish species.

Amphibians

The California red-legged frog was listed as a threatened species on June 24, 1996, (USFWS 1996). Critical Habitat was determined for the species March 13, 2001. The frog inhabits areas containing ponds and permanent pools in streams and marshes with emergent vegetation from near sea level to approximately 8,000 feet elevation. It occurs throughout the Coast Ranges and the Sierra Nevada, from near the Oregon border to northern Baja, California, but is thought to be most prevalent in the lower foothills and lowlands. The red-legged frog feeds on aquatic and terrestrial insects, crustaceans, snails, worms, fish, tadpoles, and smaller frogs along highly vegetated shorelines (Zeiner, et al., 1988). The red-legged frog breeds from January to March and tadpoles transform from May to August (Wright and Wright 1949).

During the non-breeding season, frogs can move over long distances foraging in farm fields and along riparian corridors. The Draft Recovery Plan for the California Red-legged Frog (USFWS 2000a) has designated habitat that is important to the recovery of the red-legged frog (core habitat) in the foothills east and west of the Sacramento River

Valley. Western's transmission lines or ROWs cross none of the core areas. Currently, there are no known occurrences of the California red-legged frog in the project area.

Threats to the frog include habitat loss and degradation through agricultural activities, urbanization, recreation, predation and/or competition from non-native species, disease, water management projects and declining water quality (USFWS 2000a). The draft Recovery Plan also identifies a hazard associated with herbicides. Apparently the surfactants in certain glyphosate herbicides (e.g. Roundup) have "severe negative effects" on amphibians (USFWS 2000a). Any habitat loss or degradation of water quality or quantity would adversely affect the red-legged frog.

Reptiles

The giant garter snake was listed as an endangered species on October 20, 1993, (USFWS 1993b). The species is endemic to Central Valley wetlands and inhabits natural and manmade habitats. It feeds on small fish and amphibians. The giant garter snake requires a mix of cover types, such as adequate water during the early-spring through late-fall active period; emergent wetland vegetation for escape and feeding cover; grassy banks and openings for resting or basking cover; and uplands to escape flooding. It moves to small animal burrows and soil crevices during its winter dormancy.

The giant garter snake has been and continues to be threatened by human activities, including some agricultural practices, loss of habitat to development, stream channelization, recreational activities, increased predation by nonnative species, and water management practices.

There are habitat components for the giant garter snake in the project area (see Table 2). These consist mostly of the agricultural fields (e.g. rice fields) and irrigation ditches and canals. These areas seldom need rights-of-way maintenance and access roadwork.

Birds

The bald eagle was listed as an endangered species in California in March 1967 (USFWS 1967). The main reasons for decline included direct mortality, such as shootings, and poisonings and indirect mortality such as electrocutions and incidental pesticide accumulations. The bald eagle ranges across North America (Finch 1992) and feeds on fish, waterfowl, small mammals, and carrion. Eagle populations have recovered enough so that the species was downlisted to Threatened. The bald eagle may be removed from the endangered and threatened species list in the near future; however, it will still be protected by the Eagle Protection and Migratory Bird Treaty acts. The eagle is not known to nest or roost in the vicinity of Western's lines but may move overhead as it hunts the various rivers, canals, and aqueducts in the Sacramento Valley. There will be no increase in overhead lines or the presence of improper spacing of electrified wires to adversely affect bald eagles.

Mammals

The riparian woodrat and riparian brush rabbit were listed as endangered species February 23, 2000, (USFWS 2000b). Both species probably ranged throughout the riparian habitats in the Sacramento River valley in historic times. There was only one population of each of the subspecies known at the time of listing. Both were in the Stanislaus River at the Park on the border of San Joaquin and Stanislaus counties, northwest of Modesto. In addition to this isolation, other threats to these two subspecies include wildfire, disease, predation, competition and human-caused loss or fragmentation of habitat. Naturally occurring events, such as flood or drought could also be devastating to these subspecies. There is only one known location for these subspecies and Western has no facilities in the vicinity. The proposed action would not be directly or indirectly affected by it.

The San Joaquin kit fox was listed as endangered March 11, 1967, (Lowe et al. 1990). It historically ranged south of the project area. No kit foxes have been observed in the project area. The San Joaquin kit fox lives in native grassland and desert shrubs and feeds on small mammals, primarily rodents, ground nesting birds, and insects (USFWS 1998). Habitat modification, hunting, pesticides, poisoning, trapping, and road kills have reduced this formerly abundant species. The project does not provide suitable habitat for the kit fox and very little of the project area is in the range of this species.

Reasons for decline of the kit fox include loss of denning and foraging habitat and predation and competition by other canids. Loss of denning or foraging habitat would adversely affect the kit fox.

Effects of the Proposed Action

Impacts to the species under discussion can be direct (an immediate affect to an individual, population, or its habitat), or indirect (an affect that may occur over time or result from other actions). Additionally, cumulative impacts may effect some of the species. For purposes of this Biological Assessment, cumulative effects will use the definition in the regulations at 50 CFR 402.02. That is, " . . . those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation."

Mitigation

Worker Training

Western will conduct environmental awareness training for all maintenance crews annually to make them aware of the terms and conditions of the Biological Opinion. Additionally, when maintenance crews are scheduled to work in sensitive areas, a "job hazard analysis" will be held as part of a tailgate session on the day the work is scheduled. This analysis will point out the sensitive resources that may be encountered and the requirements of the Biological Opinion in dealing with those issues.

Vernal Pool Species

Within the Sacramento Valley, transmission line ROWs are as small as 112.5 feet in width; access road ROWs are 30 feet in width. Because of these narrow ROWs, complete avoidance of vernal pools is not possible. Western proposes method-dependent vernal pool buffer zones that will protect pool habitats while allowing Western access to towers and ROWs, and the ability to perform necessary maintenance. These buffer zones are presented in Table 3.

Valley Elderberry Longhorn Beetle

As stated above, within the project area, 422 stems greater than 1 inch in diameter are proposed for removal. These are stems within 40 feet of the center of lattice towers (approximately 20 feet from tower legs or pole structures). Table 4 summarizes the number of stems to be removed and mitigation according to 1999 Conservation Guidelines (USFWS 1999). Table 4 provides both "transplant" and "no transplant" scenarios. Because of concern for safety in working with equipment near transmission lines and the structural integrity of towers, Western may not be able to transplant elderberry shrubs, and therefore be required to double mitigation. Western would evaluate each shrub at the time of removal to determine whether transplant is feasible. The two scenarios shown in Table 4 should be therefore regarded as minimum and maximum estimates of mitigation for a one-time elderberry removal along Western's transmission lines in the Sacramento Valley. In addition, Western proposes mitigation to cover incidental take of up to 10 elderberry shrub clusters per year as well as trimming elderberry above the 10-foot level. Western proposes an additional 5 acres for this mitigation over the term of the biological opinion.

Western would use one of the following means to perform mitigation for the one-time elderberry removal under the proposed action, in addition to incidental take and trimming of elderberry plants that may be necessary over the period covered by a new biological opinion:

- Contract with government entity for habitat restoration, management, or improvement;
- Contract with private entity for habitat restoration, management, improvement, or protection;
- Contract with mitigation bank to create new habitat; or
- Other mitigation method subject to USFWS approval.

Any method used would require approval by the USFWS. Western may elect to provide incremental funding for mitigation over a period not to exceed four years.

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

Buffer and Other Considerations		Method	Example Equipment [c]	Technique/Activity [c]	Applications [c]
Dry Season [a]	Wet Season [b]				
Vegetation Maintenance (Transmission Line and Access Road ROWs)					
None	To pool edge	Manual	Chainsaw, clipper, axe	Trimming, removal, disposal	Selective vegetation removal
None	100 ft	Mechanical	Heavy-duty mowers (brush-hog, Hydro-Ax), crawler tractors, chippers	Mowing, removal, disposal	Temporary control of thick stands of vegetation
To pool edge	25 ft	Herbicides	Hand-held applicator	Cut-stump	Control of woody vegetation
100 ft	100 ft	Herbicides	Hand sprayers, power sprayers, herbicide appropriate for technique and application	Spot, localized	Spot treatments where selective elimination of species is desirable. Localized treatment on ROWs with low-to-medium target plant density.
150 ft	150 ft	Herbicides	Vehicle with boom	Broadcast	Treating large/dense areas of ROW vegetation, especially where access by truck is readily available.
Access Road Maintenance					
To pool edge. Erect silt fences for work within 25 ft. Do not deposit material within 250 ft upslope of pool.	50 ft. Silt fences or similar means of runoff control will be used if runoff from ground-disturbing activities could reach vernal pool. Construction would apply concepts stated in the U.S. Forest Service	Repairing	Bulldozer, caterpillar (tracked vehicle), dump truck, backhoe	Specific to type of repair	Specific to type of repair
		Grading	Bulldozer, caterpillar	Removal and leveling of upper levels of soil profile	Used to construct or repair road surface
		Filling	Dump truck	Delivery of gravel, rock, or soil to fill depressions	Filling of depressions during initial or reconstruction of road
		Cleaning water crossings	Backhoe, dump truck	Removal of debris from culverts and ditches	To maintain optimal efficiency of water diversions to prevent washouts and erosion
		Repair or construction of water bars	Backhoe, dump truck, bulldozer	Grading and shaping of soil to construct/repair a berm to control erosion	Direct water off road surface to prevent washouts or erosion

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

Buffer and Other Considerations		Method	Example Equipment [c]	Technique/Activity [c]	Applications [c]
Dry Season [a]	Wet Season [b]				
	Publication *Forest Roads: A Synthesis Of Scientific Information* (June 2000).	Repair or construction of v-shaped ditches	Backhoe	Construction of ditches to allow drainage	Direct water off road surface to prevent washouts or erosion
		Construction or replacement of culverts	Backhoe, truck, trailers	Installation of pipe culvert under across road	Used whenever drainages or streams are of sufficient size
Transmission Line Maintenance					
None	50 ft. No buffer for travel on established roads and legal access roads.	Patrols (ground)	Pickup truck	Detailed observation of entire transmission system performed on semi-annual basis	Check access to towers/poles, tree clearances, fences, gates, locks, and tower hardware
		Inspection (climbing)	Pickup truck, bucket truck	Detailed observation of system hardware performed on 20 percent of structures each year	Identify deterioration of hardware not detected in aerial or ground inspections
None for non-ground disturb-ing activities. 25 ft for ground disturb-ing activities.	50 ft. Silt fences or similar means of runoff control will be used if runoff from ground-disturbing activities could reach vernal pool.	Repairs and preventative maintenance	Pickup truck, bulldozer, caterpillar, backhoe, bucket truck, hand tools	Based on needs identified during inspections or other reports, replace insulators; tighten, replace, or repair towers/poles or hardware; look for ROW encroachments	Performed wherever damage or deterioration of transmission lines or facilities poses a threat to safety or reliability

Table 4. Summary of Stems to be Removed and Mitigation according to 1999 Conservation Guidelines

Transplant	Riparian						Non-Riparian		
	Exit Holes			No Exit Holes			No Exit Holes		
Stem Size	*Count*	*Multiplier*	*Mitigation*	*Count*	*Multiplier*	*Mitigation*	*Count*	*Multiplier*	*Mitigation*
1"-3"	107	4	428	141	2	282	6	1	6
>3" to <5"	80	6	480	40	3	120	3	2	6
5" and greater	40	8	320	5	4	20	0	3	0
Totals			1228			422			12
						Total Elderberry Mitigation Stems			1662
						Total Elderberry Mitigation Units			332
						Total Elderberry Mitigation Acres			13.7

No Transplant	Riparian						Non-Riparian		
	Exit Holes			No Exit Holes			No Exit Holes		
Stem Size	*Count*	*Multiplier*	*Mitigation*	*Count*	*Multiplier*	*Mitigation*	*Count*	*Multiplier*	*Mitigation*
1"-3"	107	8	856	141	4	564	6	2	12
>3" to <5"	80	12	960	40	6	240	3	4	12
5" and greater	40	16	640	5	8	40	0	6	0
Totals			2456			844			24
						Total Elderberry Mitigation Stems			3324
						Total Elderberry Mitigation Units			665
						Total Elderberry Mitigation Acres			27.5

Fish

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

Amphibians

The buffer zones and worker training discussed above would minimize adverse effects on the red-legged frog. Additionally, the project area does not include the foothill streams and ponds that make up the core habitat of the frog.

Reptiles

Worker training discussed above and seasonal timing of routine maintenance activities would also help minimize impacts to the garter snake.

Birds

Western does not anticipate any mitigation directed toward the birds. No new lines are being constructed and no adverse effects are expected. Where applicable,Western would observe timing restrictions for compliance with the Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act if active nests are observed or identified.

Mammals

The San Joaquin kit fox is not present in the project area, and Western does not anticipate any mitigation other than awareness training for maintenance crews. The riparian woodrat and brush rabbit are not known to occur in the project area. If they occur, the 100-foot buffer would mitigate adverse effects on both of these species. ?

Effects on Species

The proposed action would not affect the Truckee barberry, the Antioch Dunes evening primrose, or Hartweg's golden sunburst. These plants are not known from the project area, and there was no evidence of them found during biological surveys.

The two Orcutt grass species may occur in vernal pools in the rights-of-way. Mitigation described for vernal pools would minimize adverse effects on these two grasses.

Conservancy fairy shrimp, vernal pool fairy shrimp and vernal pool tadpole shrimp are not known to occur in the vernal pools in the rights-of-way. Mitigation described for vernal pools would minimize adverse affects on these species.

The Delta green ground beetle does not occur in the project area and would not be affected by the proposed action.

There would be a loss of valley elderberry beetle habitat as a result of the proposed action. The field surveys found that the number of stems within 40 feet of the center of lattice towers and within 20 feet of poles that would have to be removed for worker safety and line reliability would total about 422. This would result in an not likely to adversely effect the beetle.

By implementing restrictions on activities within 100-foot buffer zones at all river and stream crossings as stated above, the fish species would not be affected by the proposed action.

Although there is no indication the California red-legged frog is present in any of the rights-of-ways in the proposed action there is suitable habitat present. The frog may move through the project area during seasonal forays. There is a possibility that the frog may encounter vehicular traffic.

The giant garter snake has some habitat components in the project area. Nearly all of the maintenance activities would occur during the "active season" of the giant garter snake. Additionally, the garter snake habitat does not typically require a great deal of

maintenance activity. However, there is a possibility that vehicular traffic would encounter a garter snake, resulting in a loss.

The bald eagle would not be affected by the proposed action.

The San Joaquin kit fox is not likely to occur in the project area and would not be affected.

The riparian woodrat and brush rabbit are not known to occur in the project area and would not be affected.

Cumulative Effects

Residential development and water development projects would have an effect on most of the species discussed above. Other entities need to maintain their ROWs, whether they are electric, communication, gas, water, or transportation. Most new power plants would have a Federal permit requirement, either air, water, or an interconnection request with Western. The California Energy Commission also requires consultation with the USFWS as well as the California Department of Fish and Game.

Western's Determination

Western has determined the proposed rights-of-way maintenance activities would not affect the Truckee barberry, Antioch Dunes evening primrose, Hartweg's golden sunburst, slender Orcutt grass, Sacramento Orcutt grass, Conservancy fairy shrimp, vernal pool fairy shrimp, vernal pool tadpole shrimp, Delta green ground beetle, any of the fish species, bald eagle, San Joaquin kit fox, riparian woodrat, or the riparian brush rabbit.

Western determined, based on the lack of physical evidence, historical record of their presence, and proposed routine maintenance activities, Western's routine maintenance activities may affect but is not likely to adversely affect the red-legged frog.

Western has determined the proposed routine maintenance activities are not likely to adversely affect the valley elderberry longhorn beetle.

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SNR ROUTING

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W2605
Sacramento, California 95825-1846

IN REPLY REFER TO:
1-1-02-F-0199

June 14, 2002

Jim Keselburg
Manager, Sierra Nevada Region
Department of Energy
Western Area Power Administration
114 Parkshore Drive
Folsom, California 95630-4710

Subject: Request for Amendment of the Programmatic Consultation on the Operations and Maintenance Activities of the Western Area Power Administration (File 1-1-97-F-0140)

Dear Mr. Keselburg:

This letter is in response to a May 29, 2002, electronic mail message from Stephen Tuggle of your staff requesting that the U.S. Fish and Wildlife Service (Service) review proposed changes to the Western Area Power Administration (Western) routine maintenance/vegetation management project along two spans of Transmission Line, Towers 11/2 through 11/4 on the Hurley-Tracy 230 kV Transmission Line (Cal Expo/State Fairgrounds area) in the City of Sacramento, Sacramento, California (proposed action) and amend the subject project's May 27, 1998, programmatic biological opinion (File 1-1-97-F-0140)(Programmatic BO), as appropriate. This response is provided in accordance with section 7(a) of the Endangered Species Act, as amended (16 U.S.C. 1531 *et seq.*)(Act).

The Service has reviewed Western's request and has determined that the changes to the proposed action are within the scope of the Programmatic BO. Implementation of the proposed changes would not result in take of the threatened valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) beyond that authorized in the Programmatic BO. Further, the proposed changes would not destroy or adversely modify critical habitat for the valley elderberry longhorn beetle. The following paragraphs contain (1) transcriptions of text from the Programmatic BO; (2) Western's proposed changes to the proposed action analyzed in the Programmatic BO; (3) brief analyses of the effects of the proposed changes; and (4) amended text for the Programmatic BO.

On Page 8 of the Programmatic BO, Item 2(A) of the "Mitigation Guidelines" section, "All Maintenance Categories" subsection, states that "A minimum setback of 20-feet from the dripline of each elderberry plant would be provided during all routine maintenance activities." Western has requested that the Programmatic BO be amended to allow manual trimming and removal of plants by hand crews within the 20-foot zone to accommodate removal of elderberry shrubs (*Sambucus* spp.) already authorized under the Programmatic BO as well as removal of other plant species required by National, State, and Agency right-of-way directives and regulations. Western's proposal to utilize hand crews to remove elderberry shrubs and other woody and herbaceous plants from within the 20-foot impact avoidance zone is accompanied by a commitment to employ a certified arborist on the project site. The certified arborist shall serve as a biological monitor and will supervise vegetation management activities to ensure elderberry shrubs are identified, flagged, and avoided. Western has also proposed to defer this vegetation management action until after June 15, 2002.

The Service has determined that the implementation of vegetation management by hand crews within the 20-foot avoidance zone under the supervision of a certified arborist subsequent to June 15, 2002, but before February 15, 2003, is unlikely to result in take of the valley elderberry longhorn beetle beyond that already authorized in the Programmatic BO. The Service hereby amends the Programmatic BO to include the following subsection under Item 2(A) of the "Mitigation Guidelines" section, "All Maintenance Categories" subsection:

(i) In those situations where vegetation removal must occur within 20 feet of the dripline of an elderberry shrub, Western shall utilize only manual methods and hand crews. All activities occurring within 20 feet of an elderberry shrub's dripline shall be supervised by a certified arborist who shall identify and flag all elderberry shrubs and ensure no damage occurs. Vegetation removal shall occur between June 15, 2002, and February 15, 2003.

Note that the use of hand crews supervised by an arborist described under the amended Item 2(A)(i) was proposed as *avoidance*, not a minimization or conservation measure. The Service's determination that the incidental take authorized by the Programmatic BO would not be exceeded is predicated on the fact that *avoidance* equates with a low likelihood of take of valley elderberry longhorn beetle. The Programmatic BO's authorized incidental take of valley elderberry longhorn beetle remains at ten (10) elderberry plants or plant clusters per year.

Western's May 29, 2002 electronic mail message did, however, specifically state that if the aforementioned vegetation removal activities *did* damage or require the removal of elderberry shrubs measuring one inch or greater at the base, compensation for said impacts would be implemented according to the Service's September 19, 1996 *Mitigation Guidelines for the Valley Elderberry Longhorn Beetle* (1996 Guidelines). This commitment is already stated on Page 8 of the original Programmatic BO, under Item 2(E) of the "Mitigation Guidelines" section, "All Maintenance Categories" subsection. Given that this commitment remains unchanged, the Service need not amend the related text in the Programmatic BO.

Page 8 of the Programmatic BO, Item 2(D) of the "Mitigation Guidelines" section, "All Maintenance Categories" subsection states that "No insecticides, herbicides, fertilizers, or other chemicals that might harm the beetle or its host plant would be used within 100 feet of an elderberry plant with a stem measuring one inch or greater in diameter at ground level." Western has requested that the Programmatic BO be amended to allow herbicide application within the 100-foot chemical buffer zone. Western has proposed to limit the less-than-100-foot herbicide applications to stump injection or "painting" treatment only. Western would only apply herbicides that are approved for use by Western and registered for use in California and would employ only certified pesticide applicators. As stated above for the vegetation removal activities, western has proposed to defer these vegetation management actions until after June 15, 2002.

The Service has determined that the application, via stump injection or "painting", of herbicides by a certified pesticide applicator within 100 feet of elderberry shrubs after June 15, 2002, but before February 15, 2003, is unlikely to result in take of the valley elderberry longhorn beetle beyond that already authorized in the Programmatic BO. The Service hereby amends the Programmatic BO to include the following subsection under Item 2(D) of the "Mitigation Guidelines" section, "All Maintenance Categories" subsection:

(i) In those situations where herbicide application must occur within 100 feet of an elderberry plant with a stem measuring one inch or greater in diameter at ground level, Western shall utilize only stump injection and/or painting techniques and shall employ only a certified pesticide applicator. Herbicide application shall occur between June 15, 2002, and February 15, 2003.

The Service also analyzed the effects of the amended Item 2(D)(i) as an *avoidance* measure, as we anticipate that its implementation is unlikely to result in take beyond that already authorized in the Programmatic BO. Compensation for any *additional* impacts on elderberry shrubs and/or incidental take of valley elderberry longhorn beetle resulting from herbicide application would again be implemented according to the 1996 Guidelines, as stated under Item 2(E).

This concludes the reinitiation of formal consultation between the Service and Western on the proposed changes to the routine maintenance activities under the Programmatic BO. 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 maintained (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.

Mr. Jim Keselburg 4

If you have any questions or concerns regarding this amendment to the biological opinion on Western's operations and maintenance activities, please contact Jason Douglas, Sacramento Valley Branch Senior Biologist, or Justin Ly, Sacramento Valley Branch Chief, at (916) 414-6645.

Sincerely,

for Cay C. Goude
Acting Field Supervisor

cc:
ARD-ES
Western Area Power Administration (Attn: Steve Tuggle), Folsom, California
California Department of Fish and Game (Attn: Terry Roscoe), Rancho Cordova, California

[JULY 26, 2004]

Mr. Wayne White
Field Supervisor
U.S. Fish and Wildlife Service
2800 Cottage Way, Room W-2605
Sacramento, CA 95825

Dear Mr. White:

In response to the U.S. Fish and Wildlife Service (USFWS) input during formal consultation on the Sacramento Valley Right-of-Way (ROW) Maintenance project (Reference No. 1-1-01-SP-2047), the Western Area Power Administration's (Western), Sierra Nevada Region has revised the Biological Assessment (BA) that was submitted to you in May 2002. The revised BA is enclosed and supercedes the previously submitted cover letter and BA that you received.

Western has made significant changes to the BA to more precisely define vernal pool buffers based on the type of maintenance activity and to update the amount and type of mitigation that would be necessary for removal and trimming of elderberry shrubs. These changes are the result of meetings, written correspondence, and telephone conversations with the USFWS staff over the 2-year period since submittal of the original BA and Environmental Assessment. There have been no changes to the determination from the original BA although two species, the mountain plover and the Sacramento splittail, have been removed. The Sacramento splittail was removed because the proposed listing was withdrawn, and the mountain plover was removed because the USFWS staff determined that the species does not occur in the project area.

We request your concurrence with our findings, and we would appreciate a draft response within 30 days of receipt of this letter in order for the planning process to proceed. If you have any questions regarding this BA, please contact Mr. Steve Tuggle at (916) 353-4549.

Sincerely,

[ORIGINAL SIGNED BY]

Jim Keselburg
Regional Manager

Enclosure

N1415:STuggle:x4549:lm:6/17/04
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The Western Area Power Administration's Biological Assessment for the Sacramento Valley Right-of-Way Maintenance Project

The Western Area Power Administration's Sierra Nevada Customer Service Region (Western) will be undertaking maintenance activities on its Right-of-way (ROW) in the Sacramento Valley in Placer, Sacramento, and Sutter Counties, California. All of the affected transmission lines (see Figure 1) are either owned, operated, or maintained by Western and are covered under an existing Biological Opinion (BO) (1-1-97-F-140) issued May 27, 1998, by the U.S. Fish and Wildlife Service (USFWS), as amended by 1-1-02-F-0199 issued June 14, 2002. This Biological Assessment (BA) covers specific transmission line segments, communication sites, substations, legal access roads, and corresponding ROW within the project area that Western owns, maintains, operates, or otherwise is responsible for. This new BA was prepared under 50 CFR 402.16 (c) and (d), because the maintenance action is being modified beyond that described in the original BA and BO, and new species have been listed in the vicinity of the proposed action add that we have a 5 year review of the BO with the USFWS. The proposed activities include vegetation management and other maintenance in the ROW for both transmission lines and access roads, and outside ROW at substations and communication sites. These activities include the removal of vegetation that may pose a human safety hazard, a fire hazard, or violate requirements of the General Order 95, Western Order 430.1, and the National Electric Safety Code. This is necessary to ensure system reliability and public safety by 1) preserving structural integrity of transmission line towers, 2) allowing access to the tower perimeter or pole for routine maintenance or repairs, and 3) removing a "path to ground" that could cause arcing. Elderberry plants and other woody species are currently growing into the conductors at mid-span resulting in a decrease in safe work areas and a decrease in line reliability. Additionally, these same species are growing into and around the steel towers, weakening and causing inaccessibility, which results in unsafe conditions for Western's maintenance crews and the public.

Consultation History

As mentioned above, the USFWS issued a Programmatic BO to Western covering routine maintenance activities May 27, 1998. Western initially discussed this project with the USFWS in a meeting on November 9, 2000. Western requested a list of endangered, threatened, proposed and candidate species, and critical habitats that may occur in the vicinity of the Sacramento Valley transmission lines on March 15, 2001, May 9, 2001, and again on December 26, 2001. The USFWS provided a response on May 17, 2001, (01-SP-2047) and on January 14, 2002, (02-SP-0582) listing species known to occur in the counties where the transmission line ROW occur. Preparation of the BA began in early July 2001.

Methods

Field surveys were conducted to identify sensitive species and habitats along the entire ROW. The biological surveys were conducted from September 11, through December

10, 2001. Focused surveys to collect detailed data on elderberry plants were conducted in January and February of 2002 (for areas where elderberry plants were identified during the previous surveys) and April 2004 (Cal-Expo area only). Two-person survey teams consisted of a biologist familiar with habitats and the endangered and threatened species in the study area, and a field technician responsible for operation of a handheld data collection device with an attached global positioning system (GPS) receiver. A meandering pedestrian survey of the entire 108 miles of transmission line ROW and legal access roads recorded the locations of a variety of features of biological importance, including:

- vernal pools
- rivers and streams
- wetlands
- habitat of threatened and endangered species

Biological surveys were habitat-based, although significant biological observations were noted. Recorded features were also accompanied by comments regarding habitat conditions and/or problem areas. Before conducting fieldwork, Western collected and examined data on threatened and endangered species that may occur in the project area, including California Natural Diversity Database (CNDDB) records and the USFWS BO (USFWS 1998). The survey methods and timing were discussed in advance with the USFWS to ensure that the data quality would be appropriate to support the BO (Chris Nagano, Ken Fuller, and Justin Lee, personal communication 2001).

These surveys were conducted to identify sensitive habitats for this BA, so Western could mitigate the environmental effects of ROW maintenance activities by avoiding sensitive habitats and resources. However, in certain instances, Western's field survey also identified a sensitive habitat (*Sambucus* spp.) that needs to be removed in order to properly inspect, maintain system reliability, and ensure public and worker safety. Western would conduct periodic follow-up surveys to account for changing conditions along the ROW. The results of the surveys are presented in tabular and graphical format located within this BA and also presented in the Environmental Assessment.

Based on information provided by the USFWS and in-house literature, Western evaluated the effects of the proposed action on the following Federally listed plant and animal species:

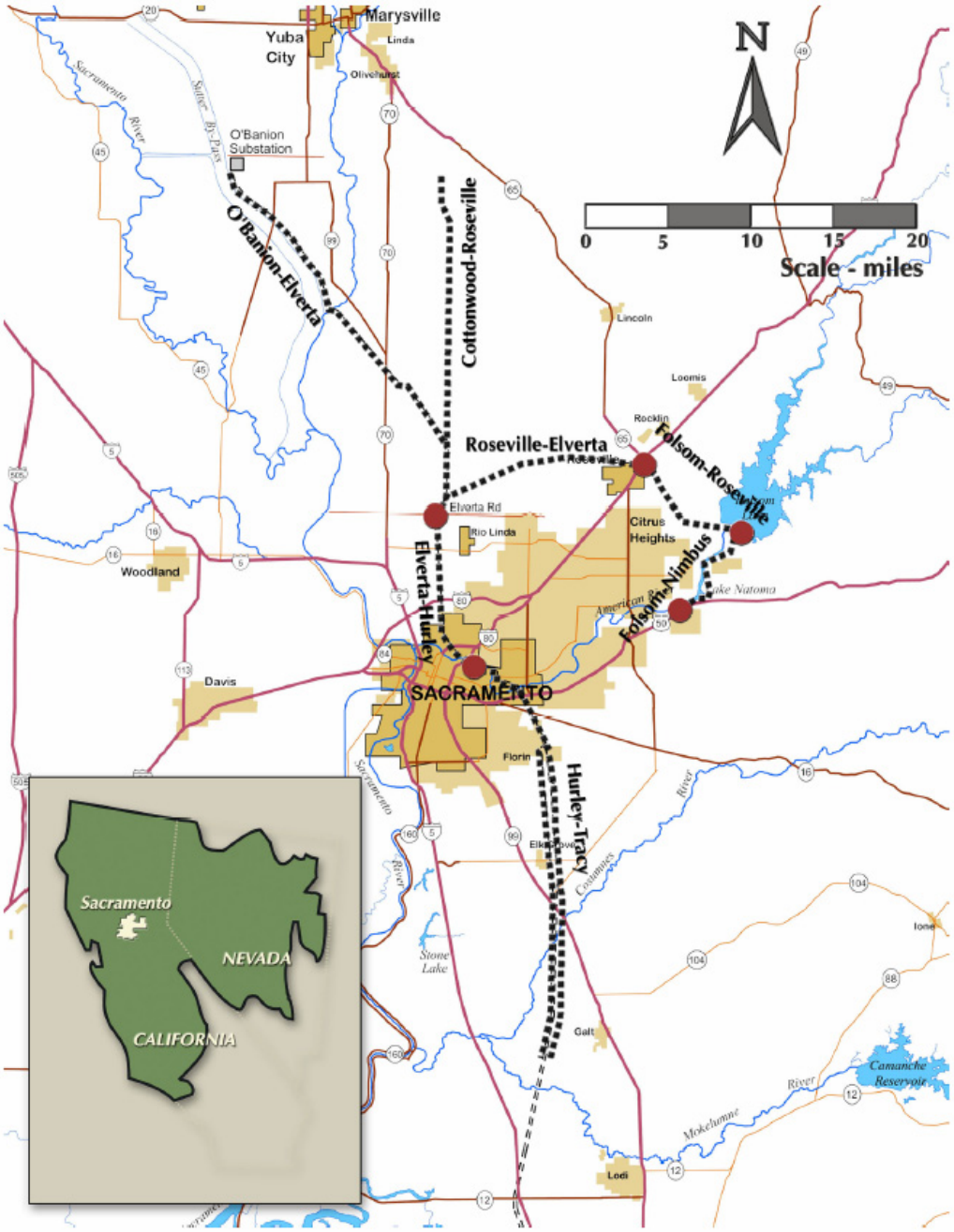

Figure 1. Location of Study Area and Transmission Line ROW

Truckee barberry (*Berberis sonnei*)	Endangered
Antioch Dunes evening-primrose (*Oenothera deltoides howellii*)	Endangered
Slender Orcutt grass (*Orcuttia tenuis*)	Threatened
Sacramento Orcutt grass (*Orcuttia viscida*)	Endangered
Hartweg's golden sunburst (*Pseudobahia bahiifolia*)	Endangered
Vernal pool fairy shrimp (*Branchinecta lynchi*)	Threatened
Conservancy fairy shrimp (*Branchinecta conservatio*)	Endangered
Vernal pool tadpole shrimp (*Lepidurus packardi*)	Endangered
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	Threatened
Designated Critical Habitat for the VELB	
Delta green ground beetle (*Elaphrus viridis*)	Threatened
Delta smelt (*Hypomesus transpacificus*)	Threatened
Winter run Chinook salmon (*Oncorhynchus tshawytscha*)	Endangered
Central Valley spring-run Chinook (*Oncorhynchus tshawytscha*)	Threatened
Central Valley steelhead (*Oncorhynchus mykiss*)	Threatened
Lahontan cutthroat trout (*Oncorhynchus (=Salmo) clarki henshawi*)	Threatened
California red-legged frog (*Rana aurora draytonii*)	Threatened
Giant garter snake (*Thamnophis gigas*)	Threatened
Bald eagle (*Haliaeetus leucocephalis*)	Threatened
Riparian woodrat (*Neotoma fuscipes riparia*)	Endangered
Riparian brush rabbit (*Sylivagus bachmani riparius*)	Endangered
San Joaquin kit fox (*Vulpes macrotis mutica*)	Endangered

Habitats

A majority of the species listed above and discussed below occupy one of two important habitat types. These are wetlands and floodplains. The wetlands of most concern are vernal pools. Floodplains are of concern because any direct effects on floodplains could have both direct and indirect effects on riverine species, primarily fish, and the riparian habitats associated with floodplains.

Wetlands in the project area consist of palustrine emergent wetlands and vernal pools. Palustrine wetlands are marshy areas that are normally inundated most of the year and provide habitat for herptiles and waterfowl, shorebirds, and wading birds. The California red-legged frog and the giant garter snake utilize palustrine wetlands along with other habitat types.

Vernal pools are much more complex in their wet/dry cycle and the flora and fauna that inhabit them. Vernal pools consist of grass or mud-bottomed swales, earth sumps, or basalt flow depression pools in unplowed grasslands (USFWS 1992). They are generally small, seasonally aquatic ecosystems that are inundated in the winter and dry slowly in the spring and summer, making a harsh, unique environment. Cyclical wetting

and drying creates an unusual ecological situation supporting a unique biota. Many plants and animals have evolved to possess such specific characteristics that they cannot live outside these temporary pools (USFWS 1997a).

The Central Valley of California consists of the Sacramento Valley in the north half of the State and the San Joaquin Valley in the south half. Within the Central Valley, vernal pools are found in four physiographic settings, each possessing an impervious soil layer relatively close to the surface. These four settings include high terraces with iron-silicate or volcanic substrates, old alluvial terraces, basin rims with claypan soils, and low valley terraces with silica-carbonate claypans. Due to local topography and various geological populations, vernal pools are usually clustered into complexes.

Pools within a complex typically are separated by a distance of a few to several meters and may form dense, interconnected mosaics of small pools or a sparser scattering of large pools. Vernal pool habitats are found over a limited, discontinuous, fragmented area within the Central Valley (USFWS 1997a). There are 71 vernal pools totaling

16.2 acres occurring along the lines in the proposed action (see Table 1).

Table 1. Vernal pool habitat identified in the project area.

Transmission Line	Number of Vernal Pools	Area (acres)*
Hurley-Tracy	15	0.39
Elverta-Hurley	0	0
Roseville-Elverta/O'Banion-Elverta (segment N of Elverta Substation)	13	0.50
Cottonwood-Roseville (N-S portion N of split with O'Banion-Elverta)	4	0.07
O'Banion-Elverta (NW-SE portion)	2	0.01
Cottonwood-Roseville/Roseville-Elverta (E-W portion adjacent ROW)	31	15.02
Folsom-Roseville	3	0.01
Folsom-Nimbus	3	0.20

*Totals: 71 vernal pools, 16.20 acres. There are 3 pools along the Cottonwood-Roseville/ Roseville-Elverta line (E-W portion) that are approximately 9 acres combined size.

Three invertebrate species (i.e. the vernal pool tadpole shrimp, conservancy fairy shrimp, and vernal pool fairy shrimp) and the Orcutt grasses are restricted to vernal pools. No close associations are known between the invertebrates and the plants. However, any action that would affect vernal pool habitat could adversely affect any or all of these five species.

Riparian habitats are the assemblage of species occurring along a waterway, generally within the floodplain. This habitat is found along all the major watercourses in the project area, including the American, Bear, Butte, Cosumnes, Feather, and Sacramento rivers and their tributaries.

An activity that affects riparian habitat could directly affect not only the plants and animals with the riparian zone but also indirectly affect species in the watercourse. This would include the fish species listed above as well as the valley elderberry longhorn beetle and riparian woodrat and brush rabbit.

The acreages of the different habitats identified along the ROW are shown in Table 2. This table illustrates the diversity of habitats crossed by Western's transmission lines in the Sacramento Valley region.

Table 2. Habitats found in Western's ROW in the Sacramento Valley

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

The following discussion of endangered, threatened, and proposed species is based on the biological surveys and lists provided by the USFWS and those obtained from the CNDDB.

Plants

The Truckee barberry is known only from the Truckee River and does not occur in the vicinity of the proposed action.

The Antioch Dunes evening primrose is known only from Antioch Dunes National Wildlife Refuge and the Brannan State Recreation Area. Western's transmission lines do not cross either of these two areas.

Both Slender Orcutt grass and Sacramento Orcutt grass were listed as Threatened and Endangered, respectively, March 26, 1997. Both are found in vernal pool habitat, although slender Orcutt grass has a wider and more northerly distribution. Both have been collected in Sacramento County. Reason for decline of both species is loss of habitat. As noted in Table 1, several of the ROW in the project area contain vernal pools. A biological survey conducted in late 2001 and a CNDDB query indicated that Orcutt grasses are not present in Western's ROW.

Hartweg's golden sunburst was listed as Endangered February 6, 1997. It may have existed throughout the Central Valley of California from Yuba County in the north to Fresno County in the south (USFWS 1997b). The plant presently occurs only in the eastern San Joaquin Valley in Stanislaus, Madera, and Fresno Counties. The plant occurs on "Mima mounds," which are sometimes associated with vernal pool complexes.

Conversion of native habitat to residential development is the primary threat of this sunburst. To a lesser degree, agricultural development, competition from aggressive exotic plants, incompatible grazing practices, mining, and other human impacts threaten the species (USFWS 1997b). Hartweg's golden sunburst has not been identified nor is expected in the project area.

Invertebrates

The Conservancy fairy shrimp inhabits vernal pools with highly turbid water. The species is known from six disjunct populations in Tehama County, Solano County, Glenn County, Merced County, and northern Ventura County (USFWS 1994). The pools inhabited by the Conservancy fairy shrimp are large, such as the 89-acre Olcott Lake at Jepson Prairie (Eng, pers. comm., 1990 in USFWS 1994). The pools inhabited by this animal have very low conductivity, total dissolved solids, and alkalinity (USFWS 1994).

The majority of known populations of vernal pool fairy shrimp inhabit vernal pools with clear to tea-colored water, most commonly in grass or mud bottomed swales, or basalt flow depression pools in unplowed grasslands, but one population occurs in sandstone rock outcrops and another population in alkaline vernal pools. Populations of the vernal pool fairy shrimp extend from Stillwater Plain in Shasta County through most of the length of the Central Valley to Pixley in Tulare County, The water in pools inhabited by this species has low total dissolved solids, conductivity, alkalinity, and chloride (USFWS 1994).

The vernal pool tadpole shrimp is known from 18 populations in the Central Valley. These range from east of Redding in Shasta County through the Central Valley to the San Luis National Wildlife Refuge in Merced County. The vernal pool tadpole shrimp inhabits vernal pools containing clear to highly turbid water. These pools are located most commonly in grass bottomed swales of grasslands in old alluvial soils underlain by hardpan or in mud-bottomed pools containing highly turbid water. They range in size

from 54 square feet (0.001 acre) in Sacramento County, to 89 acres at Jepson Prairie. The pools tend to have a very low conductivity, TDS, and alkalinity (USFWS 1994).

Reasons for decline of the vernal pool species include urban, water, flood control, highway, and utility projects, as well as conversion of wildlands to agricultural use. Changes in hydrologic pattern, overgrazing and off-road vehicle use also imperil this aquatic habitat and the four species listed here. Human activities that alter the watershed of vernal pools indirectly affect these animals. Other human activities that reduce the extent of the watershed or that alter runoff patterns (i.e., amounts and seasonal distribution) may eliminate the animals, reduce their population sizes or reproductive success, or shift the location of sites inhabited by these animals.

The eggs and cysts of all these species can withstand heat, cold, and prolonged desiccation. However, any impacts to vernal pools would adversely affect the fairy shrimp and tadpole shrimp. This includes maintenance activities during both wet periods and dry periods.

The Valley elderberry longhorn beetle (VELB) (*Desmocerus californicus dimorphus*), a Federally listed threatened species, is restricted to elderberry (Sambucus spp.) bushes for most of its life cycle (USFWS 1984). The elderberry bush is found in riparian, elderberry savanna, and upland areas. Western conducted surveys of the ROW in the project area and found 14 acres of elderberry savanna. Additionally, there were 130 acres of riparian habitat crossed through the ROW. Within the project area, 422 stems greater than 1 inch in diameter are proposed for removal. These are stems within 40 feet of the center of lattice towers (approximately 20 feet from tower legs or pole structures).

The main reason for decline of the beetle is loss of habitat. Removal of any elderberry shrubs would affect the beetle. Western proposes that all elderberry (Sambucus) and vegetation be manually removed within 40 feet of lattice tower centers and within 20 feet of poles using manual and mechanical methods. Stumps of removed elderberry and vegetation would then be spot treated with a herbicide to prevent root sprouting. The proposed action would result in adverse impacts to VELB habitat namely through the manual removal of elderberry plants.

Critical Habitat for the Valley elderberry longhorn beetle has been mapped in Sacramento County; however, Western's ROW are outside these Critical Habitats.

The Delta green ground beetle is another species dependent on vernal pools. It is known only from vernal pool habitat in Solano County (Lowe et al. 1990). Any actions that affect the vernal pools utilized by this beetle would affect it. None of the ROW in the proposed action are located close to the known locations of the beetle.

Fish

The National Marine Fisheries Service (NMFS) listed winter-run Chinook salmon as endangered species January 4, 1994. NMFS has placed Chinook salmon in

Evolutionarily Significant Units (ESU) because the species spawns and migrates in different seasons. The winter-run Chinook spawn in the upper Sacramento River after spending approximately 3 years in the Pacific Ocean. The distribution of the winter-run Chinook has been dramatically reduced, and Critical Habitat has been designated for this ESU of the species.

Central Valley spring-run Chinook was listed as a threatened species September 16, 1999. This ESU suffers from the same problems as other Pacific salmonids (NMFS 2001). Critical Habitat for the spring-run Chinook was designated February 16, 2000, and includes all river reaches accessible to Chinook in the Sacramento River and its tributaries.

The Central Valley steelhead was listed as a threatened species March 19, 1998. The steelhead is an anadromous species, which migrate to sea as juveniles and return to inland waterways as 2- to 4-year olds to spawn (NMFS 2001). The various strains can be found as adults in fresh water every month of the year. Spawning occurs in the Sacramento River Basin from December through April. Juvenile steelhead emigrate downstream from November to May.

The Central Valley fall/late fall run Chinook salmon ESU was proposed for listing as threatened, but NMFS determined that the listing was not warranted (NMFS 2001).

Lahontan cutthroat trout was listed as a Threatened species in 1975. It is known only from the Humboldt, Truckee, Carson, and Walker rivers in California and Nevada. It was stocked in California Lakes from Inyo County to Modaoc County and may still be present in Granite Lake in Trinity County (McAfee 1966). It does not occur in the project area. The proposed action will not affect this subspecies of cutthroat trout.

The delta smelt was listed as a Threatened species March 5, 1993. It is restricted to the Sacramento-San Joaquin Estuary. Reasons for their decline include habitat modification, including quality and quantity of water and prey base, toxic materials, disease and competition and predation by non-native species. There will be no direct or indirect effects of the proposed action on the delta smelt because the range of the delta smelt does not extend into the project area.

Water development projects, poor water quality, and agricultural activities have adversely affected all of the fish species. Introduction of non-native predators and/or competitors has also had deleterious effects. Any increase in sedimentation and silt load or decrease in water quality would adversely affect the fish species.

Amphibians

The California red-legged frog was listed as a threatened species on June 24, 1996, (USFWS 1996). Critical Habitat was determined for the species March 13, 2001. The frog inhabits areas containing ponds and permanent pools in streams and marshes with emergent vegetation from near sea level to approximately 8,000 feet elevation. It occurs throughout the Coast Ranges and the Sierra Nevada, from near the Oregon border to northern Baja, California, but is thought to be most prevalent in the lower

foothills and lowlands. The red-legged frog feeds on aquatic and terrestrial insects, crustaceans, snails, worms, fish, tadpoles, and smaller frogs along highly vegetated shorelines (Zeiner, et al., 1988). The red-legged frog breeds from January to March and tadpoles transform from May to August (Wright and Wright 1949).

During the non-breeding season, frogs can move over long distances foraging in farm fields and along riparian corridors. The Draft Recovery Plan for the California Red-legged Frog (USFWS 2000a) has designated habitat that is important to the recovery of the red-legged frog (core habitat) in the foothills east and west of the Sacramento River Valley. Western's transmission lines or ROW do not cross any of the core areas. Currently, there are no known occurrences of the California red-legged frog in the project area.

Threats to the frog include habitat loss and degradation through agricultural activities, urbanization, recreation, predation and/or competition from non-native species, disease, water management projects and declining water quality (USFWS 2000a). The draft Recovery Plan also identifies a hazard associated with herbicides. Apparently the surfactants in certain glyphosate herbicides (e.g. Roundup) have "severe negative effects" on amphibians (USFWS 2000a). Any habitat loss or degradation of water quality or quantity would adversely affect the red-legged frog.

Reptiles

The giant garter snake was listed as an endangered species on October 20, 1993, (USFWS 1993b). The species is endemic to Central Valley wetlands and inhabits natural and manmade habitats. It feeds on small fish and amphibians. The giant garter snake requires a mix of cover types, such as adequate water during the early-spring through late-fall active period; emergent wetland vegetation for escape and feeding cover; grassy banks and openings for resting or basking cover; and uplands to escape flooding. It moves to small animal burrows and soil crevices during its winter dormancy.

The giant garter snake has been and continues to be threatened by human activities, including some agricultural practices, loss of habitat to development, stream channelization, recreational activities, increased predation by nonnative species, and water management practices.

There are habitat components for the giant garter snake in the project area (see Table 2). These consist mostly of the agricultural fields (e.g. rice fields) and irrigation ditches and canals. These areas seldom need ROW maintenance and access roadwork.

Birds

The bald eagle was listed as an endangered species in California in March 1967 (USFWS 1967). The main reasons for decline included direct mortality, such as shootings, and poisonings and indirect mortality such as electrocutions and incidental pesticide accumulations. The bald eagle ranges across North America (Finch 1992) and feeds on fish, waterfowl, small mammals, and carrion. Eagle populations have recovered enough so that the species was downlisted to Threatened. The bald eagle

may be removed from the endangered and threatened species list in the near future; however, it will still be protected by the Eagle Protection and Migratory Bird Treaty acts. The eagle is not known to nest or roost in the vicinity of Western's lines but may move overhead as it hunts the various rivers, canals, and aqueducts in the Sacramento Valley. There will be no increase in overhead lines or the presence of improper spacing of electrified wires to adversely affect bald eagles.

Mammals

The riparian woodrat and riparian brush rabbit were listed as endangered species February 23, 2000, (USFWS 2000b). Both species probably ranged throughout the riparian habitats in the Sacramento River valley in historic times. There was only one population of each of the subspecies known at the time of listing. Both were in the Stanislaus River at the Park on the border of San Joaquin and Stanislaus counties, northwest of Modesto. In addition to this isolation, other threats to these two subspecies include wildfire, disease, predation, competition and human-caused loss or fragmentation of habitat. Naturally occurring events, such as flood or drought could also be devastating to these subspecies. There is only one known location for these subspecies and Western has no facilities in the vicinity. The proposed action would not be directly or indirectly affected by it.

The San Joaquin kit fox was listed as endangered March 11, 1967, (Lowe et al. 1990). It historically ranged south of the project area. No kit foxes have been observed in the project area. The San Joaquin kit fox lives in native grassland and desert shrubs and feeds on small mammals, primarily rodents, ground nesting birds, and insects (USFWS 1998). Habitat modification, hunting, pesticides, poisoning, trapping, and road kills have reduced this formerly abundant species. The project does not provide suitable habitat for the kit fox and very little of the project area is in the range of this species.

Reasons for decline of the kit fox include loss of denning and foraging habitat and predation and competition by other canids. Loss of denning or foraging habitat would adversely affect the kit fox.

Effects of the Proposed Action

Impacts to the species under discussion can be direct (an immediate affect to an individual, population, or its habitat), or indirect (an affect that may occur over time or result from other actions). Additionally, cumulative impacts may effect some of the species. For purposes of this BA, cumulative effects will use the definition in the regulations at 50 CFR 402.02. That is, " ...those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation."

Mitigation

Worker Training

Western will conduct environmental awareness training for all maintenance crews annually to make them aware of the terms and conditions of the BO. Additionally, when maintenance crews are scheduled to work in sensitive areas, a "job hazard analysis" will be held as part of a tailgate session on the day the work is scheduled. This analysis will point out the sensitive resources that may be encountered and the requirements of the BO in dealing with those issues.

Vernal Pool Species

Within the Sacramento Valley, the transmission line ROW are as small as 112.5 feet in width; access road ROW are 30 feet in width. Because of these narrow ROW, complete avoidance of vernal pools is not possible. Western proposes method-dependent vernal pool buffer zones that will protect pool habitats while allowing Western access to towers and ROW, and the ability to perform necessary maintenance. These buffer zones are presented in Table 3.

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

Buffer and Other Considerations		Method	Example Equipment [c]	Technique/Activity [c]	Applications [c]
Dry Season [a]	Wet Season [b]				
Vegetation Maintenance (Transmission Line and Access Road ROW)					
None	To pool edge	Manual	Chainsaw, clipper, axe	Trimming, removal, disposal	Selective vegetation removal
None	100 ft	Mechanical	Heavy-duty mowers (brush-hog, Hydro-Ax), crawler tractors, chippers	Mowing, removal, disposal	Temporary control of thick stands of vegetation
To pool edge	25 ft	Herbicides	Hand-held applicator	Cut-stump	Control of woody vegetation
100 ft	100 ft	Herbicides	Hand sprayers, power sprayers, herbicide appropriate for technique and application	Spot, localized	Spot treatments where selective elimination of species is desirable. Localized treatment on ROW with low-to-medium target plant density.
150 ft	150 ft	Herbicides	Vehicle with boom	Broadcast	Treating large/dense areas of ROW vegetation, especially where access by truck is readily available.
Access Road Maintenance					
To pool edge. Erect silt fences for work within 25 ft. Do not deposit material within 250 ft upslope of pool.	50 ft. Silt fences or similar means of runoff control will be used if runoff from ground-disturbing activities could reach vernal pool. Construction would apply concepts stated in the U.S. Forest Service	Repairing	Bulldozer, caterpillar (tracked vehicle), dump truck, backhoe	Specific to type of repair	Specific to type of repair
		Grading	Bulldozer, caterpillar	Removal and leveling of upper levels of soil profile	Used to construct or repair road surface
		Filling	Dump truck	Delivery of gravel, rock, or soil to fill depressions	Filling of depressions during initial or reconstruction of road
		Cleaning water crossings	Backhoe, dump truck	Removal of debris from culverts and ditches	To maintain optimal efficiency of water diversions to prevent washouts and erosion
		Repair or construction of water bars	Backhoe, dump truck, bulldozer	Grading and shaping of soil to construct/repair a berm to control erosion	Direct water off road surface to prevent washouts or erosion

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

Buffer and Other Considerations		Method	Example Equipment [c]	Technique/Activity [c]	Applications [c]
Dry Season [a]	Wet Season [b]				
	Publication *Forest Roads: A Synthesis Of Scientific Information* (June 2000).	Repair or construction of v-shaped ditches	Backhoe	Construction of ditches to allow drainage	Direct water off road surface to prevent washouts or erosion
		Construction or replacement of culverts	Backhoe, truck, trailers	Installation of pipe culvert under across road	Used whenever drainages or streams are of sufficient size
Transmission Line Maintenance					
None	50 ft. No buffer for travel on established roads and legal access roads.	Patrols (ground)	Pickup truck	Detailed observation of entire transmission system performed on semi-annual basis	Check access to towers/poles, tree clearances, fences, gates, locks, and tower hardware
		Inspection (climbing)	Pickup truck, bucket truck	Detailed observation of system hardware performed on 20 percent of structures each year	Identify deterioration of hardware not detected in aerial or ground inspections
None for non-ground disturb-ing activities. 25 ft for ground disturb-ing activities.	50 ft. Silt fences or similar means of runoff control will be used if runoff from ground-disturbing activities could reach vernal pool.	Repairs and preventative maintenance	Pickup truck, bulldozer, caterpillar, backhoe, bucket truck, hand tools	Based on needs identified during inspections or other reports, replace insulators; tighten, replace, or repair towers/poles or hardware; look for ROW encroachments	Performed wherever damage or deterioration of transmission lines or facilities poses a threat to safety or reliability

Valley Elderberry Longhorn Beetle

As stated above, within the project area, 422 stems greater than 1 inch in diameter are proposed for removal. These are stems within 40 feet of the center of lattice towers (approximately 20 feet from tower legs or pole structures). Table 4 summarizes the number of stems to be removed and mitigation according to 1999 Conservation Guidelines (USFWS 1999). Table 4 provides both "transplant" and "no transplant" scenarios. Because of concern for safety in working with equipment near transmission lines and the structural integrity of towers, Western may not be able to transplant elderberry shrubs, and therefore be required to double mitigation. Western would evaluate each shrub at the time of removal to determine whether transplant is feasible. The two scenarios shown in Table 4 should be therefore regarded as minimum and

maximum estimates of mitigation for a one-time elderberry removal along Western's transmission lines in the Sacramento Valley. In addition, Western proposes mitigation to cover incidental take of up to 10 elderberry shrub clusters per year as well as trimming elderberry above the 10-foot level. Western proposes an additional 5 acres for this mitigation over the term of the BO.

Table 4. Summary of Stems to be Removed and Mitigation according to 1999 Conservation Guidelines

Transplant	Riparian						Non-Riparian		
	Exit Holes			No Exit Holes			No Exit Holes		
Stem Size	*Count*	*Multiplier*	*Mitigation*	*Count*	*Multiplier*	*Mitigation*	*Count*	*Multiplier*	*Mitigation*
1"-3"	107	4	428	141	2	282	6	1	6
>3" to <5"	80	6	480	40	3	120	3	2	6
5" and greater	40	8	320	5	4	20	0	3	0
Totals			1228			422			12
						Total Elderberry Mitigation Stems			1662
						Total Elderberry Mitigation Units			332
						Total Elderberry Mitigation Acres			13.7

No Transplant	Riparian						Non-Riparian		
	Exit Holes			No Exit Holes			No Exit Holes		
Stem Size	*Count*	*Multiplier*	*Mitigation*	*Count*	*Multiplier*	*Mitigation*	*Count*	*Multiplier*	*Mitigation*
1"-3"	107	8	856	141	4	564	6	2	12
>3" to <5"	80	12	960	40	6	240	3	4	12
5" and greater	40	16	640	5	8	40	0	6	0
Totals			2456			844			24
						Total Elderberry Mitigation Stems			3324
						Total Elderberry Mitigation Units			665
						Total Elderberry Mitigation Acres			27.5

Western would use one of the following means to perform mitigation for the one-time elderberry removal under the proposed action, in addition to incidental take and trimming of elderberry plants that may be necessary over the period covered by a new BO:

- Contract with government entity for habitat restoration, management, or improvement;
- Contract with private entity for habitat restoration, management, improvement, or protection;
- Contract with mitigation bank to create new habitat; or
- Other mitigation method subject to USFWS approval.

Any method used would require approval by the USFWS. Western may elect to provide incremental funding for mitigation over a period not to exceed four years.

Fish

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

Amphibians

The buffer zones and worker training discussed above would minimize adverse effects on the red-legged frog. Additionally, the project area does not include the foothill streams and ponds that make up the core habitat of the frog.

Reptiles

Worker training discussed above and seasonal timing of routine maintenance activities would also help minimize impacts to the garter snake.

Birds

Western does not anticipate any mitigation directed toward the birds. No new lines are being constructed and no adverse effects are expected. Where applicable, Western would observe timing restrictions for compliance with the Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act if active nests are observed or identified.

Mammals

The San Joaquin kit fox is not present in the project area, and Western does not anticipate any mitigation other than awareness training for maintenance crews. The riparian woodrat and brush rabbit are not known to occur in the project area. If they occur, the 100-foot buffer would mitigate adverse effects on both of these species.

Effects on Species

The proposed action would not affect the Truckee barberry, the Antioch Dunes evening primrose, or Hartweg's golden sunburst. These plants are not known from the project area, and there was no evidence of them found during biological surveys.

The two Orcutt grass species may occur in vernal pools in the ROW. Mitigation described for vernal pools would minimize adverse effects on these two grasses.

Conservancy fairy shrimp, vernal pool fairy shrimp and vernal pool tadpole shrimp are not known to occur in the vernal pools in the ROW. Mitigation described for vernal pools would minimize adverse affects on these species.

The Delta green ground beetle does not occur in the project area and would not be affected by the proposed action.

There would be a loss of valley elderberry beetle habitat as a result of the proposed action. The field surveys found that the number of stems within 40 feet of the center of lattice towers and within 20 feet of poles that would have to be removed for worker safety and line reliability would total about 422. This would result to not likely to adversely effect the beetle finding.

By implementing restrictions on activities within 100-foot buffer zones at all river and stream crossings as stated above, the fish species would not be affected by the proposed action.

Although there is no indication the California red-legged frog is present in any of the ROW in the proposed action there is suitable habitat present. The frog may move through the project area during seasonal forays. There is a possibility that the frog may encounter vehicular traffic.

The giant garter snake has some habitat components in the project area. Nearly all of the maintenance activities would occur during the "active season" of the giant garter snake. Additionally, the garter snake habitat does not typically require a great deal of maintenance activity. However, there is a possibility that vehicular traffic would encounter a garter snake, resulting in a loss.

The bald eagle would not be affected by the proposed action.

The San Joaquin kit fox is not likely to occur in the project area and would not be affected.

The riparian woodrat and brush rabbit are not known to occur in the project area and would not be affected.

Cumulative Effects

Residential development and water development projects would have an effect on most of the species discussed above. Other entities need to maintain their ROW, whether they are electric, communication, gas, water, or transportation. Most new power plants would have a Federal permit requirement, either air, water, or an interconnection request with Western. The California Energy Commission also requires consultation with the USFWS as well as the California Department of Fish and Game.

Western's Determination

Western has determined the proposed ROW maintenance activities would not affect the Truckee barberry, Antioch Dunes evening primrose, Hartweg's golden sunburst, slender Orcutt grass, Sacramento Orcutt grass, Conservancy fairy shrimp, vernal pool fairy shrimp, vernal pool tadpole shrimp, Delta green ground beetle, any of the fish species, bald eagle, San Joaquin kit fox, riparian woodrat, or the riparian brush rabbit.

Western determined, based on the lack of physical evidence, historical record of their presence, and proposed routine maintenance activities, Western's routine maintenance activities may affect but is not likely to adversely affect the red-legged frog.

Western has determined the proposed routine maintenance activities are not likely to adversely affect the valley elderberry longhorn beetle.

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United States Department of the Interior

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In Reply Refer To:
1-1-03-F-0107

James D. Keselberg
Western Area Power Administration
Department of Energy
114 Parkshore Drive
Folsom, California 95630-4710

Dear Mr. Keselberg:

Subject: Formal Consultation on the Operation and Maintenance of the Western Area Power Administration's Sacramento Valley Rights of Way Maintenance Project, Sacramento County, California

This is in response to your May 27, 2002 request to reinitiate formal consultation with the U.S. Fish and Wildlife Service (Service) on the Western Area Power Administration (Western) Right-of-Way (ROW) Maintenance in the Sacramento Valley, California. Your request was received in our office on May 28, 2002. This consultation is tiered under the May 27, 1998 *Formal Programmatic Consultation on the Operations and Maintenance Activities of the Western Area Power Administration* (1998 Programmatic) (Service File No. 1-1-97-F-140). The proposed action covers only a portion of the 1998 Programmatic project area, and includes portions of Sacramento, Sutter, and Placer counties.

This document represents the Service's biological opinion on the effects of the proposed action on the endangered vernal pool tadpole shrimp (*Lepidurus packardi*) (tadpole shrimp), threatened vernal pool fairy shrimp (*Branchinecta lynchi*) (fairy shrimp), and the threatened valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) (beetle), in accordance with section 7 of the Endangered Species Act of 1973, as amended (Act). The proposed project is not located within areas designated as critical habitat for the beetle or vernal pool tadpole shrimp and vernal pool fairy shrimp; therefore no designated or proposed critical habitat for the species will be adversely modified or destroyed.

The findings and recommendations in this consultation are based on: (1) the May 2002 *Draft Environmental Assessment for Right-of Way Maintenance in the Sacramento Valley, California* (DEA); (2) the May 27, 1998 *Formal Programmatic Consultation on the Operations and Maintenance Activities of the Western Area Power Administration* (1998 Programmatic) (Service File No. 1-1-97-F-140); (3) the June 14, 2002 *Request for Amendment of the Programmatic Consultation on the Operations and Maintenance Activities of the Western Area Power*

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Administration (2002 Amendment) (Service File No. 1-1-02-F-0199); (4) site visits by the Service on March 9, 2004 and September 7, 2004; (5) a July 26, 2004 letter and revised biological assessment from Western; (6) a January 5, 2004 letter from Western revising the proposed compensation; (7) a February 22, 2005 telephone conversation and subsequent March 1, 2005 electronic message from Western to the Service regarding the list of routine maintenance activities; (8) a March 23, 2005 electronic message from Western to the Service providing additional information on the project description proposal; and (9) other sources of information available to the Service.

Western proposes specific conservation measures (Table 2) based on the type of maintenance activity in order to avoid adverse affects to vernal pool fairy shrimp and vernal pool tadpole shrimp that inhabit vernal pools within the project area. Based on the implementation of these avoidance measures, we have determined that the project is not likely to adversely affect the vernal pool fairy shrimp and vernal pool tadpole shrimp.

Except as amended in the following biological opinion, the project description and all associated terms and conditions under the 1998 Programmatic and the June 14, 2002 Amendment (1-1-02-F-0199) remain the same. The 1998 Programmatic continues to apply to any species not addressed in this biological opinion.

Consultation History

January 22, 2003. The Service met with Western to discuss the scope of proposed action.

September 4, 2003. The Service met with Western to discuss appropriate minimization measures for the beetle and vernal pool species.

February 5, 2004. The Service met with Western to discuss appropriate minimization measures for the beetle and for vernal pool species.

March 9, 2004. A site visit was conducted by Doug Hampton of the Service and Steve Tuggle of Western.

April 27, 2004. The Service met with Western to discuss appropriate avoidance measures of vernal pool buffers and appropriate compensation for adverse effects to the beetle.

July 27, 2004. The Service received a revised Biological Assessment, modifying the project description and associated conservation measures.

September 7, 2004. A site visit to review the location and conditions of the proposed conservation area was conducted with Roberta Gerson of the Service, Steve Tuggle and realty representatives of WAPA, and Trevor Burwell of the Sacramento County Parks Department.

December 8, 2004. The Service met with representatives of the Sacramento County Parks Department and the Sacramento Area Flood Control Agency to discuss the whether appropriate

compensation could be administered through a Memorandum of Agreement for the long-term conservation of beetle habitat in the American River Parkway, Sacramento County, California.

January 6, 2005. The Service received a revision of proposed compensation for the adverse effects of the project on the valley elderberry longhorn beetle.

January 19, 2005. The Service received further clarification of proposed compensation for the adverse effects of the project on the valley elderberry longhorn beetle.

March 1, 2005. The Service received a revision of the proposed project description, describing routine maintenance activities.

March 23, 2005. The Service received additional information on the revision of the proposed project description.

BIOLOGICAL OPINION

Description of the Proposed Action

Western proposes to modify the actions of their maintenance activities on its rights-of-way (ROW) in the Sacramento Valley in Placer, Sacramento, and Sutter counties, California, subsequent to the originally proposed activities that were addressed in the 1998 Programmatic and 2002 Amendment opinions. The seven affected transmission lines and associated access road ROWs and substations (Attachment 1) are either owned, operated, or maintained by Western.

Since the issuance of the 1998 Programmatic and the 2002 Amendment, a large number of elderberry (*Sambucus* species) plants growing around the footings of the transmission line towers are compromising the structural integrity of the towers. Elderberry plants growing underneath the transmission lines have attained heights that create a risk of electrical arcing from the power lines to the plants, presenting a fire hazard. In addition, vernal pools have been identified within the ROW corridor of maintenance. Western's operation and maintenance activities may include, but are not limited to the following:

Vegetation maintenance (transmission line and access road ROWs). Vegetation maintenance ensures that vegetation does not interfere with transmission line conductors, towers, or other hardware, system reliability, or impede access to the transmission line for maintenance crews. Maintenance will include the use of manual (hand-controlled, powered or non-powered tools such as chainsaws and clippers), mechanical (such as heavy-duty mowers and graders), and herbicidal (used either to kill vegetation or retard growth) methods.

Herbicide application methods include spot treatments, localized spraying, and the use of trucks with booms for broadcast area treatments. No aerial treatment will occur. Spot treatments will be used where selective elimination of species is desirable. Localized treatments will be applied in ROWs with low-to-medium target plant density. Broadcast treatments will be applied in

ROWs with large, dense areas of vegetation, especially where truck access is possible. Some of those areas manually or mechanically cut will receive follow-up localized herbicide treatments for vegetation types that tend to re-sprout, including re-sprouting of elderberry shrubs removed from the tower footings. Noxious weeds will be treated with localized herbicide applications, with some broadcast application being used in order to promote the establishment of a low-growing vegetation community along transmission line ROWs that will, over time, require less treatments and fewer re-entries to maintain.

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

Transmission lines and associated structures, hardware, and equipment maintenance. Activities include routine aerial and ground patrols of transmission lines and ROWs, installation, maintenance, and replacement of hardware, groundwire, and bird guards, placing rocks or fill around existing culverts, existing towers, or existing structures, excavation and construction of new tower footings on existing towers, installation of microwave equipment and associated fencing and gates at existing towers, installation of fiber optic cables, underground water, power, solar power equipment, communication or ground electrical line, and line and tower repairs.

Vernal pool fairy shrimp and vernal pool tadpole shrimp
Vernal pool fairy shrimp and vernal pool tadpole shrimp and their vernal pool habitat occur on the project site. A total of 71 vernal pools totaling 16.2 acres occur within the ROW of the transmission lines (Table 1).

Table 1. Vernal pool habitat identified in the project area.

Transmission Line	Number of Vernal Pools	Area (acres)*
Hurley-Tracy	15	0.39
Elverta-Hurley	0	0
Roseville-Elverta/O'Banion-Elverta (segment N of Elverta Substation)	13	0.50
Cottonwood-Roseville (N-S portion N of split with O'Banion-Elverta)	4	0.07
O'Banion-Elverta (NW-SE portion)	2	0.01
Cottonwood-Roseville/Roseville-Elverta (E-W portion adjacent ROW)	31	15.02
Folsom-Roseville	3	0.01
Folsom-Nimbus	3	0.20
Total	71	16.20

*There are 3 pools along the Cottonwood-Roseville/ Roseville-Elverta line (E-W portion) that are approximately 9 acres combined size.

Proposed Conservation Measures for vernal pool fairy shrimp and vernal pool tadpole shrimp
Within the Sacramento Valley, transmission line ROWs are as small as 100 feet in width; access road ROWs are 30 feet in width. Western proposes method-dependent vernal pool buffer zones to protect fairy shrimp and tadpole shrimp and their habitats while allowing Western access to towers and ROWs to perform necessary maintenance.

Table 2. Vernal Pool Buffer Zones for Right-of-Way Maintenance Methods, Equipment, Techniques/Activities, and Applications

Buffer and Other Considerations		Method	Example Equipment	Technique/Activity	Applications
Dry Season	Wet Season				
Vegetation Maintenance (Transmission Line and Access Road ROW)					
None	To pool edge	Manual	Chainsaw, clipper, axe	Trimming, removal, disposal	Selective vegetation removal
None	100 ft	Mechanical	Heavy-duty mowers (brush-hog, Hydro-Ax), crawler tractors, chippers	Mowing, removal, disposal	Temporary control of thick stands of vegetation
To pool edge	25 ft	Herbicides	Hand-held applicator	Cut-stump	Control of woody vegetation
100 ft	100 ft	Herbicides	Hand sprayers, power sprayers, herbicide appropriate for technique and application	Spot, localized	Spot treatments where selective elimination of species is desirable. Localized treatment on ROW with low-to-medium target plant density.
150 ft	150 ft	Herbicides	Vehicle with boom	Broadcast	Treating large/dense areas of ROW vegetation, especially where access by truck is readily available.
Access Road Maintenance					
To pool edge. Erect silt	50 ft. Silt fences or similar means	Repairing	Bulldozer, caterpillar (tracked vehicle), dump truck, backhoe	Specific to type of repair	Specific to type of repair

Table 2. Vernal Pool Buffer Zones for Right-of-Way Maintenance Methods, Equipment, Techniques/Activities, and Applications

Buffer and Other Considerations		Method	Example Equipment	Technique/Activity	Applications
Dry Season	Wet Season				
fences for work within 25 ft. Do not deposit material within 250 ft upslope of pool.	of runoff control will be used if runoff from ground-disturbing activities could reach vernal pool. Construction would apply concepts stated in the U.S. Forest Service Publication *Forest Roads: A Synthesis Of Scientific Information* (June 2000).	Grading	Bulldozer, caterpillar	Removal and leveling of upper levels of soil profile	Used to construct or repair road surface
		Filling	Dump truck	Delivery of gravel, rock, or soil to fill depressions	Filling of depressions during initial or reconstruction of road
		Cleaning water crossings	Backhoe, dump truck	Removal of debris from culverts and ditches	To maintain optimal efficiency of water diversions to prevent washouts and erosion
		Repair or construction of water bars	Backhoe, dump truck, bulldozer	Grading and shaping of soil to construct/repair a berm to control erosion	Direct water off road surface to prevent washouts or erosion
		Repair or construction of v-shaped ditches	Backhoe	Construction of ditches to allow drainage	Direct water off road surface to prevent washouts or erosion
		Construction or replacement of culverts	Backhoe, truck, trailers	Installation of pipe culvert under across road	Used whenever drainages or streams are of sufficient size
Transmission Line Maintenance					
None	50 ft. No buffer for travel on established roads and legal access roads.	Patrols (ground)	Pickup truck	Detailed observation of entire transmission system performed on semi-annual basis	Check access to towers/poles, tree clearances, fences, gates, locks, and tower hardware
		Inspection (climbing)	Pickup truck, bucket truck	Detailed observation of system hardware performed on 20 percent of structures each year	Identify deterioration of hardware not detected in aerial or ground inspections

Table 2. Vernal Pool Buffer Zones for Right-of-Way Maintenance Methods, Equipment, Techniques/Activities, and Applications

Buffer and Other Considerations		Method	Example Equipment	Technique/Activity	Applications
Dry Season	Wet Season				
None for non-ground disturbing activities. 25 ft for ground disturbing activities.	50 ft. Silt fences or similar means of runoff control will be used if runoff from ground-disturbing activities could reach vernal pool.	Repairs and preventative maintenance	Pickup truck, bulldozer, caterpillar, backhoe, bucket truck, hand tools	Based on needs identified during inspections or other reports, replace insulators; tighten, replace, or repair towers/poles or hardware; look for ROW encroachments	Performed wherever damage or deterioration of transmission lines or facilities poses a threat to safety or reliability
250 ft.	250 ft.	Underground water, power, communication, solar, or ground electrical line	Pickup truck, bulldozer, caterpillar, backhoe, bucket truck, hand tools	Based on needs identified during inspections or other reports, install, replace, or repair underground components related to transmission lines or substations	Performed wherever damage or deterioration of underground components poses a threat to safety or reliability, or where new components are necessary for optimal system operation and safety
250 ft.	250 ft.	Soil borings from surface to 100 feet deep	Pickup truck, mobile drill rig (rubber-tired truck with outriggers), van for sample management	Direct-push or auger drilling with sample recovery	Subsurface soil recovery for geotechnical or environmental analyses

Valley Elderberry Longhorn Beetle

The valley elderberry longhorn beetle and its elderberry habitat occur in the action area. Elderberry shrubs totaling 422 stems greater than 1 inch in diameter are proposed for removal (Table 3). These are stems within 40 feet of the center of lattice towers (approximately 20 feet from tower legs or pole structures). Thus, the number of elderberry plants that require removal or trimming to reduce these risks to an acceptable level will exceed incidental take of ten plants or plant clusters per year authorized under the 1998 Programmatic.

Table 3. Summary of Stems to be Removed and Compensation according to 1999 Conservation Guidelines

Transplant	Riparian						Non-Riparian		
	Exit Holes			No Exit Holes			No Exit Holes		
Stem Size	*Count*	*Multiplier*	*Mitigation*	*Count*	*Multiplier*	*Mitigation*	*Count*	*Multiplier*	*Mitigation*
1"-3"	107	4	428	141	2	282	6	1	6
>3" to <5"	80	6	480	40	3	120	3	2	6
5" and greater	40	8	320	5	4	20	0	3	0
Totals			1228			422			12
						Total Elderberry Mitigation Stems			1662
						Total Native/Associated plants			2890
						***Elderberry Mitigation** Acres (1999 Conservation Guidelines)*			18.8
						15 Percent Contingency for Nontransplanted Shrubs			2.5
						Acres to Compensate for Additional Take and Trimming			5.0
						Total Elderberry Mitigation Acres			26.6

Proposed Conservation Measures for the Valley Elderberry Longhorn Beetle
In accordance with the Service's July 9, 1999, *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (Conservation Guidelines), compensation for the removal of 422 stems of the varying sizes and includes the planting of 1662 elderberry seedlings and 2890 associated native plant seedlings on 18.81 acres. However, because of concern for safety in working with equipment near transmission lines and the structural integrity of towers, Western may not be able to transplant all elderberry shrubs. Western anticipates that up to 15% of the affected shrubs would not be feasible for transplanting and proposes an additional 2.8 acres of compensation. In addition, they propose an additional 5 acres of beetle compensation for the potential of take over the 20-year term of this opinion of up to 10 elderberry shrub clusters per year as well as trimming elderberry above the 10-foot level. Western proposes to develop a 26.6 acre beetle conservation area as compensation for their operations and maintenance activities over a 20-year period. However, if due to funding or other constraints, Western may scale back their maintenance program and not remove some shrubs and will modify the compensation area accordingly.

Western has entered into negotiations with the County of Sacramento and the Sacramento Area Flood Control Agency to locate a suitable area for compensation habitat. Western, in coordination with the County of Sacramento, the Sacramento Area Flood Control Agency (SAFCA), and the California Department of Water Resources, proposes a 26.6-acre compensation site near Western's transmission line right-of-way between Business Interstate-80 and Sacramento Route 160 North of the American River (Attachment 2). This area is a former agricultural field that currently contains non-native herbaceous grasses and star thistle. However, native vegetation is adjacent to the field. A total of 411 of the 422 stems to be removed under the Western's proposed action are located within 3 miles of the compensation site. Sacramento County Parks Department, in coordination with the Service and SAFCA, is developing a management plan for the

creation/restoration and long term management and protection for the beetle (Sacramento County Parks Department 2002).

In return for compensation, the County of Sacramento will grant the use of this conservation site for beetle compensation to Western, in accordance with conditions set forth in a Memorandum of Agreement (MOA) that will be submitted for approval by the Service and in accordance with the Service's 1999 Conservation Guidelines. This MOA will be developed to assure the long-term conservation of beetle habitat. Compensation would be remitted in payments to either a designated third party or to the County over a 3-year period beginning in October 2005.

Western will proceed with elderberry removal only after a signed agreement is in place and payment has been made in an amount equal to or greater than compensation calculated under the Conservation Guidelines for the planned removal phase. The maximum amount of elderberry to be removed in each removal phase would be calculated using the following method:
1) Estimate the entire project cost (assuming 26.6 compensation acres in this example) to determine a per-unit (1,800 square feet) cost. For example, if the entire project cost is estimated at $500,000, given that 26.6 acres covers 644 compensation units (26.6×43,560/1,800), the per-unit cost for the project would be $776). Using the per-unit cost, calculate the number of stems that could be removed for a given payment using the Conservation Guidelines. For example, a payment of $100,000 would cover 129 compensation units at the $776 per unit cost calculated above. According to the Conservation Guidelines, 129 compensation units would cover transplant of 322 stems (1"- to 3"-diameter, riparian, no exit holes) to the compensation site.

Western will contract with a qualified third party to remove non-native vegetation and prepare the compensation site for planting, and perform the following tasks in accordance with the Conservation Guidelines including:

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

Status of the Species

The beetle was listed as a threatened species under the Act on August 8, 1980 (Service 1980). Critical habitat for the species was designated and published at 50 CFR §17.95. Two areas along the American River in the Sacramento metropolitan area have been designated as critical habitat for the beetle. Critical habitat for this species has been designated along the lower American River at Goethe and Ancil Hoffman parks (American River Parkway Zone) and at the

Sacramento Zone, an area about a half mile from the American River downstream from the American River Parkway Zone. In addition, an area along Putah Creek, Solano County, and the area west of Nimbus Dam along the American River Parkway, Sacramento County, are considered essential habitat, according to the *Valley Elderberry Longhorn Beetle Recovery Plan* (Service 1984). These critical habitat and essential habitat areas within the American River parkway and Putah Creek support large numbers of mature elderberry shrubs with extensive evidence of use by the beetle.

The beetle is dependent on the elderberry, its host plant, which is a locally common component of the remaining riparian forests and savannah areas and, to a lesser extent, the mixed chaparral-foothill woodlands of the Central Valley. Use of the elderberry shrubs by the animal, a wood borer, is rarely apparent. Frequently but not exclusively, the only exterior evidence of the shrub's use by the beetle is an exit hole created by the larva just prior to the pupal stage. Observations made within elderberry shrubs along the Cosumnes River, in the Folsom Lake area, and near Blue Ravine in Folsom indicate that larval galleries can be found in elderberry stems with no evidence of exit holes; the larvae either succumb prior to constructing an exit hole or are not far enough along in the developmental process to construct an exit hole. Beetle larvae appear to be distributed in stems which are 1.0 inch or greater in diameter at ground level. The *Valley Elderberry Longhorn Beetle Recovery Plan* (Service 1984) and Barr (1991) contain further details on the valley elderberry longhorn beetle's life history.

Population densities of the beetle are probably naturally low (Service 1984); and it has been suggested, based on the spatial distribution of occupied shrubs (Barr 1991), that the beetle is a poor disperser (Collinge *et al.* 2001). Low density and limited dispersal capability cause the beetle to be vulnerable to the negative effects of the isolation of small subpopulations due to habitat fragmentation.

When the beetle was listed as threatened in 1980, the species was known from less than 10 localities along the American River, the Merced River, and Putah Creek. By the time the *Valley Elderberry Longhorn Beetle Recovery Plan* was prepared in 1984, additional occupied localities had been found along the American River and Putah Creek. As of 2004, the California Natural Diversity Database (CNDDB) contained 190 occurrences for this species in 44 drainages throughout the Central Valley, from a location along the Sacramento River in Shasta County, southward to an area along Caliente Creek in Kern County (CNDDB 2004). Glenn County has 12 occurrences of the beetle (CNDDB 2004). The beetle continues to be threatened by habitat loss and fragmentation, predation by the non-native Argentine ants (*Linepithema humile*) (Holway 1995; Huxel 2000; Huxel and Hastings 1999; Huxel *et al.* 2001; Ward 1987), and possibly other factors such as pesticide drift, non-native plant invasion, improper burning regimes, off-road vehicle use, rip-rap bank protection projects, wood cutting, and over grazing by livestock (CNDDB 2004).

Environmental Baseline

Riparian forests, the primary habitat for the beetle, have been severely depleted throughout the Central Valley over the last two centuries as a result of expansive agricultural and urban

development (Huxel *et al.* 2001; Katibah 1984; Roberts *et al.* 1977; Thompson 1961). Since colonization, these forests have been "...modified with a rapidity and completeness matched in few parts of the United States" (Thompson 1961). As of 1849, the rivers and larger streams of the Central Valley were largely undisturbed. They supported continuous bands of riparian woodland four to five miles in width along some major drainages such as the lower Sacramento River, and generally about two miles wide along the lesser streams (Thompson 1961). Most of the riverine floodplains supported riparian vegetation to about the 100-year flood line (Katibah 1984). A large human population influx occurred after 1849, however, and much of the Central Valley riparian habitat was rapidly converted to agriculture and used as a source of wood for fuel and construction to serve a wide area (Thompson 1961). By as early as 1868, riparian woodland had been severely affected in the Central Valley, as evidenced by the following excerpt:

> "This fine growth of timber which once graced our river [Sacramento], tempered the atmosphere, and gave protection to the adjoining plains from the sweeping winds, has entirely disappeared - the woodchopper's axe has stripped the river farms of nearly all the hard wood timber, and the owners are now obliged to rely upon the growth of willows for firewood." (Cronise 1868, in Thompson 1961).

The clearing of riparian forests for fuel and construction made this land available for agriculture (Thompson 1977). Natural levees bordering the rivers, once supporting vast tracts of riparian habitat, became prime agricultural land (Thompson 1961). As agriculture expanded in the Central Valley, needs for increased water supply and flood protection spurred water development and reclamation projects. Artificial levees, river channelization, dam building, water diversion, and heavy groundwater pumping further reduced riparian habitat to small, isolated fragments (Katibah 1984). In recent decades, these riparian areas have continued to decline as a result of ongoing agricultural conversion as well and urban development and stream channelization. As of 1989, there were over 100 dams within the Central Valley drainage basin, as well as thousands of miles of water delivery canals and streambank flood control projects for irrigation, municipal and industrial water supplies, hydroelectric power, flood control, navigation, and recreation (Frayer *et al.* 1989). Riparian forests in the Central Valley have dwindled to discontinuous strips of widths currently measurable in yards rather than miles.

Some accounts state that the Sacramento Valley supported approximately 775,000 to 800,000 acres of riparian forest as of approximately 1848, just prior to statehood (Smith 1977; Katibah 1984). No comparable estimates are available for the San Joaquin Valley. Based on early soil maps, however, more than 921,000 acres of riparian habitat are believed to have been present throughout the Central Valley under pre-settlement conditions (Huxel *et al* 2001; Katibah 1984). Another source estimates that of approximately five million acres of wetlands in the Central Valley in the 1850s, approximately 1,600,000 acres were riparian wetlands (Warner and Hendrix 1985; Frayer *et al.* 1989).

Based on a California Department of Fish and Game riparian vegetation distribution map, by 1979, there were approximately 102,000 acres of riparian vegetation remaining in the Central Valley. This represents a decline in acreage of approximately 89 percent as of 1979 (Katibah 1984). More extreme figures were given by Frayer *et al.* (1989), who reported that woody

riparian forests in the Central Valley had declined to 34,600 acres by the mid-1980s (from 65,400 acres in 1939). Although these studies have differing findings in terms of the number of acres lost (most likely explained by differing methodologies), they attest to a dramatic historic loss of riparian habitat in the Central Valley. As there is no reason to believe that riparian habitat suitable to the beetle (elderberry shrubs) would be destroyed at a different rate than other riparian habitat, we can assume that the rate of loss for beetle habitat in riparian areas has been equally dramatic.

A number of studies have focused on riparian vegetation losses along the Sacramento River, which supports some of the densest known populations of the beetle. Approximately 98 percent of the middle Sacramento River's historic riparian vegetation was believed to have been extirpated by 1977 (DWR 1979). The State Department of Water Resources estimated that native riparian habitat along the Sacramento River from Redding to Colusa decreased from 27,720 acres to 18,360 acres (34 percent) between 1952 and 1972 (McGill *et al.* 1975; Conrad *et al.* 1977). The average rate of riparian loss on the middle Sacramento River was 430 acres per year from 1952 to 1972, and 410 acres per year from 1972 to 1977. In 1987, riparian areas as large as 180 acres were observed converted to orchards along this River (McCarten and Patterson 1987).

Barr (1991) examined 79 sites in the Central Valley supporting valley elderberry longhorn beetle habitat. When 72 of these sites were re-examined by researchers in 1997, seven no longer supported valley elderberry longhorn beetle habitat. This loss represents a decrease in the number of sites with valley elderberry longhorn beetle habitat by approximately nine percent in six years.

No comparable information exists on the historic loss of non-riparian valley elderberry longhorn beetle habitat such as elderberry savanna and other vegetation communities where elderberry shrubs also occur (oak or mixed chaparral-woodland, or grasslands adjacent to riparian habitat). However, all natural habitats throughout the Central Valley have been heavily adversely affected within the last 200 years (Thompson 1961), and we can therefore assume that non-riparian beetle habitat also has suffered a widespread decline. This analysis focuses on loss of riparian habitat because the beetle is primarily dependent upon riparian habitat. Adjacent upland areas are also likely to be important for the species (Huxel pers. comm. 2000), but this upland habitat typically consist of oak woodland or elderberry savanna bordering willow riparian habitat (Barr 1991). The riparian acreage figures given by Frayer *et al.* (1989) and Katibah (1984) included oak woodlands concentrated along major drainages in the Central Valley, and therefore probably included lands we would classify as upland habitat for the beetle adjacent to riparian drainages. Between 1980 and 1995, the human population in the Central Valley grew by 50 percent, while the rest of California grew by 37 percent . The Central Valley's population was 4.7 million by 1999, and it is expected to more than double by 2040. The American Farmland Trust estimates that by 2040 more than 1 million cultivated acres will be lost and 2.5 million more put at risk (Ritter 2000). With this growing population in the Central Valley, increased development pressure is likely to result in continuing loss of riparian habitat.

While habitat loss is clearly a large factor leading to the species' decline, other factors are likely to pose significant threats to the long term survival of the beetle. Only approximately 20 percent of riparian sites with elderberry observed by Barr (1991) and Collinge *et al.* (2001) support beetle populations (Barr 1991, Collinge *et al.* 2001). Jones and Stokes (1988) found 65 percent of 4,800 riparian acres on the Sacramento River have evidence of beetle presence. The fact that a large percentage of apparently suitable habitat is unoccupied suggests that the beetle is limited by factors other than habitat availability, such as habitat quality or limited dispersal ability.

Destruction of riparian habitat in central California has resulted not only in a significant acreage loss, but also has resulted in beetle habitat fragmentation. Fahrig (1997) states that habitat fragmentation is only important for habitats that have suffered greater than 80 percent loss. Riparian habitat in the Central Valley, which has experienced greater than 90 percent loss by most estimates, would meet this criterion as habitat vulnerable to effects of fragmentation. Existing data suggests that beetle populations, specifically, are affected by habitat fragmentation. Barr (1991) found that small, isolated habitat remnants were less likely to be occupied by beetles than larger patches, indicating that valley elderberry longhorn beetle subpopulations are extirpated from small habitat fragments. Barr (1991) and Collinge *et al.* (2001) consistently found valley elderberry longhorn beetle exit holes occurring in clumps of elderberry bushes rather than isolated bushes, suggesting that isolated shrubs do not typically provide long-term viable habitat for this species. Local populations of organisms often undergo periodic colonization and extinction, while the metapopulation (set of spatially separated groups of a species) may persist (Collinge 1996).

Habitat fragmentation can be an important factor contributing to species declines because: (1) it divides a large population into two or more small populations that become more vulnerable to direct loss, inbreeding depression, genetic drift, and other problems associated with small populations; (2) it limits a species' potential for dispersal and colonization; and (3) it makes habitat more vulnerable to outside influences by increasing the edge: interior ratio (Primack 1998).

Small, isolated subpopulations are susceptible to extirpation from random demographic, environmental, and/or genetic events (Shaffer 1981; Lande 1988; Lande 1993; Primack 1998). While a large area may support a single large population, the smaller subpopulations that result from habitat fragmentation may not be large enough to persist over a long time period. As a population becomes smaller, it tends to lose genetic variability through genetic drift, leading to inbreeding depression and a lack of adaptive flexibility. Smaller populations also become more vulnerable to random fluctuations in reproductive and mortality rates, and are more likely to be extirpated by random environmental factors.

The beetle is a specialist on elderberry plants, and tends to have small population sizes and occurs in low densities (Barr 1991; Collinge *et al.* 2001). Collinge *et al.* (2001) compared resource use and density of exit holes between the beetle and a related subspecies, the California elderberry longhorn beetle (*Desmocerus californicus californicus*). The valley elderberry longhorn beetle tended to occur in areas with higher elderberry densities, but had lower exit hole densities than the California elderberry longhorn beetle. With extensive riparian habitat loss and

fragmentation, these naturally-small valley elderberry longhorn beetle populations are broken into even smaller, isolated populations. Once a small valley elderberry longhorn beetle population has been extirpated from an isolated habitat patch, the species may be unable to re-colonize this patch if it is unable to disperse from nearby occupied habitat. Insects with limited dispersal and colonization abilities may persist better in large habitat patches than small patches because small fragments may be insufficient to maintain viable populations and the insects may be unable to disperse to more suitable habitat (Collinge 1996).

Studies suggest that the beetle is unable to re-colonize drainages where the species has been extirpated, because of its limited dispersal ability (Barr 1991; Collinge *et al.* 2001). Huxel and Hastings (1999) used computer simulations of colonization and extinction patterns based on differing dispersal distances, and found that the short dispersal simulations best matched the 1997 census data in terms of site occupancy. This suggests that dispersal and colonization are limited to nearby sites. At spatial scales greater than 6.2 miles (10 km.), such as across drainages, valley elderberry longhorn beetle occupancy appears to be strongly influenced by regional extinction and colonization processes, and colonization is constrained by limited dispersal (Collinge *et al.* 2001; Huxel and Hastings 1999). Except for one occasion, drainages examined by Barr that were occupied in 1991 remained occupied in 1997 (Collinge *et al.* 2001; Huxel and Hastings 1999). The one exception was Stoney Creek, which was occupied in 1991 but not in 1997. All drainages found by Barr (1991) to be unoccupied in 1991 were also unoccupied in 1997. This data suggests that drainages unoccupied by the valley elderberry longhorn beetle remain so.

Habitat fragmentation not only isolates small populations, but also increases the interface between habitat and urban or agricultural land, increasing negative edge effects such as the invasion of non-native species (Huxel *et al.* 2001; Huxel 2000; Soule 1990) and pesticide contamination (Barr 1991). Several edge effect-related factors may be related to the decline of the beetle.

Beetle exit holes have been identified on elderberry stems at locations varying from a few inches to 10 ft above ground level (Service 1984, Barr 1991), but usually within 6 feet of the ground (Collinge *et al.* 2001). More recent investigations have determined that the beetle typically does not utilize parts of the shrubs that are over 3 feet in height (Huxel *et al.* 2001). Recent beetle exit holes have frequently been found in pruned elderberry shrubs (Collinge *et al.* 2001) suggesting that removal of unsuitable live and dead branches may not disrupt beetle larval development in the remaining shrub (Holyoak pers comm. 2003). In 1997, Collinge *et al.* (2001) re-surveyed 818 elderberry bushes along the Putah Creek and American River corridors that were surveyed by Barr (1991). The combined surveys revealed 442 exit holes, with 17 exit holes (3.8%) found above ten feet in height (Holyoak pers. comm. 2003; Talley and Holyoak 2003).
Recent site visits confirm the presence of numerous elderberry shrubs in both upland and riparian habitats at the project site, proposed conservation areas, and adjacent properties. Elderberry plants with beetle exit holes are present in the project footprint as well as in the existing and proposed conservation areas. Therefore, given its biology and ecology, the presence of suitable habitat, and the evidence of beetle exit holes, the Service has concluded the beetle likely inhabits the action area.

Effects of the Action

Beetles occupying elderberry shrubs totaling 422 stems will be directly affected by the project. Direct effects to the beetle typically involve injury and mortality, as well as harm and harassment of adult beetles. Any early-stage individuals of the beetle occupying these plants are likely to be killed when the plants are moved, since transplanted elderberry plants or cuttings may experience stress or health problems due to changes in soil, hydrology, microclimate, or associated vegetation. Beetle mortality will occur when branches containing larvae are cut, broken, or crushed as a result of the transplanting process. Western anticipates approximately 15% of all shrubs may not be transplanted due to safety factors. Continual pruning of these shrubs is likely to kill any beetle larvae living in those branches. Effects to the beetle will be minimized by maintaining, at a minimum, a 10-foot stem length after pruning stems interfering with transmission lines.

Temporal loss of habitat will reduce the amount of habitat available to beetles and may cause fragmentation of habitat and isolation of subpopulations. Indirect effects to the beetle may result in: (1) riparian fragmentation and edge effect resulting from clearing elderberries for a 20-foot radius around transmission line towers; (2) loss of habitat due to increased fire frequency, as newly disturbed areas will be colonized by grasses and weeds resulting in reduced riparian health because of the increased occurrence of yellow star thistle and other noxious weeds; and (3) lower beetle reproduction due to disrupting breeding behavior of the adult beetles if maintenance activities occur during the breeding season of the beetle. Effects to the beetle will be minimized by creating a beetle conservation area within the American River Parkway, adjacent to a portion of the transmission line ROW where the majority of the project's affects will occur.

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 Act.

The Service is aware of specific projects that might affect the beetle or its habitat that are currently under review by State, county, or local authorities. The continued human population growth in the Central Valley, in general, and the Sacramento area, in particular, is expected to drive further development of agriculture, cities, industry, transportation, and water resources in the foreseeable future. Some of these future activities will not be subject to Federal jurisdiction, and thus are considered to enter into cumulative effects. These future activities are likely to result in the increased direct loss of riparian and elderberry savanna habitat.

Cumulative effects on the beetle throughout its range include continuing loss and alteration of riparian habitat and other habitats where elderberry plants and the beetle live, to the extent that this habitat loss is not subject to Federal jurisdiction. Elderberry shrubs and associated riparian habitat may be destroyed by agricultural conversion, removal of riparian vegetation, and

recreational, industrial, and urban development. Levee construction and maintenance, channelization of streams and rivers, and riprapping of shoreline can destroy elderberry plants at construction sites and alter river hydraulics to cause additional erosion of riparian habitat downstream. Direct spraying or drift of herbicide or insecticide in or near riparian areas (which may be done to control mosquitoes, crop diseases, or other pests) will continue to adversely affect the beetle and its habitat.

Conclusion

After reviewing the current status of the beetle, 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 the Western Area Power Administration Right-of-Way Maintenance in the Sacramento Valley, California Project, as proposed, is not likely to jeopardize the continued existence of the beetle, and is not likely to destroy or adversely modify designated or proposed critical habitat, as none is present in the action area. We base our determination on implementation of the *Conservation Measures* as described in the *Project Description.*

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened fish and wildlife species without special exemption. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to a listed species 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. Harm is defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by impairing behavioral patterns including 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 Act provided that such taking is in compliance with this Incidental Take Statement.

The measures described below are non-discretionary, and must be implemented by Western so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, in order for the exemption in section 7(o)(2) to apply. Western has a continuing duty to regulate the activity covered by this incidental take statement. If Western (1) fails to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, and/or (2) fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

Amount or Extent of Take

The Service anticipates incidental take of the beetle will be difficult to detect or quantify. The

cryptic nature of this species and its relatively small body size make the finding of an injured or dead specimen unlikely. The species occurs in habitats that make them difficult to detect. Due to the difficulty in quantifying the number of beetles that will be taken as a result of the proposed action, the Service is quantifying take incidental to the project as all beetles inhabiting or otherwise utilizing the elderberry shrubs containing stems 1.0 inch or greater in diameter at ground level located in the ROW of the project's transmission lines, as well as those expected due to future growth in and around the transmission lines, and which are affected by Western's ROW activities for the 20-year term of the 1999 programmatic opinion. Therefore, the Service is quantifying incidental take as all beetles inhabiting or otherwise utilizing up to 10 elderberry plants per year (a total of 200 elderberry shrubs), including the elderberry shrubs containing 422 stems that have been currently identified to be removed, on the proposed project site as described in the *Project Description* of this biological opinion. Upon implementation of the following reasonable and prudent measures, incidental take associated with the proposed Western Right-of-Way (ROW) Operations and Maintenance Project in the form of death, injury, harm, or harassment will become exempt from the prohibitions described under section 9 of the Act for direct and indirect effects.

Effect of the Take

The Service has determined that this level of anticipated take is not likely to result in jeopardy to the valley elderberry longhorn beetle or result in destruction or adverse modification of critical habitat. We base our determination on implementation of the *Conservation Measures* as described in the project description of this biological opinion.

Reasonable and Prudent Measures

The proposed action contains all of the measures needed to adequately minimize the affects of anticipated incidental take on the beetle. For that reason, the Service has no Reasonable and Prudent Measures.

REPORTING REQUIREMENTS

A post-construction compliance report prepared by the monitoring biologists must be submitted to the Chief of the Endangered Species Division (Central Valley) at the Sacramento Fish and Wildlife Office within thirty (30) calendar days of the completion of construction activity or within thirty (30) calendar days of any break in construction activity lasting more than thirty (30) calendar days. This report shall detail (i) dates that groundbreaking at the project started and the project was completed; (ii) pertinent information concerning the success of the project in meeting compensation and other conservation measures; (iii) an explanation of failure to meet such measures, if any; (iv) known project effects on the valley elderberry longhorn beetle, if any; (v) occurrences of incidental take of any this species; and (vi) other pertinent information.

Western must report to the Sacramento Fish and Wildlife Office any information about take or suspected take of federally-listed species not authorized in this biological opinion. Western must notify the Service within 24 hours of receiving such information. Notification must include the

date, time, and location of the incident or of the finding of a dead or injured animal. In the case of a dead animal, the individual animal should be preserved, as appropriate, and held in a secure location until instructions are received from the Service regarding the disposition of the specimen or the Service takes custody of the specimen. The Service contact persons are Chris Nagano, Chief of the Endangered Species Division (Central Valley) at (916) 414-6600, and Scott Heard, Resident Agent-in-charge of the Service's Law Enforcement Division at (916) 414-6660.

Any contractor or employee who during routine operations and maintenance activities inadvertently kills or injures a listed wildlife species must immediately report the incident to their representative. This representative must contact the California Department of Fish and Game immediately in the case of a dead or injured listed species. The California Department of Fish and Game contact for immediate assistance is State Dispatch at (916) 445-0045.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize 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 that can be implemented to further the purposes of the Act, such as preservation of endangered species habitat, implementation of recovery actions, or development of information and data bases.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

We recommend Western work with us in addressing significant, unavoidable environmental impacts approved by local agencies, and Western should assist the Service in the implementation of recovery efforts for the beetle.

REINITIATION--CLOSING STATEMENT

This concludes formal consultation on the Right-of-Way Maintenance Project in the Sacramento Valley. 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 maintained (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.

Mr. James Keselberg 19

Please contact Roberta Gerson or Chris Nagano of this office at (916) 414-6600, if you have any questions. If you have any questions regarding environmental contaminants, contact Tom Maurer at (916) 414-6590.

Sincerely,

Ken Sanchez
Acting Field Supervisor

Attachments

cc:
ARD (ES), Portland, OR
Kent Smith, CDFG, Region 2, Rancho Cordova, CA

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PERSONAL COMMUNICATIONS

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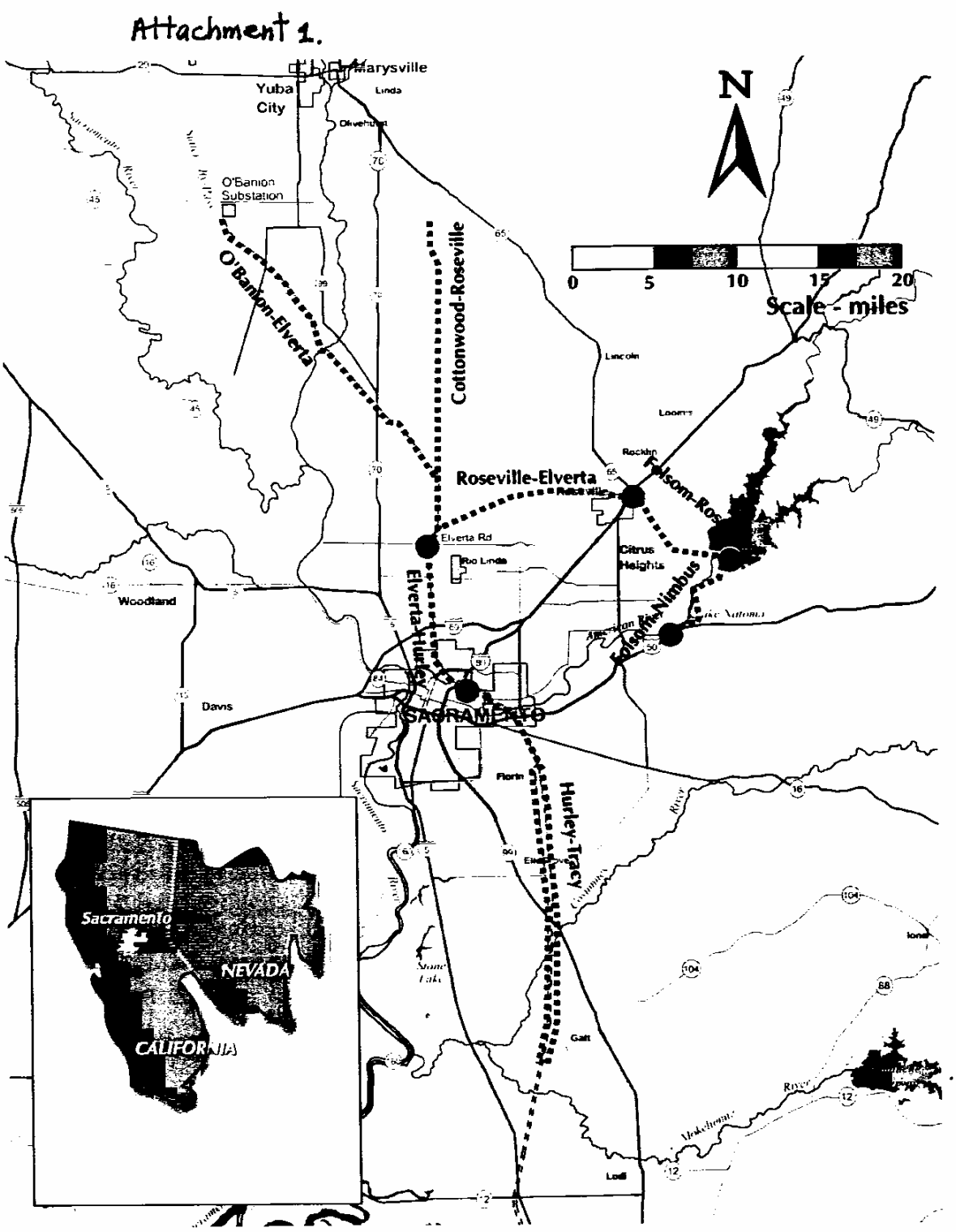


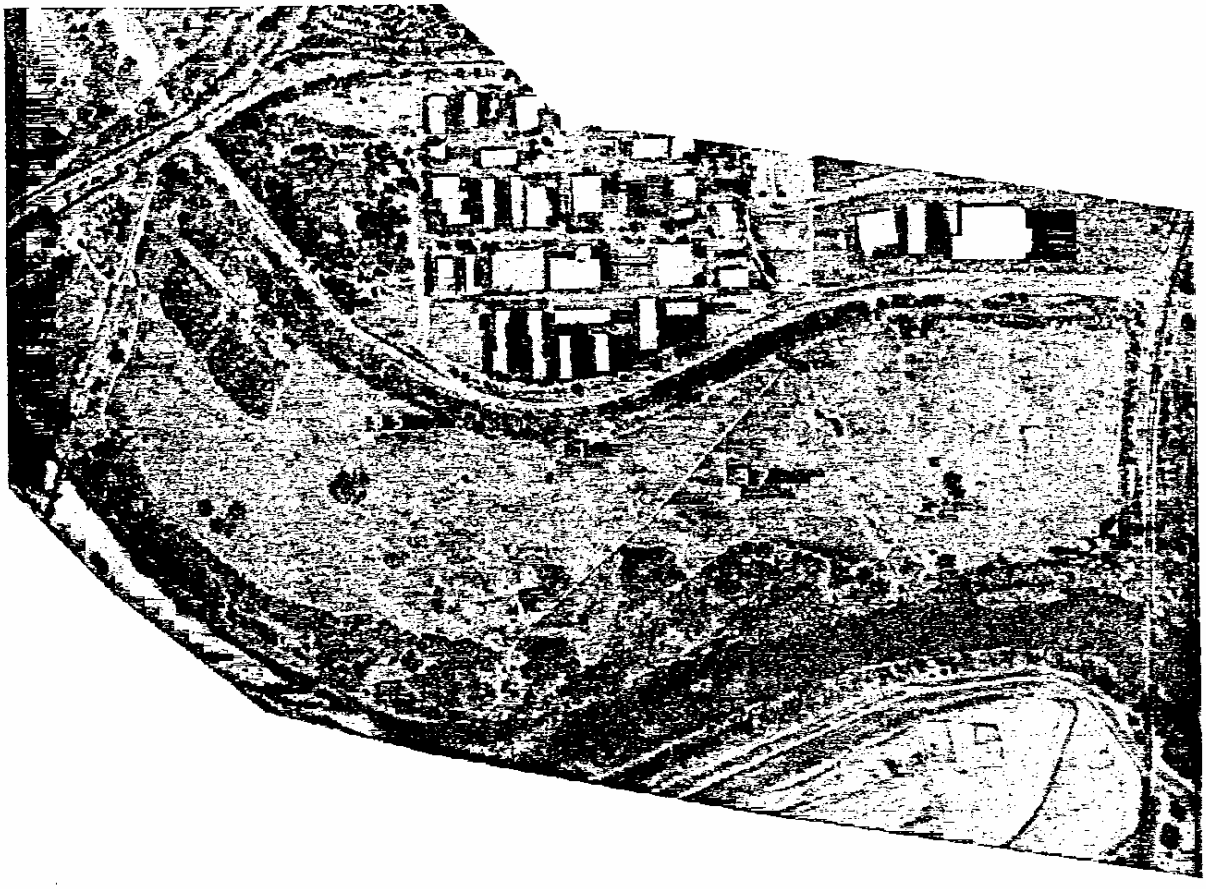
Figure 1. Location of Study Area and Transmission Line ROW

The studies and surveys were conducted along Western's ROW in Sacramento, Placer, and Sutter counties.

Attachment 2.

Enclosure: Aerial Photo of Proposed Mitigation Site near Western's Transmission Line

Behind Cal Expo



Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 050516103041

Database Last Updated: May 3, 2005

Quad Lists

LODI NORTH (479A)

Listed Species

Invertebrates

Branchinecta lynchi - vernal pool fairy shrimp (T)
Desmocerus californicus dimorphus - valley elderberry longhorn beetle (T)
Lepidurus packardi - vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus - Critical habitat, delta smelt (X)
Hypomesus transpacificus - delta smelt (T)
Oncorhynchus mykiss - Central Valley steelhead (T)
Oncorhynchus tshawytscha - Central Valley spring-run chinook salmon (T)
Oncorhynchus tshawytscha - winter-run chinook salmon, Sacramento River (E)

Amphibians

Ambystoma californiense - California tiger salamander (T)
Rana aurora draytonii - California red-legged frog (T)

Reptiles

Thamnophis gigas - giant garter snake (T)

Birds

Haliaeetus leucocephalus - bald eagle (T)

Plants

Castilleja campestris ssp. succulenta - succulent (=fleshy) owl's-clover (T)

Candidate Species

Fish

Acipenser medirostris - green sturgeon (C)
Oncorhynchus tshawytscha - Central Valley fall/late fall-run chinook salmon (C)

Species of Concern

Invertebrates

Anthicus antiochensis - Antioch Dunes anthicid beetle (SC)
Anthicus sacramento - Sacramento anthicid beetle (SC)
Branchinecta mesovallensis - Midvalley fairy shrimp (SC)
Linderiella occidentalis - California linderiella fairy shrimp (SC)

Fish

Lampetra ayresi - river lamprey (SC)
Lampetra hubbsi - Kern brook lamprey (SC)
Lampetra tridentata - Pacific lamprey (SC)
Pogonichthys macrolepidotus - Sacramento splittail (SC)
Spirinchus thaleichthys - longfin smelt (SC)

Amphibians

Rana boylii - foothill yellow-legged frog (SC)
Spea hammondii (was Scaphiopus h.) - western spadefoot toad (SC)

Reptiles

Anniella pulchra pulchra - silvery legless lizard (SC)
Clemmys marmorata marmorata - northwestern pond turtle (SC)
Clemmys marmorata pallida - southwestern pond turtle (SC)
Phrynosoma coronatum frontale - California horned lizard (SC)

Birds

Agelaius tricolor - tricolored blackbird (SC)
Athene cunicularia hypugaea - western burrowing owl (SC)
Branta canadensis leucopareia - Aleutian Canada goose (D)
Buteo regalis - ferruginous hawk (SC)
Buteo Swainsoni - Swainson's hawk (CA)
Carduelis lawrencei - Lawrence's goldfinch (SC)
Chaetura vauxi - Vaux's swift (SC)
Charadrius montanus - mountain plover (SC)
Elanus leucurus - white-tailed (=black shouldered) kite (SC)
Empidonax traillii brewsteri - little willow flycatcher (CA)
Falco peregrinus anatum - American peregrine falcon (D)
Grus canadensis tabida - greater sandhill crane (CA)
Lanius ludovicianus - loggerhead shrike (SC)
Melanerpes lewis - Lewis' woodpecker (SC)
Numenius americanus - long-billed curlew (SC)
Picoides nuttallii - Nuttall's woodpecker (SLC)
Plegadis chihi - white-faced ibis (SC)
Riparia riparia - bank swallow (CA)
Selasphorus rufus - rufous hummingbird (SC)

Mammals

Corynorhinus (=Plecotus) townsendii townsendii - Pacific western big-eared bat (SC)
Eumops perotis californicus - greater western mastiff-bat (SC)
Myotis ciliolabrum - small-footed myotis bat (SC)
Myotis volans - long-legged myotis bat (SC)
Myotis yumanensis - Yuma myotis bat (SC)
Perognathus inornatus - San Joaquin pocket mouse (SC)

ELK GROVE (496A)

Listed Species

Invertebrates

Branchinecta lynchi - vernal pool fairy shrimp (T)
Desmocerus californicus dimorphus - valley elderberry longhorn beetle (T)
Lepidurus packardi - vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus - Critical habitat, delta smelt (X)
Hypomesus transpacificus - delta smelt (T)
Oncorhynchus mykiss - Central Valley steelhead (T)
Oncorhynchus tshawytscha - Central Valley spring-run chinook salmon (T)

Oncorhynchus tshawytscha - winter-run chinook salmon, Sacramento River (E)

Amphibians

Ambystoma californiense - California tiger salamander (T)
Rana aurora draytonii - California red-legged frog (T)

Reptiles

Thamnophis gigas - giant garter snake (T)

Birds

Haliaeetus leucocephalus - bald eagle (T)

Plants

Orcuttia tenuis - slender Orcutt grass (T)

Proposed Species

Fish

Oncorhynchus tshawytscha - Critical Habitat, Central Valley spring-run chinook (Proposed) (PX)

Candidate Species

Fish

Acipenser medirostris - green sturgeon (C)
Oncorhynchus tshawytscha - Central Valley fall/late fall-run chinook salmon (C)
Oncorhynchus tshawytscha - Critical habitat, Central Valley fall/late fall-run chinook (C)

Species of Concern

Invertebrates

Anthicus antiochensis - Antioch Dunes anthicid beetle (SC)
Anthicus sacramento - Sacramento anthicid beetle (SC)
Branchinecta mesovallensis - Midvalley fairy shrimp (SC)
Linderiella occidentalis - California linderiella fairy shrimp (SC)

Fish

Lampetra ayresi - river lamprey (SC)
Lampetra tridentata - Pacific lamprey (SC)
Pogonichthys macrolepidotus - Sacramento splittail (SC)
Spirinchus thaleichthys - longfin smelt (SC)

Amphibians

Spea hammondii (was Scaphiopus h.) - western spadefoot toad (SC)

Reptiles

Clemmys marmorata marmorata - northwestern pond turtle (SC)
Clemmys marmorata pallida - southwestern pond turtle (SC)
Phrynosoma coronatum frontale - California horned lizard (SC)

Birds

Agelaius tricolor - tricolored blackbird (SC)
Athene cunicularia hypugaea - western burrowing owl (SC)
Baeolophus inornatus - oak titmouse (SLC)
Branta canadensis leucopareia - Aleutian Canada goose (D)
Buteo regalis - ferruginous hawk (SC)
Buteo Swainsoni - Swainson's hawk (CA)
Carduelis lawrencei - Lawrence's goldfinch (SC)
Chaetura vauxi - Vaux's swift (SC)
Charadrius montanus - mountain plover (SC)

Elanus leucurus - white-tailed (=black shouldered) kite (SC)
Empidonax traillii brewsteri - little willow flycatcher (CA)
Falco peregrinus anatum - American peregrine falcon (D)
Grus canadensis tabida - greater sandhill crane (CA)
Lanius ludovicianus - loggerhead shrike (SC)
Limosa fedoa - marbled godwit (SC)
Melanerpes lewis - Lewis' woodpecker (SC)
Numenius americanus - long-billed curlew (SC)
Picoides nuttallii - Nuttall's woodpecker (SLC)
Plegadis chihi - white-faced ibis (SC)
Riparia riparia - bank swallow (CA)
Selasphorus rufus - rufous hummingbird (SC)

Mammals

Corynorhinus (=Plecotus) townsendii townsendii - Pacific western big-eared bat (SC)
Myotis ciliolabrum - small-footed myotis bat (SC)
Myotis volans - long-legged myotis bat (SC)
Myotis yumanensis - Yuma myotis bat (SC)
Perognathus inornatus - San Joaquin pocket mouse (SC)

Plants

Gratiola heterosepala - Boggs Lake hedge-hyssop (CA)
Legenere limosa - legenere (SC)
Sagittaria sanfordii - valley sagittaria (=Sanford's arrowhead) (SC)

GALT (496D)

Listed Species

Invertebrates

Branchinecta lynchi - vernal pool fairy shrimp (T)
Desmocerus californicus dimorphus - valley elderberry longhorn beetle (T)
Lepidurus packardi - vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus - Critical habitat, delta smelt (X)
Hypomesus transpacificus - delta smelt (T)
Oncorhynchus mykiss - Central Valley steelhead (T)
Oncorhynchus tshawytscha - Central Valley spring-run chinook salmon (T)
Oncorhynchus tshawytscha - winter-run chinook salmon, Sacramento River (E)

Amphibians

Ambystoma californiense - California tiger salamander (T)
Rana aurora draytonii - California red-legged frog (T)

Reptiles

Thamnophis gigas - giant garter snake (T)

Birds

Haliaeetus leucocephalus - bald eagle (T)

Plants

Castilleja campestris ssp. succulenta - succulent (=fleshy) owl's-clover (T)

Proposed Species

Fish

Oncorhynchus tshawytscha - Critical Habitat, Central Valley spring-run chinook (Proposed) (PX)

Candidate Species

Fish

Acipenser medirostris - green sturgeon (C)
Oncorhynchus tshawytscha - Central Valley fall/late fall-run chinook salmon (C)
Oncorhynchus tshawytscha - Critical habitat, Central Valley fall/late fall-run chinook (C)

Species of Concern

Invertebrates

Anthicus antiochensis - Antioch Dunes anthicid beetle (SC)
Anthicus sacramento - Sacramento anthicid beetle (SC)
Branchinecta mesovallensis - Midvalley fairy shrimp (SC)
Linderiella occidentalis - California linderiella fairy shrimp (SC)

Fish

Lampetra ayresi - river lamprey (SC)
Lampetra hubbsi - Kern brook lamprey (SC)
Lampetra tridentata - Pacific lamprey (SC)
Pogonichthys macrolepidotus - Sacramento splittail (SC)
Spirinchus thaleichthys - longfin smelt (SC)

Amphibians

Rana boylii - foothill yellow-legged frog (SC)
Spea hammondii (was Scaphiopus h.) - western spadefoot toad (SC)

Reptiles

Clemmys marmorata marmorata - northwestern pond turtle (SC)
Phrynosoma coronatum frontale - California horned lizard (SC)

Birds

Agelaius tricolor - tricolored blackbird (SC)
Athene cunicularia hypugaea - western burrowing owl (SC)
Baeolophus inornatus - oak titmouse (SLC)
Branta canadensis leucopareia - Aleutian Canada goose (D)
Buteo regalis - ferruginous hawk (SC)
Buteo Swainsoni - Swainson's hawk (CA)
Carduelis lawrencei - Lawrence's goldfinch (SC)
Chaetura vauxi - Vaux's swift (SC)
Charadrius montanus - mountain plover (SC)
Elanus leucurus - white-tailed (=black shouldered) kite (SC)
Empidonax traillii brewsteri - little willow flycatcher (CA)
Falco peregrinus anatum - American peregrine falcon (D)
Grus canadensis tabida - greater sandhill crane (CA)
Lanius ludovicianus - loggerhead shrike (SC)
Limosa fedoa - marbled godwit (SC)
Melanerpes lewis - Lewis' woodpecker (SC)
Numenius americanus - long-billed curlew (SC)
Picoides nuttallii - Nuttall's woodpecker (SLC)

Plegadis chihi - white-faced ibis (SC)
Riparia riparia - bank swallow (CA)
Selasphorus rufus - rufous hummingbird (SC)

Mammals

Corynorhinus (=Plecotus) townsendii townsendii - Pacific western big-eared bat (SC)
Myotis ciliolabrum - small-footed myotis bat (SC)
Myotis volans - long-legged myotis bat (SC)
Myotis yumanensis - Yuma myotis bat (SC)
Perognathus inornatus - San Joaquin pocket mouse (SC)

Plants

Gratiola heterosepala - Boggs Lake hedge-hyssop (CA)
Legenere limosa - legenere (SC)
Sagittaria sanfordii - valley sagittaria (=Sanford's arrowhead) (SC)

FOLSOM (511B)

Listed Species

Invertebrates

Branchinecta lynchi - vernal pool fairy shrimp (T)
Desmocerus californicus dimorphus - valley elderberry longhorn beetle (T)
Lepidurus packardi - vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus - delta smelt (T)
Oncorhynchus mykiss - Central Valley steelhead (T)
Oncorhynchus tshawytscha - Central Valley spring-run chinook salmon (T)
Oncorhynchus tshawytscha - winter-run chinook salmon, Sacramento River (E)

Amphibians

Ambystoma californiense - California tiger salamander (T)
Rana aurora draytonii - California red-legged frog (T)

Reptiles

Thamnophis gigas - giant garter snake (T)

Birds

Haliaeetus leucocephalus - bald eagle (T)

Plants

Orcuttia viscida - Sacramento Orcutt grass (E)

Proposed Species

Fish

Oncorhynchus tshawytscha - Critical Habitat, Central Valley spring-run chinook (Proposed) (PX)

Candidate Species

Fish

Acipenser medirostris - green sturgeon (C)
Oncorhynchus tshawytscha - Central Valley fall/late fall-run chinook salmon (C)
Oncorhynchus tshawytscha - Critical habitat, Central Valley fall/late fall-run chinook (C)

Species of Concern

Invertebrates

Branchinecta mesovallensis - Midvalley fairy shrimp (SC)
Linderiella occidentalis - California linderiella fairy shrimp (SC)

Fish

Pogonichthys macrolepidotus - Sacramento splittail (SC)
Spirinchus thaleichthys - longfin smelt (SC)

Amphibians

Spea hammondii (was Scaphiopus h.) - western spadefoot toad (SC)

Reptiles

Clemmys marmorata marmorata - northwestern pond turtle (SC)
Phrynosoma coronatum frontale - California horned lizard (SC)

Birds

Agelaius tricolor - tricolored blackbird (SC)
Athene cunicularia hypugaea - western burrowing owl (SC)
Baeolophus inornatus - oak titmouse (SLC)
Branta canadensis leucopareia - Aleutian Canada goose (D)
Buteo regalis - ferruginous hawk (SC)
Buteo Swainsoni - Swainson's hawk (CA)
Carduelis lawrencei - Lawrence's goldfinch (SC)
Chaetura vauxi - Vaux's swift (SC)
Charadrius montanus - mountain plover (SC)
Cypseloides niger - black swift (SC)
Elanus leucurus - white-tailed (=black shouldered) kite (SC)
Empidonax traillii brewsteri - little willow flycatcher (CA)
Falco peregrinus anatum - American peregrine falcon (D)
Lanius ludovicianus - loggerhead shrike (SC)
Melanerpes lewis - Lewis' woodpecker (SC)
Numenius americanus - long-billed curlew (SC)
Picoides nuttallii - Nuttall's woodpecker (SLC)
Plegadis chihi - white-faced ibis (SC)
Riparia riparia - bank swallow (CA)
Selasphorus rufus - rufous hummingbird (SC)
Toxostoma redivivum - California thrasher (SC)

Mammals

Corynorhinus (=Plecotus) townsendii townsendii - Pacific western big-eared bat (SC)
Euderma maculatum - spotted bat (SC)
Eumops perotis californicus - greater western mastiff-bat (SC)
Myotis ciliolabrum - small-footed myotis bat (SC)
Myotis evotis - long-eared myotis bat (SC)
Myotis thysanodes - fringed myotis bat (SC)
Myotis volans - long-legged myotis bat (SC)
Myotis yumanensis - Yuma myotis bat (SC)
Perognathus inornatus - San Joaquin pocket mouse (SC)

Plants

Naverretia myersii spp. myersii - pincushion navarretia (SC)

RIO LINDA (512B)

Listed Species

Invertebrates

Branchinecta lynchi - Critical habitat, vernal pool fairy shrimp (X)

Branchinecta lynchi - vernal pool fairy shrimp (T)
Desmocerus californicus dimorphus - valley elderberry longhorn beetle (T)
Lepidurus packardi - vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus - delta smelt (T)
Oncorhynchus mykiss - Central Valley steelhead (T)
Oncorhynchus tshawytscha - Central Valley spring-run chinook salmon (T)
Oncorhynchus tshawytscha - winter-run chinook salmon, Sacramento River (E)

Amphibians

Ambystoma californiense - California tiger salamander (T)
Rana aurora draytonii - California red-legged frog (T)

Reptiles

Thamnophis gigas - giant garter snake (T)

Birds

Haliaeetus leucocephalus - bald eagle (T)

Candidate Species

Fish

Acipenser medirostris - green sturgeon (C)
Oncorhynchus tshawytscha - Central Valley fall/late fall-run chinook salmon (C)

Species of Concern

Invertebrates

Branchinecta mesovallensis - Midvalley fairy shrimp (SC)
Linderiella occidentalis - California linderiella fairy shrimp (SC)

Fish

Lampetra ayresi - river lamprey (SC)
Lampetra tridentata - Pacific lamprey (SC)
Pogonichthys macrolepidotus - Sacramento splittail (SC)
Spirinchus thaleichthys - longfin smelt (SC)

Amphibians

Spea hammondii (was Scaphiopus h.) - western spadefoot toad (SC)

Reptiles

Clemmys marmorata marmorata - northwestern pond turtle (SC)
Phrynosoma coronatum frontale - California horned lizard (SC)

Birds

Agelaius tricolor - tricolored blackbird (SC)
Athene cunicularia hypugaea - western burrowing owl (SC)
Baeolophus inornatus - oak titmouse (SLC)
Branta canadensis leucopareia - Aleutian Canada goose (D)
Buteo regalis - ferruginous hawk (SC)
Buteo Swainsoni - Swainson's hawk (CA)
Carduelis lawrencei - Lawrence's goldfinch (SC)
Chaetura vauxi - Vaux's swift (SC)
Charadrius montanus - mountain plover (SC)
Elanus leucurus - white-tailed (=black shouldered) kite (SC)
Empidonax traillii brewsteri - little willow flycatcher (CA)
Falco peregrinus anatum - American peregrine falcon (D)

Grus canadensis tabida - greater sandhill crane (CA)
Lanius ludovicianus - loggerhead shrike (SC)
Melanerpes lewis - Lewis' woodpecker (SC)
Numenius americanus - long-billed curlew (SC)
Picoides nuttallii - Nuttall's woodpecker (SLC)
Plegadis chihi - white-faced ibis (SC)
Riparia riparia - bank swallow (CA)
Selasphorus rufus - rufous hummingbird (SC)

Mammals

Corynorhinus (=Plecotus) townsendii townsendii - Pacific western big-eared bat (SC)
Myotis ciliolabrum - small-footed myotis bat (SC)
Myotis volans - long-legged myotis bat (SC)
Myotis yumanensis - Yuma myotis bat (SC)
Perognathus inornatus - San Joaquin pocket mouse (SC)

Plants

Legenere limosa - legenere (SC)

SACRAMENTO EAST (512C)

Listed Species

Invertebrates

Branchinecta lynchi - vernal pool fairy shrimp (T)
Desmocerus californicus dimorphus - Critical habitat, valley elderberry longhorn beetle (X)
Desmocerus californicus dimorphus - valley elderberry longhorn beetle (T)
Lepidurus packardi - vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus - Critical habitat, delta smelt (X)
Hypomesus transpacificus - delta smelt (T)
Oncorhynchus mykiss - Central Valley steelhead (T)
Oncorhynchus tshawytscha - Central Valley spring-run chinook salmon (T)
Oncorhynchus tshawytscha - winter-run chinook salmon, Sacramento River (E)

Amphibians

Ambystoma californiense - California tiger salamander (T)
Rana aurora draytonii - California red-legged frog (T)

Reptiles

Thamnophis gigas - giant garter snake (T)

Birds

Haliaeetus leucocephalus - bald eagle (T)

Candidate Species

Fish

Acipenser medirostris - green sturgeon (C)
Oncorhynchus tshawytscha - Central Valley fall/late fall-run chinook salmon (C)

Species of Concern

Invertebrates

Anthicus antiochensis - Antioch Dunes anthicid beetle (SC)
Anthicus sacramento - Sacramento anthicid beetle (SC)
Branchinecta mesovallensis - Midvalley fairy shrimp (SC)
Linderiella occidentalis - California linderiella fairy shrimp (SC)

Fish

Lampetra ayresi - river lamprey (SC)
Lampetra tridentata - Pacific lamprey (SC)
Pogonichthys macrolepidotus - Sacramento splittail (SC)
Spirinchus thaleichthys - longfin smelt (SC)

Amphibians

Spea hammondii (was Scaphiopus h.) - western spadefoot toad (SC)

Reptiles

Clemmys marmorata marmorata - northwestern pond turtle (SC)
Phrynosoma coronatum frontale - California horned lizard (SC)

Birds

Agelaius tricolor - tricolored blackbird (SC)
Athene cunicularia hypugaea - western burrowing owl (SC)
Baeolophus inornatus - oak titmouse (SLC)
Branta canadensis leucopareia - Aleutian Canada goose (D)
Buteo regalis - ferruginous hawk (SC)
Buteo Swainsoni - Swainson's hawk (CA)
Carduelis lawrencei - Lawrence's goldfinch (SC)
Chaetura vauxi - Vaux's swift (SC)
Charadrius montanus - mountain plover (SC)
Elanus leucurus - white-tailed (=black shouldered) kite (SC)
Empidonax traillii brewsteri - little willow flycatcher (CA)
Falco peregrinus anatum - American peregrine falcon (D)
Grus canadensis tabida - greater sandhill crane (CA)
Lanius ludovicianus - loggerhead shrike (SC)
Melanerpes lewis - Lewis' woodpecker (SC)
Numenius americanus - long-billed curlew (SC)
Picoides nuttallii - Nuttall's woodpecker (SLC)
Plegadis chihi - white-faced ibis (SC)
Riparia riparia - bank swallow (CA)
Selasphorus rufus - rufous hummingbird (SC)

Mammals

Corynorhinus (=Plecotus) townsendii townsendii - Pacific western big-eared bat (SC)
Myotis ciliolabrum - small-footed myotis bat (SC)
Myotis volans - long-legged myotis bat (SC)
Myotis yumanensis - Yuma myotis bat (SC)
Perognathus inornatus - San Joaquin pocket mouse (SC)

Plants

Sagittaria sanfordii - valley sagittaria (=Sanford's arrowhead) (SC)

CARMICHAEL (512D)

Listed Species

Invertebrates

Branchinecta lynchi - vernal pool fairy shrimp (T)
Desmocerus californicus dimorphus - Critical habitat, valley elderberry longhorn beetle (X)
Desmocerus californicus dimorphus - valley elderberry longhorn beetle (T)
Lepidurus packardi - vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus - delta smelt (T)
Oncorhynchus mykiss - Central Valley steelhead (T)
Oncorhynchus tshawytscha - Central Valley spring-run chinook salmon (T)
Oncorhynchus tshawytscha - winter-run chinook salmon, Sacramento River (E)

Amphibians

Ambystoma californiense - California tiger salamander (T)
Rana aurora draytonii - California red-legged frog (T)

Reptiles

Thamnophis gigas - giant garter snake (T)

Birds

Haliaeetus leucocephalus - bald eagle (T)

Proposed Species

Fish

Oncorhynchus tshawytscha - Critical Habitat, Central Valley spring-run chinook (Proposed) (PX)

Candidate Species

Fish

Acipenser medirostris - green sturgeon (C)
Oncorhynchus tshawytscha - Central Valley fall/late fall-run chinook salmon (C)
Oncorhynchus tshawytscha - Critical habitat, Central Valley fall/late fall-run chinook (C)

Species of Concern

Invertebrates

Branchinecta mesovallensis - Midvalley fairy shrimp (SC)
Linderiella occidentalis - California linderiella fairy shrimp (SC)

Fish

Pogonichthys macrolepidotus - Sacramento splittail (SC)
Spirinchus thaleichthys - longfin smelt (SC)

Amphibians

Spea hammondii (was Scaphiopus h.) - western spadefoot toad (SC)

Reptiles

Clemmys marmorata marmorata - northwestern pond turtle (SC)
Phrynosoma coronatum frontale - California horned lizard (SC)

Birds

Agelaius tricolor - tricolored blackbird (SC)
Athene cunicularia hypugaea - western burrowing owl (SC)
Baeolophus inornatus - oak titmouse (SLC)
Branta canadensis leucopareia - Aleutian Canada goose (D)
Buteo regalis - ferruginous hawk (SC)
Buteo Swainsoni - Swainson's hawk (CA)
Carduelis lawrencei - Lawrence's goldfinch (SC)
Chaetura vauxi - Vaux's swift (SC)
Charadrius montanus - mountain plover (SC)
Elanus leucurus - white-tailed (=black shouldered) kite (SC)
Empidonax traillii brewsteri - little willow flycatcher (CA)
Falco peregrinus anatum - American peregrine falcon (D)

Grus canadensis tabida - greater sandhill crane (CA)
Lanius ludovicianus - loggerhead shrike (SC)
Melanerpes lewis - Lewis' woodpecker (SC)
Numenius americanus - long-billed curlew (SC)
Picoides nuttallii - Nuttall's woodpecker (SLC)
Plegadis chihi - white-faced ibis (SC)
Riparia riparia - bank swallow (CA)
Selasphorus rufus - rufous hummingbird (SC)

Mammals

Corynorhinus (=Plecotus) townsendii townsendii - Pacific western big-eared bat (SC)
Myotis ciliolabrum - small-footed myotis bat (SC)
Myotis volans - long-legged myotis bat (SC)
Myotis yumanensis - Yuma myotis bat (SC)
Perognathus inornatus - San Joaquin pocket mouse (SC)

Plants

Gratiola heterosepala - Boggs Lake hedge-hyssop (CA)
Juncus leiospermus var. ahartii - Ahart's (dwarf) rush (SC)
Sagittaria sanfordii - valley sagittaria (=Sanford's arrowhead) (SC)

ROCKLIN (527C)

Listed Species

Invertebrates

Branchinecta lynchi - vernal pool fairy shrimp (T)
Desmocerus californicus dimorphus - valley elderberry longhorn beetle (T)
Lepidurus packardi - vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus - delta smelt (T)
Oncorhynchus mykiss - Central Valley steelhead (T)
Oncorhynchus tshawytscha - Central Valley spring-run chinook salmon (T)
Oncorhynchus tshawytscha - winter-run chinook salmon, Sacramento River (E)

Amphibians

Rana aurora draytonii - California red-legged frog (T)

Reptiles

Thamnophis gigas - giant garter snake (T)

Birds

Haliaeetus leucocephalus - bald eagle (T)

Candidate Species

Fish

Acipenser medirostris - green sturgeon (C)
Oncorhynchus tshawytscha - Central Valley fall/late fall-run chinook salmon (C)

Species of Concern

Invertebrates

Linderiella occidentalis - California linderiella fairy shrimp (SC)
Nebria darlingtoni - South Forks ground beetle (SC)

Fish

Pogonichthys macrolepidotus - Sacramento splittail (SC)
Spirinchus thaleichthys - longfin smelt (SC)

Amphibians

Spea hammondii (was Scaphiopus h.) - western spadefoot toad (SC)

Reptiles

Clemmys marmorata marmorata - northwestern pond turtle (SC)
Phrynosoma coronatum frontale - California horned lizard (SC)

Birds

Agelaius tricolor - tricolored blackbird (SC)
Athene cunicularia hypugaea - western burrowing owl (SC)
Baeolophus inornatus - oak titmouse (SLC)
Branta canadensis leucopareia - Aleutian Canada goose (D)
Buteo regalis - ferruginous hawk (SC)
Buteo Swainsoni - Swainson's hawk (CA)
Carduelis lawrencei - Lawrence's goldfinch (SC)
Chaetura vauxi - Vaux's swift (SC)
Charadrius montanus - mountain plover (SC)
Cypseloides niger - black swift (SC)
Elanus leucurus - white-tailed (=black shouldered) kite (SC)
Empidonax traillii brewsteri - little willow flycatcher (CA)
Falco peregrinus anatum - American peregrine falcon (D)
Lanius ludovicianus - loggerhead shrike (SC)
Melanerpes lewis - Lewis' woodpecker (SC)
Numenius americanus - long-billed curlew (SC)
Picoides nuttallii - Nuttall's woodpecker (SLC)
Plegadis chihi - white-faced ibis (SC)
Riparia riparia - bank swallow (CA)
Selasphorus rufus - rufous hummingbird (SC)
Toxostoma redivivum - California thrasher (SC)

Mammals

Euderma maculatum - spotted bat (SC)
Eumops perotis californicus - greater western mastiff-bat (SC)
Myotis ciliolabrum - small-footed myotis bat (SC)
Myotis evotis - long-eared myotis bat (SC)
Myotis thysanodes - fringed myotis bat (SC)
Myotis volans - long-legged myotis bat (SC)
Myotis yumanensis - Yuma myotis bat (SC)
Perognathus inornatus - San Joaquin pocket mouse (SC)

Plants

Gratiola heterosepala - Boggs Lake hedge-hyssop (CA)

SHERIDAN (528B)

Listed Species

Invertebrates

Branchinecta lynchi - Critical habitat, vernal pool fairy shrimp (X)
Branchinecta lynchi - vernal pool fairy shrimp (T)
Desmocerus californicus dimorphus - valley elderberry longhorn beetle (T)
Lepidurus packardi - vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus - delta smelt (T)
Oncorhynchus mykiss - Central Valley steelhead (T)
Oncorhynchus tshawytscha - Central Valley spring-run chinook salmon (T)
Oncorhynchus tshawytscha - winter-run chinook salmon, Sacramento River (E)

Amphibians

Rana aurora draytonii - California red-legged frog (T)

Reptiles

Thamnophis gigas - giant garter snake (T)

Birds

Haliaeetus leucocephalus - bald eagle (T)

Proposed Species

Fish

Oncorhynchus tshawytscha - Critical Habitat, Central Valley spring-run chinook (Proposed) (PX)

Candidate Species

Fish

Acipenser medirostris - green sturgeon (C)
Oncorhynchus tshawytscha - Central Valley fall/late fall-run chinook salmon (C)
Oncorhynchus tshawytscha - Critical habitat, Central Valley fall/late fall-run chinook (C)

Species of Concern

Invertebrates

Linderiella occidentalis - California linderiella fairy shrimp (SC)

Fish

Pogonichthys macrolepidotus - Sacramento splittail (SC)
Spirinchus thaleichthys - longfin smelt (SC)

Amphibians

Spea hammondii (was Scaphiopus h.) - western spadefoot toad (SC)

Reptiles

Clemmys marmorata marmorata - northwestern pond turtle (SC)

Birds

Agelaius tricolor - tricolored blackbird (SC)
Athene cunicularia hypugaea - western burrowing owl (SC)
Baeolophus inornatus - oak titmouse (SLC)
Branta canadensis leucopareia - Aleutian Canada goose (D)
Buteo regalis - ferruginous hawk (SC)
Buteo Swainsoni - Swainson's hawk (CA)
Carduelis lawrencei - Lawrence's goldfinch (SC)
Chaetura vauxi - Vaux's swift (SC)
Charadrius montanus - mountain plover (SC)
Elanus leucurus - white-tailed (=black shouldered) kite (SC)
Empidonax traillii brewsteri - little willow flycatcher (CA)
Falco peregrinus anatum - American peregrine falcon (D)
Grus canadensis tabida - greater sandhill crane (CA)
Lanius ludovicianus - loggerhead shrike (SC)
Melanerpes lewis - Lewis' woodpecker (SC)

Numenius americanus - long-billed curlew (SC)
Picoides nuttallii - Nuttall's woodpecker (SLC)
Plegadis chihi - white-faced ibis (SC)
Riparia riparia - bank swallow (CA)
Selasphorus rufus - rufous hummingbird (SC)

Mammals

Corynorhinus (=Plecotus) townsendii townsendii - Pacific western big-eared bat (SC)
Eumops perotis californicus - greater western mastiff-bat (SC)
Myotis ciliolabrum - small-footed myotis bat (SC)
Myotis volans - long-legged myotis bat (SC)
Myotis yumanensis - Yuma myotis bat (SC)
Perognathus inornatus - San Joaquin pocket mouse (SC)

PLEASANT GROVE (528C)

Listed Species

Invertebrates

Branchinecta lynchi - Critical habitat, vernal pool fairy shrimp (X)
Branchinecta lynchi - vernal pool fairy shrimp (T)
Desmocerus californicus dimorphus - valley elderberry longhorn beetle (T)
Lepidurus packardi - vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus - delta smelt (T)
Oncorhynchus mykiss - Central Valley steelhead (T)
Oncorhynchus tshawytscha - Central Valley spring-run chinook salmon (T)
Oncorhynchus tshawytscha - winter-run chinook salmon, Sacramento River (E)

Amphibians

Rana aurora draytonii - California red-legged frog (T)

Reptiles

Thamnophis gigas - giant garter snake (T)

Birds

Haliaeetus leucocephalus - bald eagle (T)

Candidate Species

Fish

Acipenser medirostris - green sturgeon (C)
Oncorhynchus tshawytscha - Central Valley fall/late fall-run chinook salmon (C)

Birds

Coccyzus americanus occidentalis - Western yellow-billed cuckoo (C)

Species of Concern

Invertebrates

Linderiella occidentalis - California linderiella fairy shrimp (SC)

Fish

Pogonichthys macrolepidotus - Sacramento splittail (SC)
Spirinchus thaleichthys - longfin smelt (SC)

Amphibians

Spea hammondii (was Scaphiopus h.) - western spadefoot toad (SC)

Reptiles

Clemmys marmorata marmorata - northwestern pond turtle (SC)

Phrynosoma coronatum frontale - California horned lizard (SC)

Birds

Agelaius tricolor - tricolored blackbird (SC)
Athene cunicularia hypugaea - western burrowing owl (SC)
Baeolophus inornatus - oak titmouse (SLC)
Branta canadensis leucopareia - Aleutian Canada goose (D)
Buteo regalis - ferruginous hawk (SC)
Buteo Swainsoni - Swainson's hawk (CA)
Carduelis lawrencei - Lawrence's goldfinch (SC)
Chaetura vauxi - Vaux's swift (SC)
Charadrius montanus - mountain plover (SC)
Elanus leucurus - white-tailed (=black shouldered) kite (SC)
Empidonax traillii brewsteri - little willow flycatcher (CA)
Falco peregrinus anatum - American peregrine falcon (D)
Grus canadensis tabida - greater sandhill crane (CA)
Lanius ludovicianus - loggerhead shrike (SC)
Melanerpes lewis - Lewis' woodpecker (SC)
Numenius americanus - long-billed curlew (SC)
Picoides nuttallii - Nuttall's woodpecker (SLC)
Plegadis chihi - white-faced ibis (SC)
Riparia riparia - bank swallow (CA)
Selasphorus rufus - rufous hummingbird (SC)

Mammals

Corynorhinus (=Plecotus) townsendii townsendii - Pacific western big-eared bat (SC)
Eumops perotis californicus - greater western mastiff-bat (SC)
Myotis ciliolabrum - small-footed myotis bat (SC)
Myotis volans - long-legged myotis bat (SC)
Myotis yumanensis - Yuma myotis bat (SC)
Perognathus inornatus - San Joaquin pocket mouse (SC)

ROSEVILLE (528D)

Listed Species

Invertebrates

Branchinecta lynchi - Critical habitat, vernal pool fairy shrimp (X)
Branchinecta lynchi - vernal pool fairy shrimp (T)
Desmocerus californicus dimorphus - valley elderberry longhorn beetle (T)
Lepidurus packardi - vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus - delta smelt (T)
Oncorhynchus mykiss - Central Valley steelhead (T)
Oncorhynchus tshawytscha - Central Valley spring-run chinook salmon (T)
Oncorhynchus tshawytscha - winter-run chinook salmon, Sacramento River (E)

Amphibians

Rana aurora draytonii - California red-legged frog (T)

Reptiles

Thamnophis gigas - giant garter snake (T)

Birds

Haliaeetus leucocephalus - bald eagle (T)

Candidate Species

Fish

Acipenser medirostris - green sturgeon (C)
Oncorhynchus tshawytscha - Central Valley fall/late fall-run chinook salmon (C)

Species of Concern

Invertebrates

Linderiella occidentalis - California linderiella fairy shrimp (SC)

Fish

Pogonichthys macrolepidotus - Sacramento splittail (SC)
Spirinchus thaleichthys - longfin smelt (SC)

Amphibians

Spea hammondii (was Scaphiopus h.) - western spadefoot toad (SC)

Reptiles

Clemmys marmorata marmorata - northwestern pond turtle (SC)
Phrynosoma coronatum frontale - California horned lizard (SC)

Birds

Agelaius tricolor - tricolored blackbird (SC)
Athene cunicularia hypugaea - western burrowing owl (SC)
Baeolophus inornatus - oak titmouse (SLC)
Branta canadensis leucopareia - Aleutian Canada goose (D)
Buteo regalis - ferruginous hawk (SC)
Buteo Swainsoni - Swainson's hawk (CA)
Carduelis lawrencei - Lawrence's goldfinch (SC)
Chaetura vauxi - Vaux's swift (SC)
Charadrius montanus - mountain plover (SC)
Cypseloides niger - black swift (SC)
Elanus leucurus - white-tailed (=black shouldered) kite (SC)
Empidonax traillii brewsteri - little willow flycatcher (CA)
Falco peregrinus anatum - American peregrine falcon (D)
Grus canadensis tabida - greater sandhill crane (CA)
Lanius ludovicianus - loggerhead shrike (SC)
Melanerpes lewis - Lewis' woodpecker (SC)
Numenius americanus - long-billed curlew (SC)
Picoides nuttallii - Nuttall's woodpecker (SLC)
Plegadis chihi - white-faced ibis (SC)
Riparia riparia - bank swallow (CA)
Selasphorus rufus - rufous hummingbird (SC)
Toxostoma redivivum - California thrasher (SC)

Mammals

Corynorhinus (=Plecotus) townsendii townsendii - Pacific western big-eared bat (SC)
Eumops perotis californicus - greater western mastiff-bat (SC)
Myotis ciliolabrum - small-footed myotis bat (SC)
Myotis evotis - long-eared myotis bat (SC)
Myotis thysanodes - fringed myotis bat (SC)

Myotis volans - long-legged myotis bat (SC)
Myotis yumanensis - Yuma myotis bat (SC)
Perognathus inornatus - San Joaquin pocket mouse (SC)

Plants

Balsamorhiza macrolepis var macrolepis - big-scale (=California) balsamroot (SLC)
Cordylanthus mollis ssp. hispidus - hispid bird's-beak (SC)
Gratiola heterosepala - Boggs Lake hedge-hyssop (CA)
Legenere limosa - legenere (SC)

NICOLAUS (529A)

Listed Species

Invertebrates

Branchinecta lynchi - vernal pool fairy shrimp (T)
Desmocerus californicus dimorphus - valley elderberry longhorn beetle (T)
Lepidurus packardi - vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus - delta smelt (T)
Oncorhynchus mykiss - Central Valley steelhead (T)
Oncorhynchus tshawytscha - Central Valley spring-run chinook salmon (T)
Oncorhynchus tshawytscha - winter-run chinook salmon, Sacramento River (E)

Amphibians

Rana aurora draytonii - California red-legged frog (T)

Reptiles

Thamnophis gigas - giant garter snake (T)

Birds

Haliaeetus leucocephalus - bald eagle (T)

Proposed Species

Fish

Oncorhynchus tshawytscha - Critical Habitat, Central Valley spring-run chinook (Proposed) (PX)

Candidate Species

Fish

Acipenser medirostris - green sturgeon (C)
Oncorhynchus tshawytscha - Central Valley fall/late fall-run chinook salmon (C)
Oncorhynchus tshawytscha - Critical habitat, Central Valley fall/late fall-run chinook (C)

Birds

Coccyzus americanus occidentalis - Western yellow-billed cuckoo (C)

Species of Concern

Invertebrates

Anthicus antiochensis - Antioch Dunes anthicid beetle (SC)
Anthicus sacramento - Sacramento anthicid beetle (SC)
Cicindela hirticollis abrupta - Sacramento Valley tiger beetle (SC)
Linderiella occidentalis - California linderiella fairy shrimp (SC)

Fish

Lampetra tridentata - Pacific lamprey (SC)
Pogonichthys macrolepidotus - Sacramento splittail (SC)
Spirinchus thaleichthys - longfin smelt (SC)

Amphibians

Spea hammondii (was Scaphiopus h.) - western spadefoot toad (SC)

Reptiles

Clemmys marmorata marmorata - northwestern pond turtle (SC)

Birds

Agelaius tricolor - tricolored blackbird (SC)
Athene cunicularia hypugaea - western burrowing owl (SC)
Baeolophus inornatus - oak titmouse (SLC)
Branta canadensis leucopareia - Aleutian Canada goose (D)
Buteo regalis - ferruginous hawk (SC)
Buteo Swainsoni - Swainson's hawk (CA)
Carduelis lawrencei - Lawrence's goldfinch (SC)
Chaetura vauxi - Vaux's swift (SC)
Charadrius montanus - mountain plover (SC)
Elanus leucurus - white-tailed (=black shouldered) kite (SC)
Empidonax traillii brewsteri - little willow flycatcher (CA)
Falco peregrinus anatum - American peregrine falcon (D)
Grus canadensis tabida - greater sandhill crane (CA)
Lanius ludovicianus - loggerhead shrike (SC)
Melanerpes lewis - Lewis' woodpecker (SC)
Numenius americanus - long-billed curlew (SC)
Picoides nuttallii - Nuttall's woodpecker (SLC)
Plegadis chihi - white-faced ibis (SC)
Riparia riparia - bank swallow (CA)
Selasphorus rufus - rufous hummingbird (SC)
Toxostoma redivivum - California thrasher (SC)

Mammals

Corynorhinus (=Plecotus) townsendii townsendii - Pacific western big-eared bat (SC)
Myotis ciliolabrum - small-footed myotis bat (SC)
Myotis volans - long-legged myotis bat (SC)
Myotis yumanensis - Yuma myotis bat (SC)
Perognathus inornatus - San Joaquin pocket mouse (SC)

SUTTER CAUSEWAY (529B)

Listed Species

Invertebrates

Branchinecta lynchi - vernal pool fairy shrimp (T)
Desmocerus californicus dimorphus - valley elderberry longhorn beetle (T)
Lepidurus packardi - vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus - delta smelt (T)
Oncorhynchus mykiss - Central Valley steelhead (T)
Oncorhynchus tshawytscha - Central Valley spring-run chinook salmon (T)
Oncorhynchus tshawytscha - winter-run chinook salmon, Sacramento River (E)

Amphibians

Ambystoma californiense - California tiger salamander (T)
Rana aurora draytonii - California red-legged frog (T)

Reptiles

Thamnophis gigas - giant garter snake (T)

Birds

Haliaeetus leucocephalus - bald eagle (T)

Proposed Species

Fish

Oncorhynchus tshawytscha - Critical Habitat, Central Valley spring-run chinook (Proposed) (PX)

Candidate Species

Fish

Acipenser medirostris - green sturgeon (C)
Oncorhynchus tshawytscha - Central Valley fall/late fall-run chinook salmon (C)
Oncorhynchus tshawytscha - Critical habitat, Central Valley fall/late fall-run chinook (C)

Birds

Coccyzus americanus occidentalis - Western yellow-billed cuckoo (C)

Species of Concern

Invertebrates

Anthicus antiochensis - Antioch Dunes anthicid beetle (SC)
Anthicus sacramento - Sacramento anthicid beetle (SC)
Cicindela hirticollis abrupta - Sacramento Valley tiger beetle (SC)
Linderiella occidentalis - California linderiella fairy shrimp (SC)

Fish

Lampetra ayresi - river lamprey (SC)
Lampetra tridentata - Pacific lamprey (SC)
Pogonichthys macrolepidotus - Sacramento splittail (SC)
Spirinchus thaleichthys - longfin smelt (SC)

Amphibians

Spea hammondii (was Scaphiopus h.) - western spadefoot toad (SC)

Reptiles

Clemmys marmorata marmorata - northwestern pond turtle (SC)

Birds

Agelaius tricolor - tricolored blackbird (SC)
Athene cunicularia hypugaea - western burrowing owl (SC)
Baeolophus inornatus - oak titmouse (SLC)
Branta canadensis leucopareia - Aleutian Canada goose (D)
Buteo regalis - ferruginous hawk (SC)
Buteo Swainsoni - Swainson's hawk (CA)
Carduelis lawrencei - Lawrence's goldfinch (SC)
Chaetura vauxi - Vaux's swift (SC)
Charadrius montanus - mountain plover (SC)
Elanus leucurus - white-tailed (=black shouldered) kite (SC)
Empidonax traillii brewsteri - little willow flycatcher (CA)
Falco peregrinus anatum - American peregrine falcon (D)
Grus canadensis tabida - greater sandhill crane (CA)
Lanius ludovicianus - loggerhead shrike (SC)
Melanerpes lewis - Lewis' woodpecker (SC)

Numenius americanus - long-billed curlew (SC)
Picoides nuttallii - Nuttall's woodpecker (SLC)
Plegadis chihi - white-faced ibis (SC)
Riparia riparia - bank swallow (CA)
Selasphorus rufus - rufous hummingbird (SC)

Mammals

Corynorhinus (=Plecotus) townsendii townsendii - Pacific western big-eared bat (SC)
Myotis ciliolabrum - small-footed myotis bat (SC)
Myotis volans - long-legged myotis bat (SC)
Myotis yumanensis - Yuma myotis bat (SC)
Perognathus inornatus - San Joaquin pocket mouse (SC)

VERONA (529D)

Listed Species

Invertebrates

Branchinecta lynchi - vernal pool fairy shrimp (T)
Desmocerus californicus dimorphus - valley elderberry longhorn beetle (T)
Lepidurus packardi - vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus - delta smelt (T)
Oncorhynchus mykiss - Central Valley steelhead (T)
Oncorhynchus tshawytscha - Central Valley spring-run chinook salmon (T)
Oncorhynchus tshawytscha - Critical habitat, winter-run chinook salmon (X)
Oncorhynchus tshawytscha - winter-run chinook salmon, Sacramento River (E)

Amphibians

Ambystoma californiense - California tiger salamander (T)
Rana aurora draytonii - California red-legged frog (T)

Reptiles

Thamnophis gigas - giant garter snake (T)

Birds

Haliaeetus leucocephalus - bald eagle (T)

Proposed Species

Fish

Oncorhynchus tshawytscha - Critical Habitat, Central Valley spring-run chinook (Proposed) (PX)

Candidate Species

Fish

Acipenser medirostris - green sturgeon (C)
Oncorhynchus tshawytscha - Central Valley fall/late fall-run chinook salmon (C)
Oncorhynchus tshawytscha - Critical habitat, Central Valley fall/late fall-run chinook (C)

Birds

Coccyzus americanus occidentalis - Western yellow-billed cuckoo (C)

Species of Concern

Invertebrates

Anthicus antiochensis - Antioch Dunes anthicid beetle (SC)
Anthicus sacramento - Sacramento anthicid beetle (SC)
Branchinecta mesovallensis - Midvalley fairy shrimp (SC)

Linderiella occidentalis - California linderiella fairy shrimp (SC)

Fish

Lampetra tridentata - Pacific lamprey (SC)
Pogonichthys macrolepidotus - Sacramento splittail (SC)
Spirinchus thaleichthys - longfin smelt (SC)

Amphibians

Spea hammondii (was Scaphiopus h.) - western spadefoot toad (SC)

Reptiles

Clemmys marmorata marmorata - northwestern pond turtle (SC)

Birds

Agelaius tricolor - tricolored blackbird (SC)
Athene cunicularia hypugaea - western burrowing owl (SC)
Baeolophus inornatus - oak titmouse (SLC)
Branta canadensis leucopareia - Aleutian Canada goose (D)
Buteo regalis - ferruginous hawk (SC)
Buteo Swainsoni - Swainson's hawk (CA)
Carduelis lawrencei - Lawrence's goldfinch (SC)
Chaetura vauxi - Vaux's swift (SC)
Charadrius montanus - mountain plover (SC)
Elanus leucurus - white-tailed (=black shouldered) kite (SC)
Empidonax traillii brewsteri - little willow flycatcher (CA)
Falco peregrinus anatum - American peregrine falcon (D)
Grus canadensis tabida - greater sandhill crane (CA)
Lanius ludovicianus - loggerhead shrike (SC)
Melanerpes lewis - Lewis' woodpecker (SC)
Numenius americanus - long-billed curlew (SC)
Picoides nuttallii - Nuttall's woodpecker (SLC)
Plegadis chihi - white-faced ibis (SC)
Riparia riparia - bank swallow (CA)
Selasphorus rufus - rufous hummingbird (SC)
Toxostoma redivivum - California thrasher (SC)

Mammals

Corynorhinus (=Plecotus) townsendii townsendii - Pacific western big-eared bat (SC)
Myotis ciliolabrum - small-footed myotis bat (SC)
Myotis volans - long-legged myotis bat (SC)
Myotis yumanensis - Yuma myotis bat (SC)
Perognathus inornatus - San Joaquin pocket mouse (SC)

GILSIZER SLOUGH (544C)

Listed Species

Invertebrates

Branchinecta lynchi - vernal pool fairy shrimp (T)
Desmocerus californicus dimorphus - valley elderberry longhorn beetle (T)
Lepidurus packardi - vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus - delta smelt (T)
Oncorhynchus mykiss - Central Valley steelhead (T)

Oncorhynchus tshawytscha - Central Valley spring-run chinook salmon (T)
Oncorhynchus tshawytscha - winter-run chinook salmon, Sacramento River (E)

Amphibians

Ambystoma californiense - California tiger salamander (T)
Rana aurora draytonii - California red-legged frog (T)

Reptiles

Thamnophis gigas - giant garter snake (T)

Birds

Haliaeetus leucocephalus - bald eagle (T)

Proposed Species

Fish

Oncorhynchus tshawytscha - Critical Habitat, Central Valley spring-run chinook (Proposed) (PX)

Candidate Species

Fish

Acipenser medirostris - green sturgeon (C)
Oncorhynchus tshawytscha - Central Valley fall/late fall-run chinook salmon (C)
Oncorhynchus tshawytscha - Critical habitat, Central Valley fall/late fall-run chinook (C)

Birds

Coccyzus americanus occidentalis - Western yellow-billed cuckoo (C)

Species of Concern

Invertebrates

Anthicus antiochensis - Antioch Dunes anthicid beetle (SC)
Anthicus sacramento - Sacramento anthicid beetle (SC)
Cicindela hirticollis abrupta - Sacramento Valley tiger beetle (SC)
Linderiella occidentalis - California linderiella fairy shrimp (SC)

Fish

Lampetra ayresi - river lamprey (SC)
Lampetra tridentata - Pacific lamprey (SC)
Pogonichthys macrolepidotus - Sacramento splittail (SC)
Spirinchus thaleichthys - longfin smelt (SC)

Reptiles

Clemmys marmorata marmorata - northwestern pond turtle (SC)

Birds

Agelaius tricolor - tricolored blackbird (SC)
Athene cunicularia hypugaea - western burrowing owl (SC)
Baeolophus inornatus - oak titmouse (SLC)
Branta canadensis leucopareia - Aleutian Canada goose (D)
Buteo regalis - ferruginous hawk (SC)
Buteo Swainsoni - Swainson's hawk (CA)
Carduelis lawrencei - Lawrence's goldfinch (SC)
Chaetura vauxi - Vaux's swift (SC)
Charadrius montanus - mountain plover (SC)
Elanus leucurus - white-tailed (=black shouldered) kite (SC)
Empidonax traillii brewsteri - little willow flycatcher (CA)
Falco peregrinus anatum - American peregrine falcon (D)

Grus canadensis tabida - greater sandhill crane (CA)
Lanius ludovicianus - loggerhead shrike (SC)
Melanerpes lewis - Lewis' woodpecker (SC)
Numenius americanus - long-billed curlew (SC)
Picoides nuttallii - Nuttall's woodpecker (SLC)
Plegadis chihi - white-faced ibis (SC)
Riparia riparia - bank swallow (CA)
Selasphorus rufus - rufous hummingbird (SC)

Mammals

Corynorhinus (=Plecotus) townsendii townsendii - Pacific western big-eared bat (SC)
Dipodomys californicus eximius - Marysville Heermann's kangaroo rat (SC)
Eumops perotis californicus - greater western mastiff-bat (SC)
Myotis ciliolabrum - small-footed myotis bat (SC)
Myotis volans - long-legged myotis bat (SC)
Myotis yumanensis - Yuma myotis bat (SC)
Perognathus inornatus - San Joaquin pocket mouse (SC)

County Lists

No county species lists requested.

Key:

- (E) Endangered - Listed (in the Federal Register) as being in danger of extinction.
- (T) Threatened - Listed as likely to become endangered within the foreseeable future.
- (P) Proposed - Officially proposed (in the Federal Register) for listing as endangered or threatened.
- (NMFS) Species under the Jurisdiction of the National Marine Fisheries Service. Consult with them directly about these species.
- Critical Habitat - Area essential to the conservation of a species.
- (PX) Proposed Critical Habitat - The species is already listed. Critical habitat is being proposed for it.
- (C) Candidate - Candidate to become a proposed species.
- (CA) Listed by the State of California but not by the Fish & Wildlife Service.
- (D) Delisted - Species will be monitored for 5 years.
- (SC) Species of Concern/(SLC) Species of Local Concern - Other species of concern to the Sacramento Fish & Wildlife Office.
- (V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
- (X) Critical Habitat designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7Â½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, or may be affected by projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regard-less of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the quad or quads covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the nine surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list.
For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

State-Listed Species

If a species has been listed as threatened or endangered by the State of California, but not by us nor by the National Marine Fisheries Service, it will appear on your list as a Species of Concern. However you should contact the California Department of Fish and Game Wildlife and Habitat Data Analysis Branch for official information about these species.

Your Responsibilities Under the Endangered Species Act

All plants and animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.
Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR Â§17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.

  During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.
  Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compen-sates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.
Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.
If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our critical habitat page for maps.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

Your list may contain a section called Species of Concern. This is an informal term that refers to those species that the Sacramento Fish and Wildlife Office believes might be in need of concentrated conservation actions. Such conservation actions vary depending on the health of the populations and degree and types of threats. At one extreme, there may only need to be periodic monitoring of populations and threats to the species and its habitat. At the other extreme, a species may need to be listed as a Federal threatened or endangered species. Species of concern receive no legal protection and the use of the term does not necessarily mean that the species will eventually be proposed for listing as a threatened or endangered species.

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6580.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed, candidate and special concern species in your planning, this should not be a problem.

However, we recommend that you get an updated list every 90 days. That would be August 14, 2005.

Appendix C
Correspondence with the NMFS and other Federal Agencies

JAN 14 2002

Ms. Diane Windom
National Marine Fisheries Service
650 Capitol Mall, Suite 8-300
Sacramento, CA 95814

Dear Ms. Windom:

The Western Area Power Administration (Western) is a power marketing agency of the U.S. Department of Energy, with jurisdiction in 15 western states. Western's Sierra Nevada Region performs the agency's mission in parts of California and Nevada. As part of its mission work, Western owns, operates, and maintains a system of transmission lines for transmitting bulk electrical energy from points of generation to and between delivery points. Enclosed are seven maps showing parts of the 230-kilovolt (kV) transmission lines and watersheds within the Sacramento area. Western is in the process of preparing an Environmental Assessment (EA) for maintenance on these transmission line rights-of-ways (ROWs) and associated legal access roads.

Western must comply with the National Electric Safety Code, Western Systems Coordinating Council and Western directives for protecting human safety and maintaining the reliable operation of the transmission system. Therefore, Western needs to keep vegetation away from its electric facilities, increase efficiency and consistency, and maximize the range of tools used while minimizing environmental impacts. By doing this, Western can minimize human safety and fire hazards that result in electrocution, damage to the transmission line, or outages which would interrupt service. Regular maintenance of the transmission line towers and access roads is essential to prevent these types of occurrences. ROW maintenance may include vegetation removal and road repairs to allow equipment access to transmission lines and towers.

To date Western's focus has been on sites where our transmission lines cross or parallel the Sacramento, American, and Cosumnes Rivers. As a part of this process we are trying to address any potential impacts to listed fish species in the area and use best management practices to maintain a high level of environmental responsibility under our ROWs. Our ROWs are usually 150 feet wide, and we often have to cut/trim trees and brush to keep our lines clear. There are also occasions when we find it necessary to apply herbicides to maintain low growing plant communities. In general, our protocols for maintenance near waterbodies are meant to minimize any negative impacts to the natural system.

We would appreciate any information on the Sacramento, American, and Cosumnes Rivers, and other associated tributaries within the project area that may assist us in minimizing potential effects to listed species and support Western in incorporating the best management practices into it's routine maintenance activities.

We appreciate your attention to this matter and we anticipate hearing from you soon. If you have any questions, please contact Mr. Steve Tuggle, Western's Project Manager for this EA, at (916) 353-4549 or Mr. Nick Hindman, Western's Fisheries Biologist, at (916) 353-4529.

Sincerely,

ORIGINAL SIGNED BY

Bruce Thomas
Acting Environmental Manager

bcc:
N0400, N0417, N0415 (RF OF)

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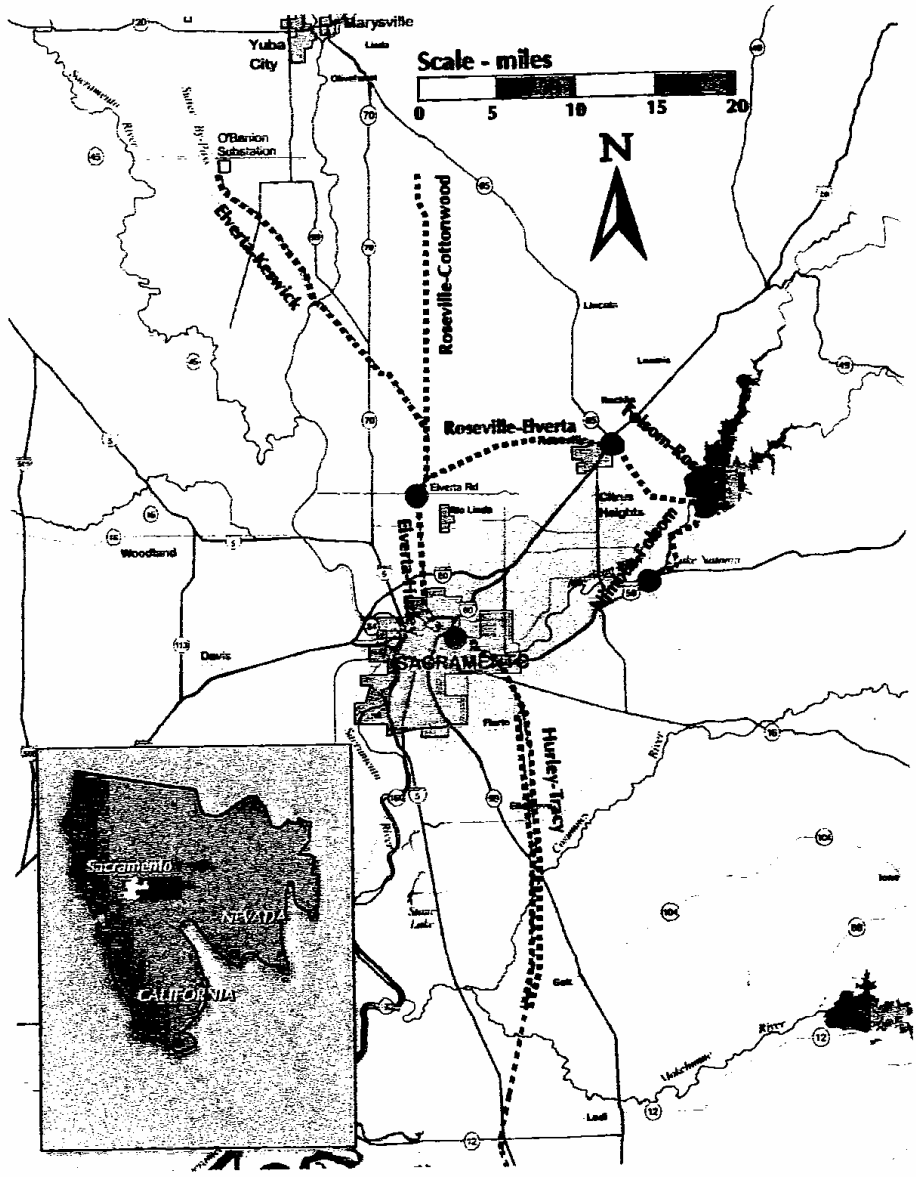


FIGURE 1-1. LOCATION OF STUDY AREA AND TRANSMISSION LINE RIGHTS-OF-WAY

Western Area Power Administration
Environmental Assessment for ROW Maintenance
Sacramento Valley, California

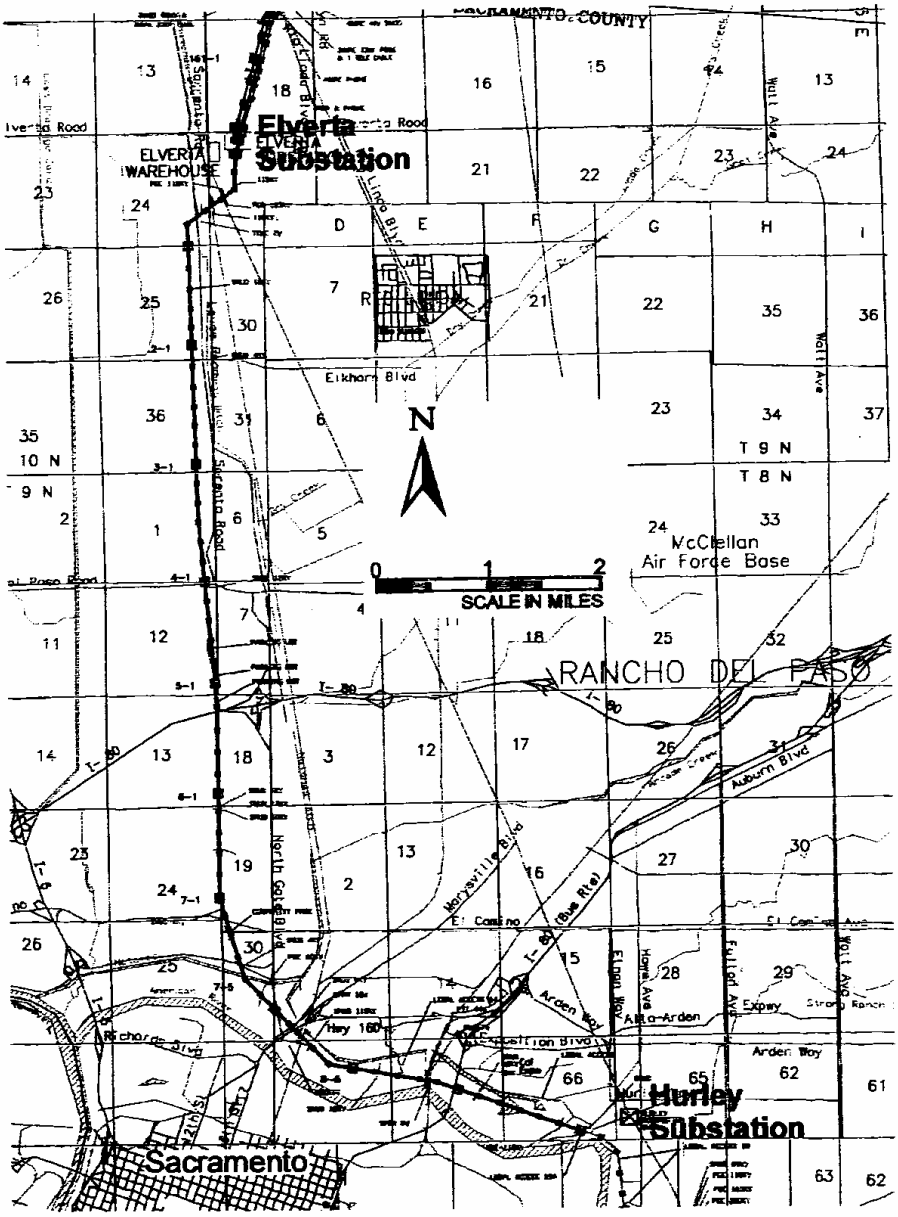


FIGURE 1-2. LOCATION OF ELVERTA-HURLEY TRANSMISSION LINE

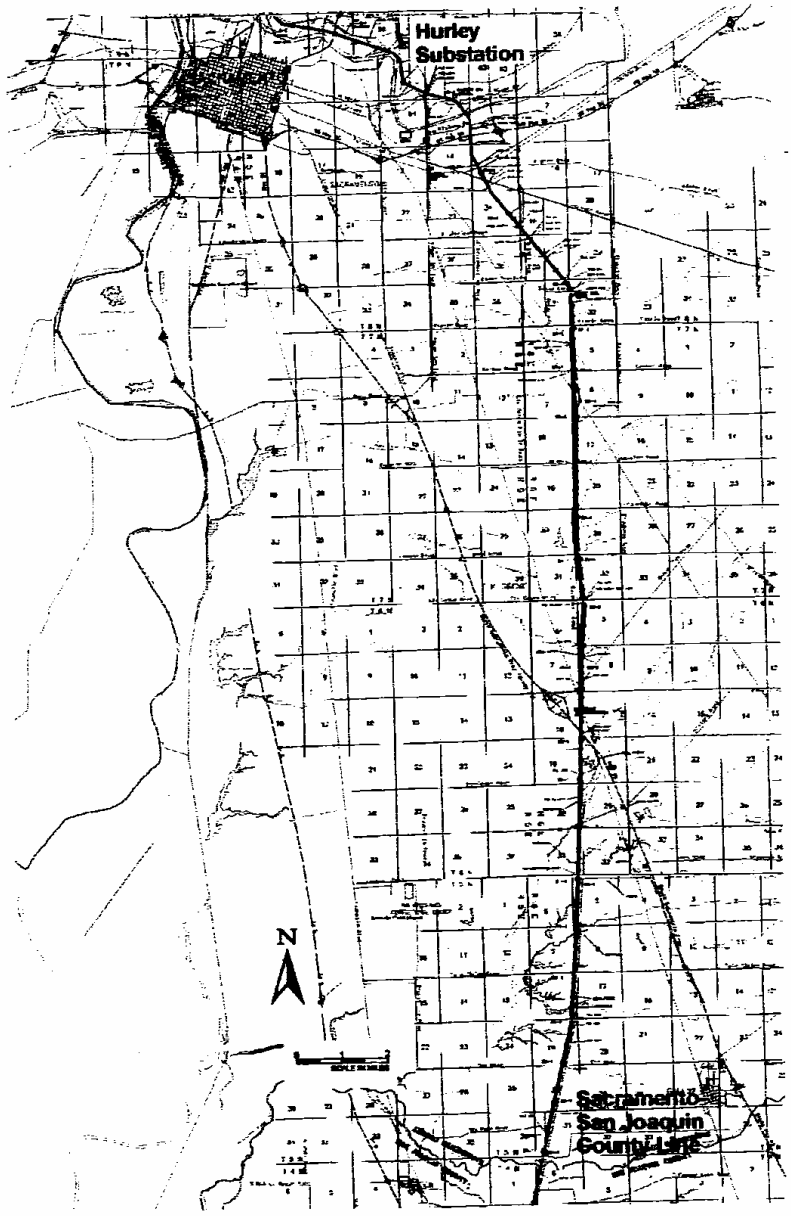


FIGURE 1-3. LOCATION OF HURLEY-TRACY TRANSMISSION LINE

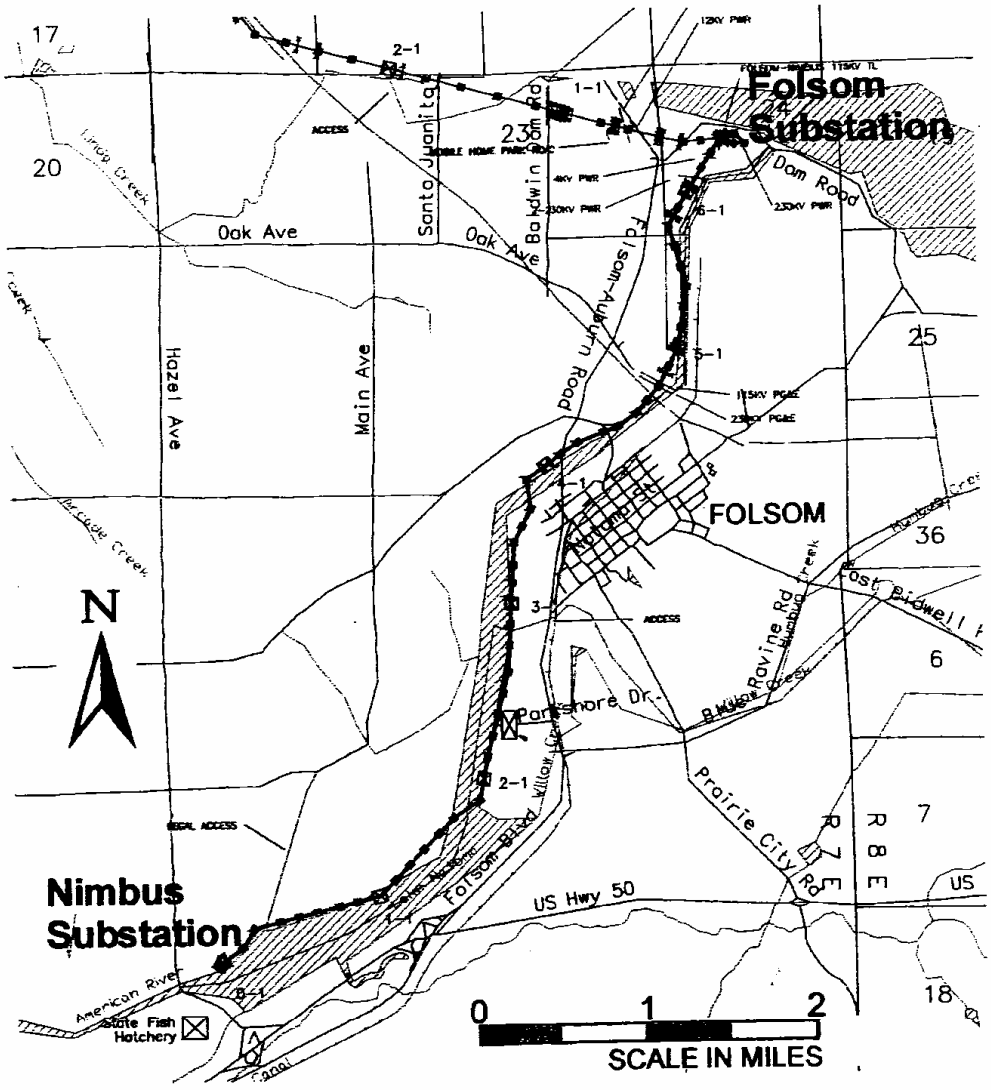


FIGURE 1-4. LOCATION OF NIMBUS-FOLSOM TRANSMISSION LINE

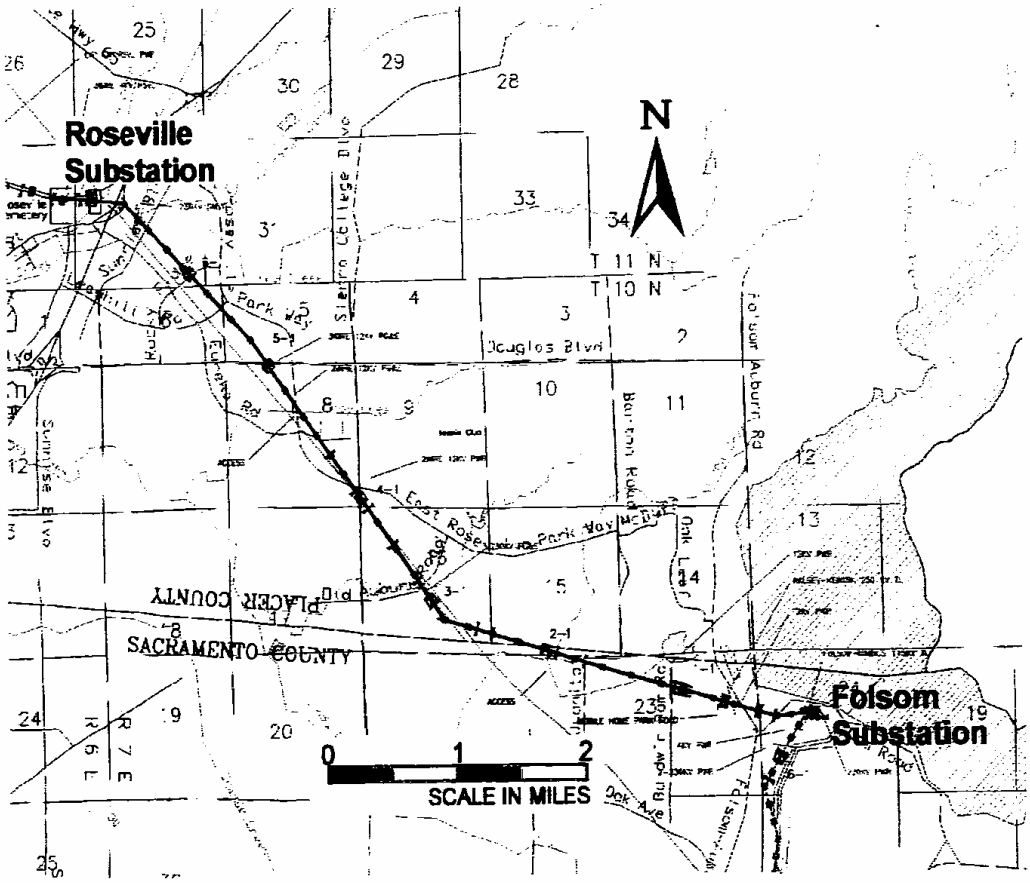


FIGURE 1-5. LOCATION OF FOLSOM-ROSEVILLE TRANSMISSION LINE

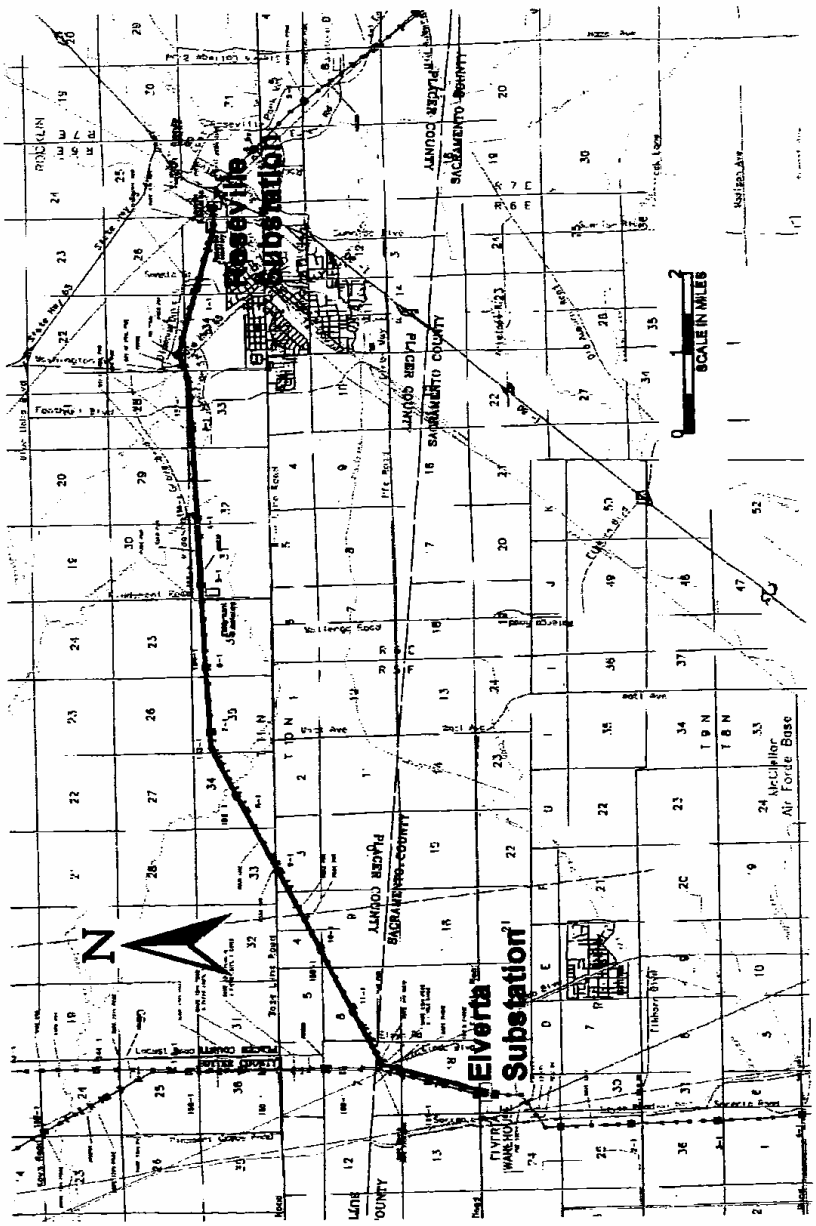


FIGURE 1-6. LOCATION OF ROSEVILLE-ELVERTA TRANSMISSION LINE

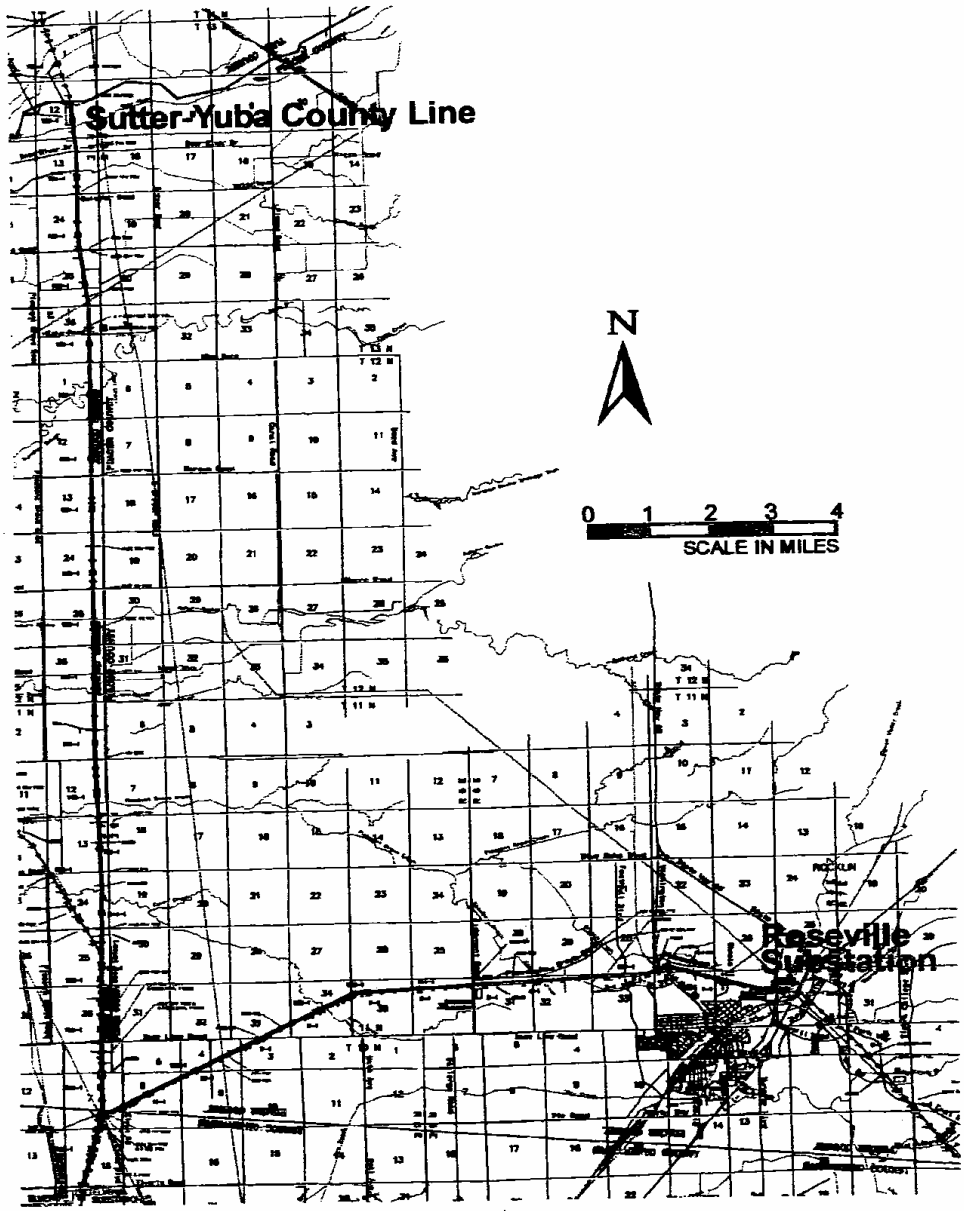


FIGURE 1-7. LOCATION OF ROSEVILLE-COTTONWOOD TRANSMISSION LINE

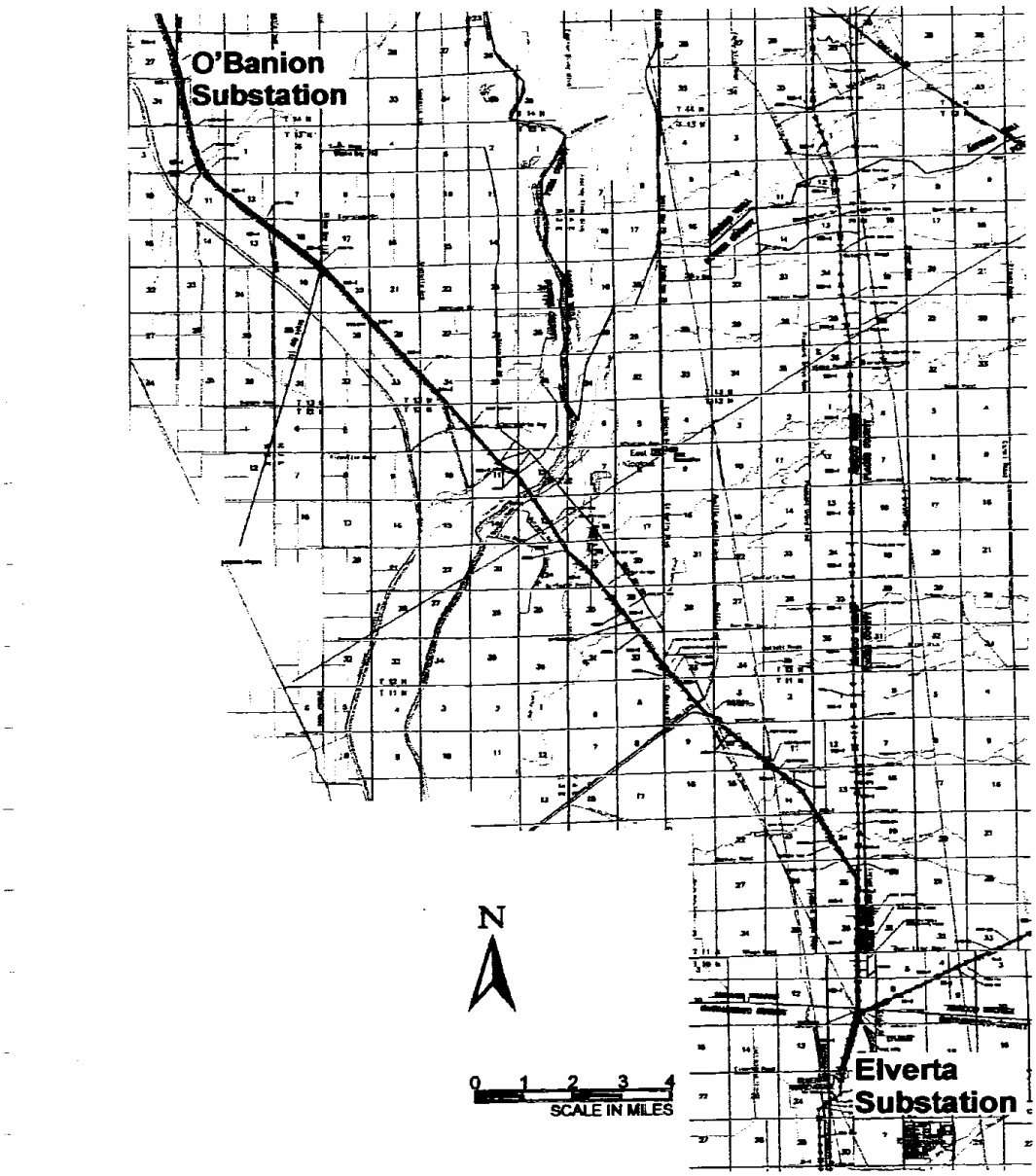


FIGURE 1-8. LOCATION OF ELVERTA-KESWICK TRANSMISSION LINE

MAY 2 1 2002

Mr. Rodney McInnis
Regional Administrator
National Marine Fisheries Service
501 West Ocean Boulevard, Suite 4200
Long Beach, CA 90802-4213

Dear Mr. McInnis:

Enclosed is the Biological Assessment (BA) for the proposed Sacramento Valley Right-of-Way (ROW) Maintenance Environmental Assessment (EA). The Western Area Power Administration (Western) is a power marketing administration of the U.S. Department of Energy, owns, operates, and maintains all or a portion of six 230-kilovolt (kV) transmission lines and one 115-kV transmission line in Placer, Sacramento, and Sutter counties, California (see enclosed drawing).

Details of the project and potential effects are included in the enclosed Draft EA. Western plans to adopt a more progressive management approach for vegetation and access road maintenance that would promote low-growing plant communities. The proposed action would be cost effective and ensure that system reliability and safety remain at acceptable levels, while extending the lifetime of transmission components.

Western must comply with the National Electric Safety Code, Western Electricity Coordinating Council, and Western directives for protecting human safety and maintaining the reliable operation of the transmission system. Therefore, Western needs to keep vegetation away from its electric facilities, increase efficiency and consistency, and maximize the range of tools used while minimizing environmental impacts. By doing this, Western can minimize human safety and fire hazards that result in electrocution, damage to the transmission line, or outages which would interrupt service. Regular maintenance of the transmission line, towers, and access roads is essential to prevent these types of occurrences. Routine maintenance is typically within the 150-foot wide ROW, and we often have to cut/trim trees and brush to keep them clear of our lines. There are also occasions when it is necessary to apply herbicides to maintain low growing plant communities.

Western's proposed Sacramento ROW Maintenance EA would not adversely affect any anadromous fish species and their critical habitat. Western's protocols for maintenance near waterbodies are meant to minimize any negative impacts to the natural system.

Based on our BA, we request your concurrence with our finding of no adverse effect on anadromous fish within the study area. If you have any questions, please contact Mr. Steve Tuggle, Western's Project Manager for this EA, at (916) 353-4549 or Mr. Nick Hindman, Western's Fisheries Biologist, at (916) 353-4529.

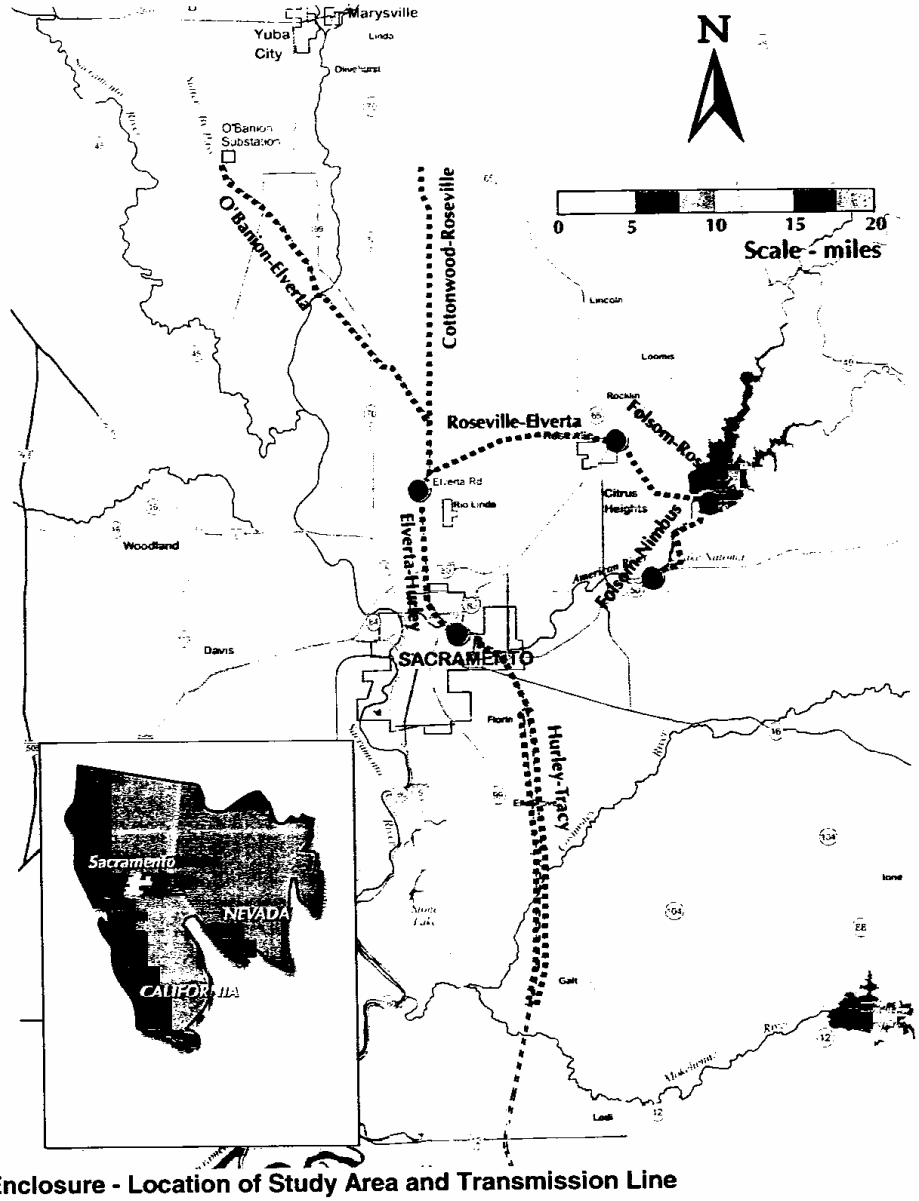
Sincerely,

ORIGINAL SIGNED BY

James D. Keselberg
Regional Manager

Enclosures

bcc:
A7400, J. Bridges, Lakewood, CO
N0400, N0417, N0415 (RF OF)



Enclosure - Location of Study Area and Transmission Line Rights-of-Way

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region
501 West Ocean Boulevard, Suite 4200
Long Beach, California 90802-4213

CODE	INITIAL	DATE
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August 26, 2002

In response please refer to:
SWR-02-SA-6412:FK

Mr. James D. Keselberg
Regional Manager
Department of Energy
Western Area Power Administration
Sierra Nevada Customer Service Region
114 Parkshore Drive
Folsom, CA 95630-4710

Dear Mr. Keselberg:

This is in response to your letter received June 3, 2002 requesting concurrence from the National Marine Fisheries Service (NOAA Fisheries) on a determination that implementation of Western Area Power Administration's (Western) proposed Right-of-Way (ROW) maintenance project will not adversely affect listed salmonids.

Western is proposing to conduct vegetation and access road maintenance activities within their transmission lines 150-ft. wide ROWs. Maintenance activities consist mainly of clearing or trimming vegetation from transmission lines and access roads. This is accomplished using manual, mechanical, and herbicide treatments. The transmission lines proposed for clearing cross various watercourses that may contain listed salmonids during some portion of their life history include the Bear, American, Cosumnes, and Feather rivers; Coon, Pleasant Grove, Curry, Kaseberg, Laguna, Grove, and other creeks; Auburn Ravine; the Natomas East Main Drainage Canal, and the Cross Canal. These watercourses may contain threatened Central Valley steelhead (*Oncorhynchus mykiss*), threatened Central Valley spring-run Chinook salmon (*O. tshawytscha*), and candidate Central Valley fall/late fall-run Chinook salmon (*O. tshawytscha*) during some part of their life history.

Vegetation control across these watercourses could decrease stream shading and the amount of available shaded riverine aquatic (SRA) habitat, and limit the amount of woody debris available to provide future fish habitat. It may also increase surface runoff and promote erosion and sedimentation, however, stream and river crossings generally require vegetation control along less than 150 feet of the channel. Canopy cover removal along 150 feet would allow for a small

amount of increased solar radiation to reach the water surface, however, the corresponding increase in water temperature would be quickly attenuated downstream as flows moved out of the ROW area. This would not have an adverse effect on salmonids or their habitat. Potential increased sedimentation would be minimized through implementation of a 100 foot buffer zone along all perennial water bodies, and through leaving vegetation intact in riparian areas, where feasible. Herbicides would not be applied within 100 feet of water courses which would minimize the possibility of any herbicide reaching a water body and harming aquatic species. Within the 100 foot buffer area, located on both sides of all perennial watercourses, no chemicals would be mixed, no petroleum products allowed, and only hand clearing of vegetation would be permitted. These measures would provide adequate protection to the perennial watercourses located in the ROW area, and vegetation control would not adversely affect listed salmonids.

Based on a review of the Draft Environmental Assessment dated May 2002, and the best available information on fish resources, we concur with your determination that implementation of Western's ROW maintenance project as described is not likely to adversely affect listed Central Valley salmonids.

Essential Fish Habitat

The proposed project ROW watercourse crossing areas have been identified as Essential Fish Habitat (EFH) for Chinook salmon in Amendment 14 of the Pacific Salmon Fishery Management Plan pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA). Federal action agencies are mandated by MSFCMA (section 305[b][2]) to consult with NOAA Fisheries on all actions that may adversely affect EFH, and NOAA Fisheries must provide EFH Conservation Recommendations (section 305[b][4][A]). In order to minimize effects to EFH for Chinook salmon, we have the following conservation recommendation:

> Implement best management practices to insure erosion does not occur and cause sedimentation in any water course as a result of vegetation removal and access road clearing by using erosion control methods on all slopes leading to a water course. These may include silt fences, construction of rolling dips on roads, and placement of erosion control blankets.

The MSFCMA and Federal regulations (50 CFR Sections 600.920) to implement the EFH provisions of the MSFCMA require federal action agencies to provide a written response to EFH Conservation Recommendations within 30 days of their receipt. A preliminary response is acceptable if final action cannot be completed within 30 days. Your final response must include a description of measures

proposed to avoid, mitigate, or offset the adverse impacts of the activity. If your response is inconsistent with our EFH Conservation Recommendations, you must provide an explanation of the reasons for not implementing them.

If you have any questions or need further information please contact Ms. F. Kelly Finn at our Sacramento Area Office at 650 Capitol Mall, Suite 8-300; Sacramento, CA 95814, or by telephone at (916)-930-3610.

Sincerely,

for Rodney R. McInnis
Acting Regional Administrator

cc: NMFS-PRD, Long Beach, CA
Stephen A. Meyer, ASAC, NMFS, Sacramento, CA

[JULY 26, 2004]

Mr. Rodney McInnis
Regional Administrator
National Marine Fisheries Service
501 West Ocean Boulevard, Suite 4200
Long Beach, CA 90802-4213

Dear Mr. McInnis:

In May 2002, the Western Area Power Administration (Western) submitted to the NMFS a Biological Assessment (BA) for the proposed Sacramento Valley Right-of-Way (ROW) Maintenance Environmental Assessment. In your response dated August 26, 2002 (refer to SWR-02-SA-6412:FKF), the NMFS concurred with Western's determination that implementation of the ROW maintenance project would not likely adversely affect listed Central Valley salmonids. As a result of the consultation with the U.S. Fish and Wildlife Service (USFWS), the BA has been revised (revision enclosed), primarily to address USFWS concerns regarding proposed mitigation for loss of valley elderberry longhorn beetle habitat and effects to vernal pools.

The paragraph in the original BA to the NMFS discussing measures to avoid adverse effects to fish is as follows:

> *Western will define a 100-foot buffer on each side of all perennial watercourses. In this buffer, no chemicals would be mixed, no open petroleum products would be allowed and only hand clearing of vegetation would be permitted.*

In order to reduce the frequency of maintenance activity along waterways, Western would like to make a further revision to the BA. Western proposes to replace the above paragraph with the following:

> *Western will define a 100-foot buffer on each side of all perennial watercourses. In this buffer, no chemicals would be mixed, no open petroleum products would be allowed, and only hand clearing of vegetation would be permitted (no foliar application of herbicides). This buffer would not apply to cut-stump treatments using herbicides approved for aquatic use by the U.S. Environmental Protection Agency, subject to any additional restrictions imposed by the State of California.*

The text of Western's original determination:

> *By implementing the 100-foot buffer zones at all river and stream crossings, the fish species would not be affected by the proposed action.*

The text of Western's original determination would be changed to the following:

> *By implementing restrictions on activities within 100-foot buffer zones at all river and stream crossings as stated above, the fish species would not be affected by the proposed action.*

Based on the revised BA, we request your concurrence with our finding of no adverse effect on anadromous fish within the project area. If you have any questions, please contact Mr. Steve Tuggle, Western's Environmental Protection Specialist for this EA, at (916) 353-4549.

Sincerely,

[ORIGINAL SIGNED BY]

James D. Keselburg
Regional Manager

2 Enclosures

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The Western Area Power Administration's Biological Assessment for the Sacramento Valley Right-of-Way Maintenance Project

The Western Area Power Administration's Sierra Nevada Customer Service Region (Western) will be undertaking maintenance activities on its Right-of-way (ROW) in the Sacramento Valley in Placer, Sacramento, and Sutter Counties, California. All of the affected transmission lines (see Figure 1) are either owned, operated, or maintained by Western and are covered under an existing Biological Opinion (BO) (1-1-97-F-140) issued May 27, 1998, by the U.S. Fish and Wildlife Service (USFWS), as amended by 1-1-02-F-0199 issued June 14, 2002. This Biological Assessment (BA) covers specific transmission line segments, communication sites, substations, legal access roads, and corresponding ROW within the project area that Western owns, maintains, operates, or otherwise is responsible for. This new BA was prepared under 50 CFR 402.16 (c) and (d), because the maintenance action is being modified beyond that described in the original BA and BO, and new species have been listed in the vicinity of the proposed action add that we have a 5 year review of the BO with the USFWS. The proposed activities include vegetation management and other maintenance in the ROW for both transmission lines and access roads, and outside ROW at substations and communication sites. These activities include the removal of vegetation that may pose a human safety hazard, a fire hazard, or violate requirements of the General Order 95, Western Order 430.1, and the National Electric Safety Code. This is necessary to ensure system reliability and public safety by 1) preserving structural integrity of transmission line towers, 2) allowing access to the tower perimeter or pole for routine maintenance or repairs, and 3) removing a "path to ground" that could cause arcing. Elderberry plants and other woody species are currently growing into the conductors at mid-span resulting in a decrease in safe work areas and a decrease in line reliability. Additionally, these same species are growing into and around the steel towers, weakening and causing inaccessibility, which results in unsafe conditions for Western's maintenance crews and the public.

Consultation History

As mentioned above, the USFWS issued a Programmatic BO to Western covering routine maintenance activities May 27, 1998. Western initially discussed this project with the USFWS in a meeting on November 9, 2000. Western requested a list of endangered, threatened, proposed and candidate species, and critical habitats that may occur in the vicinity of the Sacramento Valley transmission lines on March 15, 2001, May 9, 2001, and again on December 26, 2001. The USFWS provided a response on May 17, 2001, (01-SP-2047) and on January 14, 2002, (02-SP-0582) listing species known to occur in the counties where the transmission line ROW occur. Preparation of the BA began in early July 2001.

Methods

Field surveys were conducted to identify sensitive species and habitats along the entire ROW. The biological surveys were conducted from September 11, through December

10, 2001. Focused surveys to collect detailed data on elderberry plants were conducted in January and February of 2002 (for areas where elderberry plants were identified during the previous surveys) and April 2004 (Cal-Expo area only). Two-person survey teams consisted of a biologist familiar with habitats and the endangered and threatened species in the study area, and a field technician responsible for operation of a handheld data collection device with an attached global positioning system (GPS) receiver. A meandering pedestrian survey of the entire 108 miles of transmission line ROW and legal access roads recorded the locations of a variety of features of biological importance, including:

- vernal pools
- rivers and streams
- wetlands
- habitat of threatened and endangered species

Biological surveys were habitat-based, although significant biological observations were noted. Recorded features were also accompanied by comments regarding habitat conditions and/or problem areas. Before conducting fieldwork, Western collected and examined data on threatened and endangered species that may occur in the project area, including California Natural Diversity Database (CNDDB) records and the USFWS BO (USFWS 1998). The survey methods and timing were discussed in advance with the USFWS to ensure that the data quality would be appropriate to support the BO (Chris Nagano, Ken Fuller, and Justin Lee, personal communication 2001).

These surveys were conducted to identify sensitive habitats for this BA, so Western could mitigate the environmental effects of ROW maintenance activities by avoiding sensitive habitats and resources. However, in certain instances, Western's field survey also identified a sensitive habitat (*Sambucus* spp.) that needs to be removed in order to properly inspect, maintain system reliability, and ensure public and worker safety. Western would conduct periodic follow-up surveys to account for changing conditions along the ROW. The results of the surveys are presented in tabular and graphical format located within this BA and also presented in the Environmental Assessment.

Based on information provided by the USFWS and in-house literature, Western evaluated the effects of the proposed action on the following Federally listed plant and animal species:

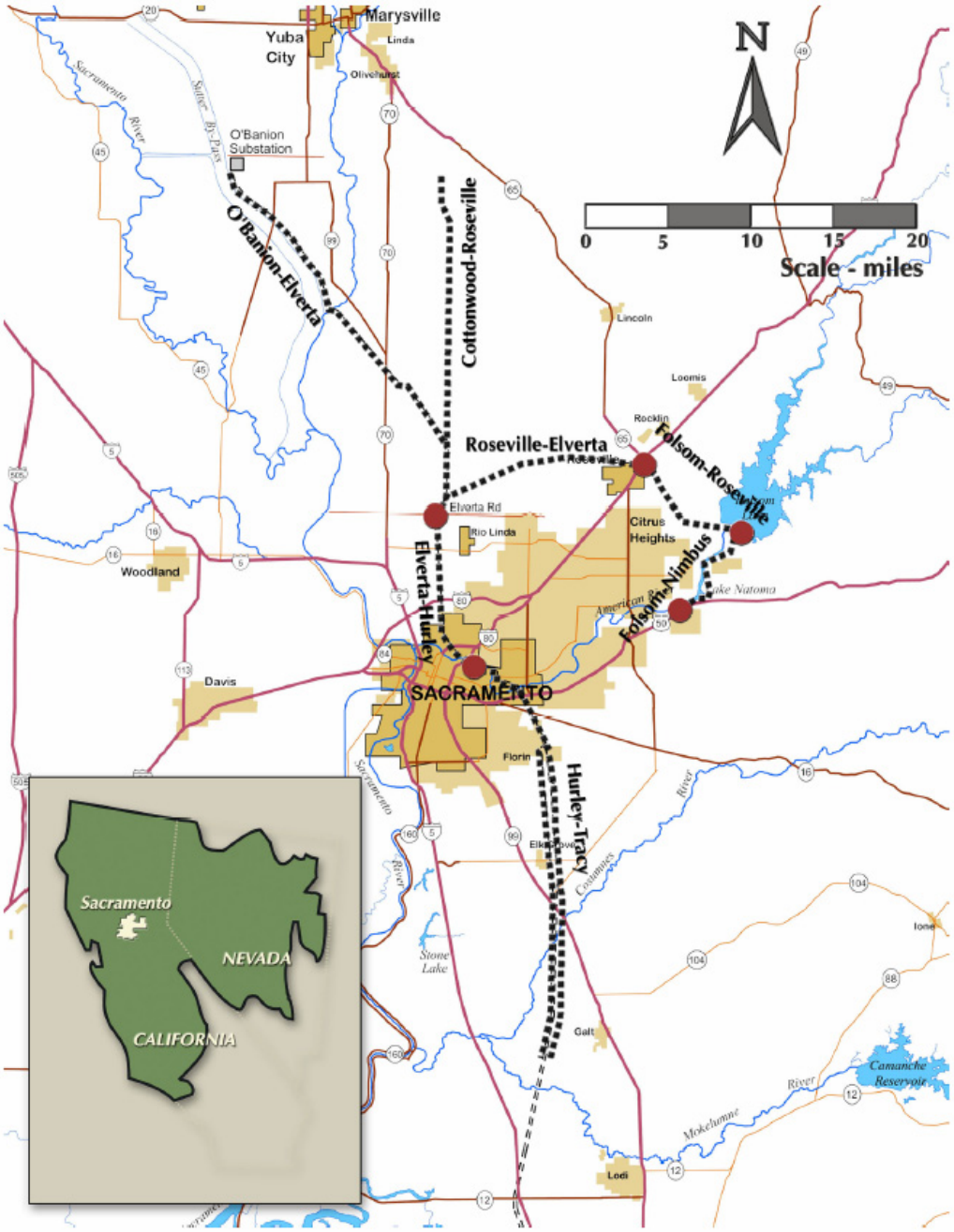

Figure 1. Location of Study Area and Transmission Line ROW

Truckee barberry (*Berberis sonnei*)	Endangered
Antioch Dunes evening-primrose (*Oenothera deltoides howellii*)	Endangered
Slender Orcutt grass (*Orcuttia tenuis*)	Threatened
Sacramento Orcutt grass (*Orcuttia viscida*)	Endangered
Hartweg's golden sunburst (*Pseudobahia bahiifolia*)	Endangered
Vernal pool fairy shrimp (*Branchinecta lynchi*)	Threatened
Conservancy fairy shrimp (*Branchinecta conservatio*)	Endangered
Vernal pool tadpole shrimp (*Lepidurus packardi*)	Endangered
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	Threatened
Designated Critical Habitat for the VELB	
Delta green ground beetle (*Elaphrus viridis*)	Threatened
Delta smelt (*Hypomesus transpacificus*)	Threatened
Winter run Chinook salmon (*Oncorhynchus tshawytscha*)	Endangered
Central Valley spring-run Chinook (*Oncorhynchus tshawytscha*)	Threatened
Central Valley steelhead (*Oncorhynchus mykiss*)	Threatened
Lahontan cutthroat trout (*Oncorhynchus (=Salmo) clarki henshawi*)	Threatened
California red-legged frog (*Rana aurora draytonii*)	Threatened
Giant garter snake (*Thamnophis gigas*)	Threatened
Bald eagle (*Haliaeetus leucocephalis*)	Threatened
Riparian woodrat (*Neotoma fuscipes riparia*)	Endangered
Riparian brush rabbit (*Sylivagus bachmani riparius*)	Endangered
San Joaquin kit fox (*Vulpes macrotis mutica*)	Endangered

Habitats

A majority of the species listed above and discussed below occupy one of two important habitat types. These are wetlands and floodplains. The wetlands of most concern are vernal pools. Floodplains are of concern because any direct effects on floodplains could have both direct and indirect effects on riverine species, primarily fish, and the riparian habitats associated with floodplains.

Wetlands in the project area consist of palustrine emergent wetlands and vernal pools. Palustrine wetlands are marshy areas that are normally inundated most of the year and provide habitat for herptiles and waterfowl, shorebirds, and wading birds. The California red-legged frog and the giant garter snake utilize palustrine wetlands along with other habitat types.

Vernal pools are much more complex in their wet/dry cycle and the flora and fauna that inhabit them. Vernal pools consist of grass or mud-bottomed swales, earth sumps, or basalt flow depression pools in unplowed grasslands (USFWS 1992). They are generally small, seasonally aquatic ecosystems that are inundated in the winter and dry slowly in the spring and summer, making a harsh, unique environment. Cyclical wetting

and drying creates an unusual ecological situation supporting a unique biota. Many plants and animals have evolved to possess such specific characteristics that they cannot live outside these temporary pools (USFWS 1997a).

The Central Valley of California consists of the Sacramento Valley in the north half of the State and the San Joaquin Valley in the south half. Within the Central Valley, vernal pools are found in four physiographic settings, each possessing an impervious soil layer relatively close to the surface. These four settings include high terraces with iron-silicate or volcanic substrates, old alluvial terraces, basin rims with claypan soils, and low valley terraces with silica-carbonate claypans. Due to local topography and various geological populations, vernal pools are usually clustered into complexes.

Pools within a complex typically are separated by a distance of a few to several meters and may form dense, interconnected mosaics of small pools or a sparser scattering of large pools. Vernal pool habitats are found over a limited, discontinuous, fragmented area within the Central Valley (USFWS 1997a). There are 71 vernal pools totaling

16.2 acres occurring along the lines in the proposed action (see Table 1).

Table 1. Vernal pool habitat identified in the project area.

Transmission Line	Number of Vernal Pools	Area (acres)*
Hurley-Tracy	15	0.39
Elverta-Hurley	0	0
Roseville-Elverta/O'Banion-Elverta (segment N of Elverta Substation)	13	0.50
Cottonwood-Roseville (N-S portion N of split with O'Banion-Elverta)	4	0.07
O'Banion-Elverta (NW-SE portion)	2	0.01
Cottonwood-Roseville/Roseville-Elverta (E-W portion adjacent ROW)	31	15.02
Folsom-Roseville	3	0.01
Folsom-Nimbus	3	0.20

*Totals: 71 vernal pools, 16.20 acres. There are 3 pools along the Cottonwood-Roseville/ Roseville-Elverta line (E-W portion) that are approximately 9 acres combined size.

Three invertebrate species (i.e. the vernal pool tadpole shrimp, conservancy fairy shrimp, and vernal pool fairy shrimp) and the Orcutt grasses are restricted to vernal pools. No close associations are known between the invertebrates and the plants. However, any action that would affect vernal pool habitat could adversely affect any or all of these five species.

Riparian habitats are the assemblage of species occurring along a waterway, generally within the floodplain. This habitat is found along all the major watercourses in the project area, including the American, Bear, Butte, Cosumnes, Feather, and Sacramento rivers and their tributaries.

An activity that affects riparian habitat could directly affect not only the plants and animals with the riparian zone but also indirectly affect species in the watercourse. This would include the fish species listed above as well as the valley elderberry longhorn beetle and riparian woodrat and brush rabbit.

The acreages of the different habitats identified along the ROW are shown in Table 2. This table illustrates the diversity of habitats crossed by Western's transmission lines in the Sacramento Valley region.

Table 2. Habitats found in Western's ROW in the Sacramento Valley

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

The following discussion of endangered, threatened, and proposed species is based on the biological surveys and lists provided by the USFWS and those obtained from the CNDDB.

Plants

The Truckee barberry is known only from the Truckee River and does not occur in the vicinity of the proposed action.

The Antioch Dunes evening primrose is known only from Antioch Dunes National Wildlife Refuge and the Brannan State Recreation Area. Western's transmission lines do not cross either of these two areas.

Both Slender Orcutt grass and Sacramento Orcutt grass were listed as Threatened and Endangered, respectively, March 26, 1997. Both are found in vernal pool habitat, although slender Orcutt grass has a wider and more northerly distribution. Both have been collected in Sacramento County. Reason for decline of both species is loss of habitat. As noted in Table 1, several of the ROW in the project area contain vernal pools. A biological survey conducted in late 2001 and a CNDDB query indicated that Orcutt grasses are not present in Western's ROW.

Hartweg's golden sunburst was listed as Endangered February 6, 1997. It may have existed throughout the Central Valley of California from Yuba County in the north to Fresno County in the south (USFWS 1997b). The plant presently occurs only in the eastern San Joaquin Valley in Stanislaus, Madera, and Fresno Counties. The plant occurs on "Mima mounds," which are sometimes associated with vernal pool complexes.

Conversion of native habitat to residential development is the primary threat of this sunburst. To a lesser degree, agricultural development, competition from aggressive exotic plants, incompatible grazing practices, mining, and other human impacts threaten the species (USFWS 1997b). Hartweg's golden sunburst has not been identified nor is expected in the project area.

Invertebrates

The Conservancy fairy shrimp inhabits vernal pools with highly turbid water. The species is known from six disjunct populations in Tehama County, Solano County, Glenn County, Merced County, and northern Ventura County (USFWS 1994). The pools inhabited by the Conservancy fairy shrimp are large, such as the 89-acre Olcott Lake at Jepson Prairie (Eng, pers. comm., 1990 in USFWS 1994). The pools inhabited by this animal have very low conductivity, total dissolved solids, and alkalinity (USFWS 1994).

The majority of known populations of vernal pool fairy shrimp inhabit vernal pools with clear to tea-colored water, most commonly in grass or mud bottomed swales, or basalt flow depression pools in unplowed grasslands, but one population occurs in sandstone rock outcrops and another population in alkaline vernal pools. Populations of the vernal pool fairy shrimp extend from Stillwater Plain in Shasta County through most of the length of the Central Valley to Pixley in Tulare County, The water in pools inhabited by this species has low total dissolved solids, conductivity, alkalinity, and chloride (USFWS 1994).

The vernal pool tadpole shrimp is known from 18 populations in the Central Valley. These range from east of Redding in Shasta County through the Central Valley to the San Luis National Wildlife Refuge in Merced County. The vernal pool tadpole shrimp inhabits vernal pools containing clear to highly turbid water. These pools are located most commonly in grass bottomed swales of grasslands in old alluvial soils underlain by hardpan or in mud-bottomed pools containing highly turbid water. They range in size

from 54 square feet (0.001 acre) in Sacramento County, to 89 acres at Jepson Prairie. The pools tend to have a very low conductivity, TDS, and alkalinity (USFWS 1994).

Reasons for decline of the vernal pool species include urban, water, flood control, highway, and utility projects, as well as conversion of wildlands to agricultural use. Changes in hydrologic pattern, overgrazing and off-road vehicle use also imperil this aquatic habitat and the four species listed here. Human activities that alter the watershed of vernal pools indirectly affect these animals. Other human activities that reduce the extent of the watershed or that alter runoff patterns (i.e., amounts and seasonal distribution) may eliminate the animals, reduce their population sizes or reproductive success, or shift the location of sites inhabited by these animals.

The eggs and cysts of all these species can withstand heat, cold, and prolonged desiccation. However, any impacts to vernal pools would adversely affect the fairy shrimp and tadpole shrimp. This includes maintenance activities during both wet periods and dry periods.

The Valley elderberry longhorn beetle (VELB) (*Desmocerus californicus dimorphus*), a Federally listed threatened species, is restricted to elderberry (Sambucus spp.) bushes for most of its life cycle (USFWS 1984). The elderberry bush is found in riparian, elderberry savanna, and upland areas. Western conducted surveys of the ROW in the project area and found 14 acres of elderberry savanna. Additionally, there were 130 acres of riparian habitat crossed through the ROW. Within the project area, 422 stems greater than 1 inch in diameter are proposed for removal. These are stems within 40 feet of the center of lattice towers (approximately 20 feet from tower legs or pole structures).

The main reason for decline of the beetle is loss of habitat. Removal of any elderberry shrubs would affect the beetle. Western proposes that all elderberry (Sambucus) and vegetation be manually removed within 40 feet of lattice tower centers and within 20 feet of poles using manual and mechanical methods. Stumps of removed elderberry and vegetation would then be spot treated with a herbicide to prevent root sprouting. The proposed action would result in adverse impacts to VELB habitat namely through the manual removal of elderberry plants.

Critical Habitat for the Valley elderberry longhorn beetle has been mapped in Sacramento County; however, Western's ROW are outside these Critical Habitats.

The Delta green ground beetle is another species dependent on vernal pools. It is known only from vernal pool habitat in Solano County (Lowe et al. 1990). Any actions that affect the vernal pools utilized by this beetle would affect it. None of the ROW in the proposed action are located close to the known locations of the beetle.

Fish

The National Marine Fisheries Service (NMFS) listed winter-run Chinook salmon as endangered species January 4, 1994. NMFS has placed Chinook salmon in

Evolutionarily Significant Units (ESU) because the species spawns and migrates in different seasons. The winter-run Chinook spawn in the upper Sacramento River after spending approximately 3 years in the Pacific Ocean. The distribution of the winter-run Chinook has been dramatically reduced, and Critical Habitat has been designated for this ESU of the species.

Central Valley spring-run Chinook was listed as a threatened species September 16, 1999. This ESU suffers from the same problems as other Pacific salmonids (NMFS 2001). Critical Habitat for the spring-run Chinook was designated February 16, 2000, and includes all river reaches accessible to Chinook in the Sacramento River and its tributaries.

The Central Valley steelhead was listed as a threatened species March 19, 1998. The steelhead is an anadromous species, which migrate to sea as juveniles and return to inland waterways as 2- to 4-year olds to spawn (NMFS 2001). The various strains can be found as adults in fresh water every month of the year. Spawning occurs in the Sacramento River Basin from December through April. Juvenile steelhead emigrate downstream from November to May.

The Central Valley fall/late fall run Chinook salmon ESU was proposed for listing as threatened, but NMFS determined that the listing was not warranted (NMFS 2001).

Lahontan cutthroat trout was listed as a Threatened species in 1975. It is known only from the Humboldt, Truckee, Carson, and Walker rivers in California and Nevada. It was stocked in California Lakes from Inyo County to Modaoc County and may still be present in Granite Lake in Trinity County (McAfee 1966). It does not occur in the project area. The proposed action will not affect this subspecies of cutthroat trout.

The delta smelt was listed as a Threatened species March 5, 1993. It is restricted to the Sacramento-San Joaquin Estuary. Reasons for their decline include habitat modification, including quality and quantity of water and prey base, toxic materials, disease and competition and predation by non-native species. There will be no direct or indirect effects of the proposed action on the delta smelt because the range of the delta smelt does not extend into the project area.

Water development projects, poor water quality, and agricultural activities have adversely affected all of the fish species. Introduction of non-native predators and/or competitors has also had deleterious effects. Any increase in sedimentation and silt load or decrease in water quality would adversely affect the fish species.

Amphibians

The California red-legged frog was listed as a threatened species on June 24, 1996, (USFWS 1996). Critical Habitat was determined for the species March 13, 2001. The frog inhabits areas containing ponds and permanent pools in streams and marshes with emergent vegetation from near sea level to approximately 8,000 feet elevation. It occurs throughout the Coast Ranges and the Sierra Nevada, from near the Oregon border to northern Baja, California, but is thought to be most prevalent in the lower

foothills and lowlands. The red-legged frog feeds on aquatic and terrestrial insects, crustaceans, snails, worms, fish, tadpoles, and smaller frogs along highly vegetated shorelines (Zeiner, et al., 1988). The red-legged frog breeds from January to March and tadpoles transform from May to August (Wright and Wright 1949).

During the non-breeding season, frogs can move over long distances foraging in farm fields and along riparian corridors. The Draft Recovery Plan for the California Red-legged Frog (USFWS 2000a) has designated habitat that is important to the recovery of the red-legged frog (core habitat) in the foothills east and west of the Sacramento River Valley. Western's transmission lines or ROW do not cross any of the core areas. Currently, there are no known occurrences of the California red-legged frog in the project area.

Threats to the frog include habitat loss and degradation through agricultural activities, urbanization, recreation, predation and/or competition from non-native species, disease, water management projects and declining water quality (USFWS 2000a). The draft Recovery Plan also identifies a hazard associated with herbicides. Apparently the surfactants in certain glyphosate herbicides (e.g. Roundup) have "severe negative effects" on amphibians (USFWS 2000a). Any habitat loss or degradation of water quality or quantity would adversely affect the red-legged frog.

Reptiles

The giant garter snake was listed as an endangered species on October 20, 1993, (USFWS 1993b). The species is endemic to Central Valley wetlands and inhabits natural and manmade habitats. It feeds on small fish and amphibians. The giant garter snake requires a mix of cover types, such as adequate water during the early-spring through late-fall active period; emergent wetland vegetation for escape and feeding cover; grassy banks and openings for resting or basking cover; and uplands to escape flooding. It moves to small animal burrows and soil crevices during its winter dormancy.

The giant garter snake has been and continues to be threatened by human activities, including some agricultural practices, loss of habitat to development, stream channelization, recreational activities, increased predation by nonnative species, and water management practices.

There are habitat components for the giant garter snake in the project area (see Table 2). These consist mostly of the agricultural fields (e.g. rice fields) and irrigation ditches and canals. These areas seldom need ROW maintenance and access roadwork.

Birds

The bald eagle was listed as an endangered species in California in March 1967 (USFWS 1967). The main reasons for decline included direct mortality, such as shootings, and poisonings and indirect mortality such as electrocutions and incidental pesticide accumulations. The bald eagle ranges across North America (Finch 1992) and feeds on fish, waterfowl, small mammals, and carrion. Eagle populations have recovered enough so that the species was downlisted to Threatened. The bald eagle

may be removed from the endangered and threatened species list in the near future; however, it will still be protected by the Eagle Protection and Migratory Bird Treaty acts. The eagle is not known to nest or roost in the vicinity of Western's lines but may move overhead as it hunts the various rivers, canals, and aqueducts in the Sacramento Valley. There will be no increase in overhead lines or the presence of improper spacing of electrified wires to adversely affect bald eagles.

Mammals

The riparian woodrat and riparian brush rabbit were listed as endangered species February 23, 2000, (USFWS 2000b). Both species probably ranged throughout the riparian habitats in the Sacramento River valley in historic times. There was only one population of each of the subspecies known at the time of listing. Both were in the Stanislaus River at the Park on the border of San Joaquin and Stanislaus counties, northwest of Modesto. In addition to this isolation, other threats to these two subspecies include wildfire, disease, predation, competition and human-caused loss or fragmentation of habitat. Naturally occurring events, such as flood or drought could also be devastating to these subspecies. There is only one known location for these subspecies and Western has no facilities in the vicinity. The proposed action would not be directly or indirectly affected by it.

The San Joaquin kit fox was listed as endangered March 11, 1967, (Lowe et al. 1990). It historically ranged south of the project area. No kit foxes have been observed in the project area. The San Joaquin kit fox lives in native grassland and desert shrubs and feeds on small mammals, primarily rodents, ground nesting birds, and insects (USFWS 1998). Habitat modification, hunting, pesticides, poisoning, trapping, and road kills have reduced this formerly abundant species. The project does not provide suitable habitat for the kit fox and very little of the project area is in the range of this species.

Reasons for decline of the kit fox include loss of denning and foraging habitat and predation and competition by other canids. Loss of denning or foraging habitat would adversely affect the kit fox.

Effects of the Proposed Action

Impacts to the species under discussion can be direct (an immediate affect to an individual, population, or its habitat), or indirect (an affect that may occur over time or result from other actions). Additionally, cumulative impacts may effect some of the species. For purposes of this BA, cumulative effects will use the definition in the regulations at 50 CFR 402.02. That is, " ...those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation."

Mitigation

Worker Training

Western will conduct environmental awareness training for all maintenance crews annually to make them aware of the terms and conditions of the BO. Additionally, when maintenance crews are scheduled to work in sensitive areas, a "job hazard analysis" will be held as part of a tailgate session on the day the work is scheduled. This analysis will point out the sensitive resources that may be encountered and the requirements of the BO in dealing with those issues.

Vernal Pool Species

Within the Sacramento Valley, the transmission line ROW are as small as 112.5 feet in width; access road ROW are 30 feet in width. Because of these narrow ROW, complete avoidance of vernal pools is not possible. Western proposes method-dependent vernal pool buffer zones that will protect pool habitats while allowing Western access to towers and ROW, and the ability to perform necessary maintenance. These buffer zones are presented in Table 3.

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

Buffer and Other Considerations		Method	Example Equipment [c]	Technique/Activity [c]	Applications [c]
Dry Season [a]	Wet Season [b]				
Vegetation Maintenance (Transmission Line and Access Road ROW)					
None	To pool edge	Manual	Chainsaw, clipper, axe	Trimming, removal, disposal	Selective vegetation removal
None	100 ft	Mechanical	Heavy-duty mowers (brush-hog, Hydro-Ax), crawler tractors, chippers	Mowing, removal, disposal	Temporary control of thick stands of vegetation
To pool edge	25 ft	Herbicides	Hand-held applicator	Cut-stump	Control of woody vegetation
100 ft	100 ft	Herbicides	Hand sprayers, power sprayers, herbicide appropriate for technique and application	Spot, localized	Spot treatments where selective elimination of species is desirable. Localized treatment on ROW with low-to-medium target plant density.
150 ft	150 ft	Herbicides	Vehicle with boom	Broadcast	Treating large/dense areas of ROW vegetation, especially where access by truck is readily available.
Access Road Maintenance					
To pool edge. Erect silt fences for work within 25 ft. Do not deposit material within 250 ft upslope of pool.	50 ft. Silt fences or similar means of runoff control will be used if runoff from ground-disturbing activities could reach vernal pool. Construction would apply concepts stated in the U.S. Forest Service	Repairing	Bulldozer, caterpillar (tracked vehicle), dump truck, backhoe	Specific to type of repair	Specific to type of repair
		Grading	Bulldozer, caterpillar	Removal and leveling of upper levels of soil profile	Used to construct or repair road surface
		Filling	Dump truck	Delivery of gravel, rock, or soil to fill depressions	Filling of depressions during initial or reconstruction of road
		Cleaning water crossings	Backhoe, dump truck	Removal of debris from culverts and ditches	To maintain optimal efficiency of water diversions to prevent washouts and erosion
		Repair or construction of water bars	Backhoe, dump truck, bulldozer	Grading and shaping of soil to construct/repair a berm to control erosion	Direct water off road surface to prevent washouts or erosion

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

Buffer and Other Considerations		Method	Example Equipment [c]	Technique/Activity [c]	Applications [c]
Dry Season [a]	Wet Season [b]				
	Publication *Forest Roads: A Synthesis Of Scientific Information* (June 2000).	Repair or construction of v-shaped ditches	Backhoe	Construction of ditches to allow drainage	Direct water off road surface to prevent washouts or erosion
		Construction or replacement of culverts	Backhoe, truck, trailers	Installation of pipe culvert under across road	Used whenever drainages or streams are of sufficient size
Transmission Line Maintenance					
None	50 ft. No buffer for travel on established roads and legal access roads.	Patrols (ground)	Pickup truck	Detailed observation of entire transmission system performed on semi-annual basis	Check access to towers/poles, tree clearances, fences, gates, locks, and tower hardware
		Inspection (climbing)	Pickup truck, bucket truck	Detailed observation of system hardware performed on 20 percent of structures each year	Identify deterioration of hardware not detected in aerial or ground inspections
None for non-ground disturb-ing activities. 25 ft for ground disturb-ing activities.	50 ft. Silt fences or similar means of runoff control will be used if runoff from ground-disturbing activities could reach vernal pool.	Repairs and preventative maintenance	Pickup truck, bulldozer, caterpillar, backhoe, bucket truck, hand tools	Based on needs identified during inspections or other reports, replace insulators; tighten, replace, or repair towers/poles or hardware; look for ROW encroachments	Performed wherever damage or deterioration of transmission lines or facilities poses a threat to safety or reliability

Valley Elderberry Longhorn Beetle

As stated above, within the project area, 422 stems greater than 1 inch in diameter are proposed for removal. These are stems within 40 feet of the center of lattice towers (approximately 20 feet from tower legs or pole structures). Table 4 summarizes the number of stems to be removed and mitigation according to 1999 Conservation Guidelines (USFWS 1999). Table 4 provides both "transplant" and "no transplant" scenarios. Because of concern for safety in working with equipment near transmission lines and the structural integrity of towers, Western may not be able to transplant elderberry shrubs, and therefore be required to double mitigation. Western would evaluate each shrub at the time of removal to determine whether transplant is feasible. The two scenarios shown in Table 4 should be therefore regarded as minimum and

maximum estimates of mitigation for a one-time elderberry removal along Western's transmission lines in the Sacramento Valley. In addition, Western proposes mitigation to cover incidental take of up to 10 elderberry shrub clusters per year as well as trimming elderberry above the 10-foot level. Western proposes an additional 5 acres for this mitigation over the term of the BO.

Table 4. Summary of Stems to be Removed and Mitigation according to 1999 Conservation Guidelines

Transplant	Riparian						Non-Riparian		
	Exit Holes			No Exit Holes			No Exit Holes		
Stem Size	*Count*	*Multiplier*	*Mitigation*	*Count*	*Multiplier*	*Mitigation*	*Count*	*Multiplier*	*Mitigation*
1"-3"	107	4	428	141	2	282	6	1	6
>3" to <5"	80	6	480	40	3	120	3	2	6
5" and greater	40	8	320	5	4	20	0	3	0
Totals			1228			422			12
						Total Elderberry Mitigation Stems			1662
						Total Elderberry Mitigation Units			332
						Total Elderberry Mitigation Acres			13.7

No Transplant	Riparian						Non-Riparian		
	Exit Holes			No Exit Holes			No Exit Holes		
Stem Size	*Count*	*Multiplier*	*Mitigation*	*Count*	*Multiplier*	*Mitigation*	*Count*	*Multiplier*	*Mitigation*
1"-3"	107	8	856	141	4	564	6	2	12
>3" to <5"	80	12	960	40	6	240	3	4	12
5" and greater	40	16	640	5	8	40	0	6	0
Totals			2456			844			24
						Total Elderberry Mitigation Stems			3324
						Total Elderberry Mitigation Units			665
						Total Elderberry Mitigation Acres			27.5

Western would use one of the following means to perform mitigation for the one-time elderberry removal under the proposed action, in addition to incidental take and trimming of elderberry plants that may be necessary over the period covered by a new BO:

- Contract with government entity for habitat restoration, management, or improvement;
- Contract with private entity for habitat restoration, management, improvement, or protection;
- Contract with mitigation bank to create new habitat; or
- Other mitigation method subject to USFWS approval.

Any method used would require approval by the USFWS. Western may elect to provide incremental funding for mitigation over a period not to exceed four years.

Fish

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

Amphibians

The buffer zones and worker training discussed above would minimize adverse effects on the red-legged frog. Additionally, the project area does not include the foothill streams and ponds that make up the core habitat of the frog.

Reptiles

Worker training discussed above and seasonal timing of routine maintenance activities would also help minimize impacts to the garter snake.

Birds

Western does not anticipate any mitigation directed toward the birds. No new lines are being constructed and no adverse effects are expected. Where applicable, Western would observe timing restrictions for compliance with the Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act if active nests are observed or identified.

Mammals

The San Joaquin kit fox is not present in the project area, and Western does not anticipate any mitigation other than awareness training for maintenance crews. The riparian woodrat and brush rabbit are not known to occur in the project area. If they occur, the 100-foot buffer would mitigate adverse effects on both of these species.

Effects on Species

The proposed action would not affect the Truckee barberry, the Antioch Dunes evening primrose, or Hartweg's golden sunburst. These plants are not known from the project area, and there was no evidence of them found during biological surveys.

The two Orcutt grass species may occur in vernal pools in the ROW. Mitigation described for vernal pools would minimize adverse effects on these two grasses.

Conservancy fairy shrimp, vernal pool fairy shrimp and vernal pool tadpole shrimp are not known to occur in the vernal pools in the ROW. Mitigation described for vernal pools would minimize adverse affects on these species.

The Delta green ground beetle does not occur in the project area and would not be affected by the proposed action.

There would be a loss of valley elderberry beetle habitat as a result of the proposed action. The field surveys found that the number of stems within 40 feet of the center of lattice towers and within 20 feet of poles that would have to be removed for worker safety and line reliability would total about 422. This would result to not likely to adversely effect the beetle finding.

By implementing restrictions on activities within 100-foot buffer zones at all river and stream crossings as stated above, the fish species would not be affected by the proposed action.

Although there is no indication the California red-legged frog is present in any of the ROW in the proposed action there is suitable habitat present. The frog may move through the project area during seasonal forays. There is a possibility that the frog may encounter vehicular traffic.

The giant garter snake has some habitat components in the project area. Nearly all of the maintenance activities would occur during the "active season" of the giant garter snake. Additionally, the garter snake habitat does not typically require a great deal of maintenance activity. However, there is a possibility that vehicular traffic would encounter a garter snake, resulting in a loss.

The bald eagle would not be affected by the proposed action.

The San Joaquin kit fox is not likely to occur in the project area and would not be affected.

The riparian woodrat and brush rabbit are not known to occur in the project area and would not be affected.

Cumulative Effects

Residential development and water development projects would have an effect on most of the species discussed above. Other entities need to maintain their ROW, whether they are electric, communication, gas, water, or transportation. Most new power plants would have a Federal permit requirement, either air, water, or an interconnection request with Western. The California Energy Commission also requires consultation with the USFWS as well as the California Department of Fish and Game.

Western's Determination

Western has determined the proposed ROW maintenance activities would not affect the Truckee barberry, Antioch Dunes evening primrose, Hartweg's golden sunburst, slender Orcutt grass, Sacramento Orcutt grass, Conservancy fairy shrimp, vernal pool fairy shrimp, vernal pool tadpole shrimp, Delta green ground beetle, any of the fish species, bald eagle, San Joaquin kit fox, riparian woodrat, or the riparian brush rabbit.

Western determined, based on the lack of physical evidence, historical record of their presence, and proposed routine maintenance activities, Western's routine maintenance activities may affect but is not likely to adversely affect the red-legged frog.

Western has determined the proposed routine maintenance activities are not likely to adversely affect the valley elderberry longhorn beetle.

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Department of Energy
Western Area Power Administration
Sierra Nevada Customer Service Region
114 Parkshore Drive
Folsom, California 95630-4710

Mr. Rodney McInnis
Regional Administrator
National Marine Fisheries Service
501 West Ocean Boulevard, Suite 4200
Long Beach, CA 90802-4213

Dear Mr. McInnis:

Enclosed is the Biological Assessment (BA) for the proposed Sacramento Valley Right-of-Way (ROW) Maintenance Environmental Assessment (EA). The Western Area Power Administration (Western) is a power marketing administration of the U.S. Department of Energy, owns, operates, and maintains all or a portion of six 230-kilovolt (kV) transmission lines and one 115-kV transmission line in Placer, Sacramento, and Sutter counties, California (see enclosed drawing).

Details of the project and potential effects are included in the enclosed Draft EA. Western plans to adopt a more progressive management approach for vegetation and access road maintenance that would promote low-growing plant communities. The proposed action would be cost effective and ensure that system reliability and safety remain at acceptable levels, while extending the lifetime of transmission components.

Western must comply with the National Electric Safety Code, Western Electricity Coordinating Council, and Western directives for protecting human safety and maintaining the reliable operation of the transmission system. Therefore, Western needs to keep vegetation away from its electric facilities, increase efficiency and consistency, and maximize the range of tools used while minimizing environmental impacts. By doing this, Western can minimize human safety and fire hazards that result in electrocution, damage to the transmission line, or outages which would interrupt service. Regular maintenance of the transmission line, towers, and access roads is essential to prevent these types of occurrences. Routine maintenance is typically within the 150-foot wide ROW, and we often have to cut/trim trees and brush to keep them clear of our lines. There are also occasions when it is necessary to apply herbicides to maintain low growing plant communities.

Western's proposed Sacramento ROW Maintenance EA would not adversely affect any anadromous fish species and their critical habitat. Western's protocols for maintenance near waterbodies are meant to minimize any negative impacts to the natural system.

2

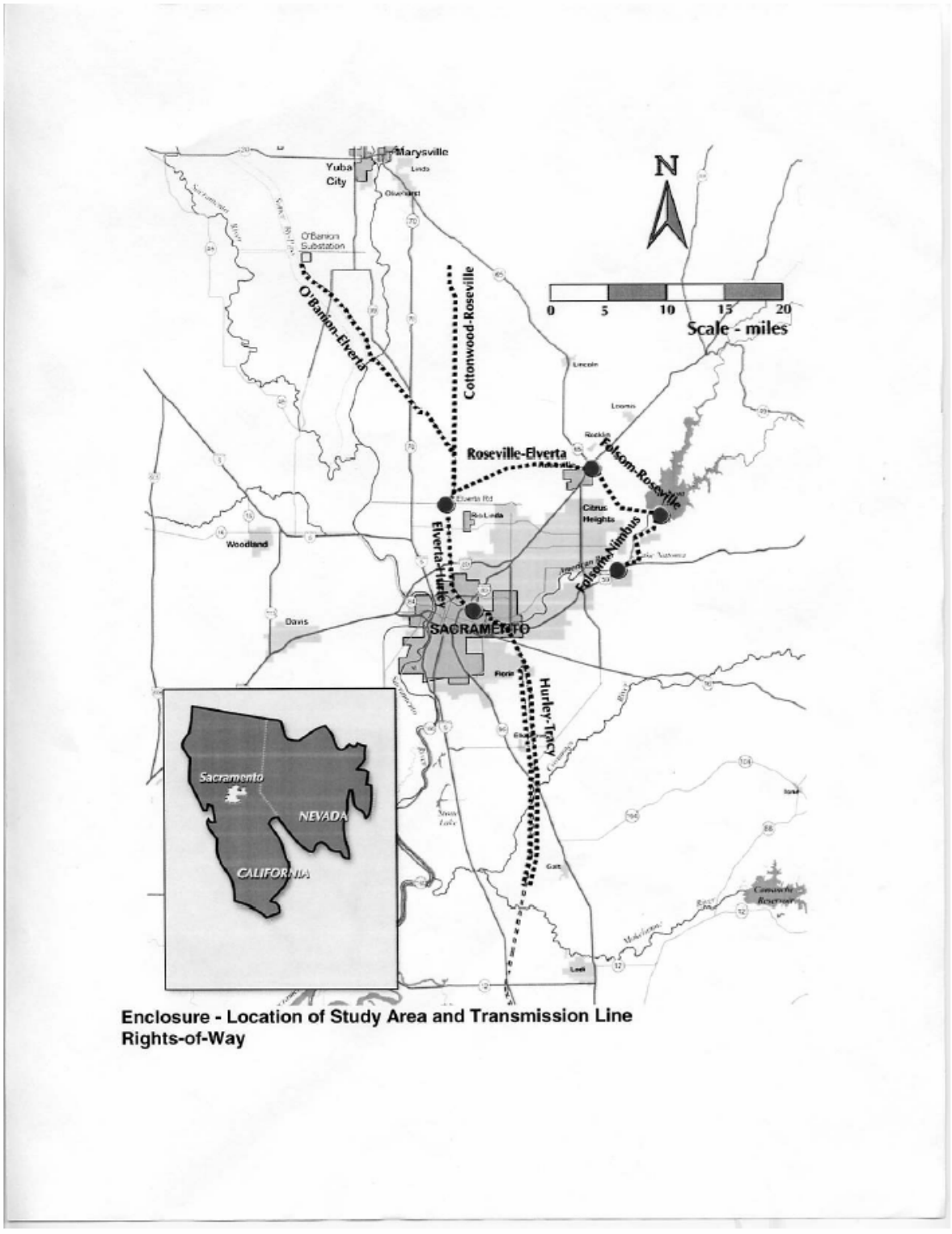
Based on our BA, we request your concurrence with our finding of no adverse effect on anadromous fish within the study area. If you have any questions, please contact Mr. Steve Tuggle, Western's Project Manager for this EA, at (916) 353-4549 or Mr. Nick Hindman, Western's Fisheries Biologist, at (916) 353-4529.

Sincerely,

James D. Keselberg
Regional Manager

Enclosures

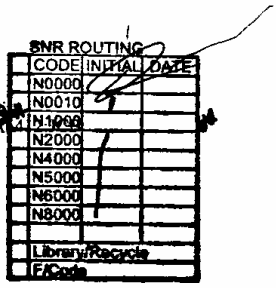
21



Enclosure - Location of Study Area and Transmission Line Rights-of-Way

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region
501 West Ocean Boulevard, Suite 4200
Long Beach, California 90802-4213

August 12, 2004



In Reply Refer To:
151422SWR02

James D. Keselburg
Regional Manager
Department of Energy
Western Area Power Administration
Sierra Nevada Customer Service Region
114 Parkshore Drive
Folsom, California 95630-4710

Dear Mr. Keselburg:

This is in response to your July 26, 2003 letter requesting concurrence from the National Marine Fisheries Service (NOAA Fisheries) that changes to the proposed Western Power Administration (Western) Sacramento Valley Right-of Way (ROW) project description are not likely to adversely affect endangered Sacramento River winter-run Chinook salmon *(Oncorhynchus tshawytscha)*, threatened Central Valley spring-run Chinook salmon *(O. tshawytscha)*, and threatened Central Valley steelhead *(O. mykiss)*, or their critical habitat, pursuant to provisions of the Endangered Species Act, as amended (ESA).

In order to reduce the frequency of maintenance activity along waterways, Western made the following changes to the original biological assessment (BA) for the project:

> "Western will define a 100-foot buffer on each side of all perennial watercourses. In this buffer, no chemicals would be mixed, no open petroleum products would be allowed, and only hand clearing of vegetation would be permitted (no foliar application of herbicides). This buffer would not apply to cut-stump treatments using herbicides approved for aquatic use the U.S. Environmental Agency, subject to any additional restrictions imposed by the State of California.
>
> By implementing these restrictions on activities within 100-foot buffer zones at all river and stream crossings as stated above, the fish species would not be protected by the proposed action."

Based on the revised BA, NOAA Fisheries concurs with your determination that the proposed Western Sacramento Valley ROW project is not likely to adversely affect the Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, Central Valley steelhead, nor is it anticipated that the proposed project will adversely modify designated critical

habitat for Sacramento River winter-run Chinook salmon. This concurrence is based on our expectation that the conservation measures incorporated in the project description will avoid adverse effects to listed species.

This determination may be reconsidered and further consultation may be necessary if one of the following occurs: (1) new information indicates that the proposed project may affect listed species or designated critical habitats in a manner or to an extent not considered in this review; (2) new species and/or critical habitat are designated that may be affected by the proposed action; or (3) the project description is changed. This concludes ESA section 7 consultation for the proposed project.

We have also reviewed this project for impacts to Essential Fish Habitat (EFH) for Pacific Salmon and pursuant to section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and find that implementation of the project will not adversely affect EFH for Pacific salmon, therefore, we do not have any additional conservation recommendations for the proposed action.

If you have any questions or need further assistance with this request, please contact John Baker in our Sacramento Area Office, 650 Capitol Mall, Suite 8-300, Sacramento, California 95814. Mr. Baker may be reached by telephone at (916) 930-3616.

Sincerely,

for Rodney R. McInnis
Regional Administrator

cc: NMFS-PRD, Long Beach, CA

United States Department of Agriculture
Forest Service
Shasta-Trinity National Forests
2400 Washington Avenue
Redding, CA 96001
(916) 246-5222
)916) 246-5313

Reply To: 2700
Date: April 11, 1997

Mr. William J. Melton
Environmental Manager
Department of Energy
Western Area Power Administration
114 Parkshore Drive
Folsom, CA 95630-4710

Dear Mr. Melton:

We are in receipt of your letter dated April 3, 1997, in regards to proposed vegetation control and use of herbicides on the California-Oregon Transmission Project main powerline, as it crosses the Shasta-Trinity National Forests. The line is under an easement from the United States to the Transmission Agency of California.

As part of your planning process you will need to be in contact with Mike Gertsch, Wildlife Biologist, at this office, (916) 246-5242, or Dan French, COTP Liaison Officer, at the Shasta Lake Ranger Station, (916) 275-1587.

If you have any questions, please call Mike or Dan at the above phone numbers.

Sincerely,

Karyn K. Wood

/s/ J. SHARON HEYWOOD
Forest Supervisor

Caring for the Land and Serving People

FS-6200-28 (7-82)

Appendix D
Correspondence with State Agencies (excluding SHPO)

STATE OF CALIFORNIA

Governor's Office of Planning and Research

State Clearinghouse

Gray Davis
GOVERNOR

Tal Finney
INTERIM DIRECTOR

June 10, 2002

Steve Tuggle
Department of Energy - Western Area Power Administration
114 Parkshore Drive
Folsom, CA 95630

Subject: Sacramento Valley Right of Way Maintenance EA
SCH#: 2002054007

Dear Steve Tuggle:

The State Clearinghouse submitted the above named Environmental Assessment to selected state agencies for review. The review period closed on June 7, 2002, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.

Please call the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process. If you have a question about the above-named project, please refer to the ten-digit State Clearinghouse number when contacting this office.

Sincerely,

Terry Roberts
Director, State Clearinghouse

1400 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044
916-445-0613 FAX 916-323-3018 www.opr.ca.gov

STATE OF CALIFORNIA

Governor's Office of Planning and Research

State Clearinghouse

Gray Davis
GOVERNOR

Tal Finney
INTERIM DIRECTOR

ACKNOWLEDGEMENT OF RECEIPT

DATE: June 11, 2002

TO: Steve Tuggle
Department of Energy - Western Area Power Administration
114 Parkshore Drive
Folsom, CA 95630

RE: Sacramento Valley Right of Way Maintenance EA
SCH#: 2002054007

This is to acknowledge that the State Clearinghouse has received your environmental document for state review. The review period assigned by the State Clearinghouse is:

Review Start Date: May 28, 2002
Review End Date: June 7, 2002

We have distributed your document to the following agencies and departments:

California Energy Commission
California Highway Patrol
Caltrans, District 3
Delta Protection Commission
Department of Fish and Game, Region 2
Department of Parks and Recreation
Department of Toxic Substances Control
Native American Heritage Commission
Office of Emergency Services
Office of Historic Preservation
Public Utilities Commission
Reclamation Board
Regional Water Quality Control Bd., Region 5 (Sacramento)
Resources Agency
State Lands Commission

The State Clearinghouse will provide a closing letter with any state agency comments to your attention on the date following the close of the review period.

Thank you for your participation in the State Clearinghouse review process.

1400 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044
916-445-0613 FAX 916-323-3018 www.opr.ca.gov

JAN 14 2002

Mr. Mike Healy
Department of Fish and Game
1701 Nimbus Road
Rancho Cordova, CA 95670

Dear Mr. Healy:

The Western Area Power Administration (Western) is a power marketing agency of the U.S. Department of Energy, with jurisdiction in 15 western states. Western's Sierra Nevada Region performs the agency's mission in parts of California and Nevada. As part of its mission, Western owns, operates, and maintains a system of transmission lines for transmitting bulk electrical energy from points of generation to and between delivery points. Enclosed are seven maps showing parts of the 230-kilovolt (kV) transmission lines and watersheds within the Sacramento area. Western is in the process of preparing an Environmental Assessment (EA) for maintenance on these transmission line rights-of-ways (ROWs) and associated legal access roads.

Western must comply with the National Electric Safety Code, Western Systems Coordinating Council and Western directives for protecting human safety and maintaining the reliable operation of the transmission system. Therefore, Western needs to keep vegetation away from its electric facilities, increase efficiency and consistency, and maximize the range of tools used while minimizing environmental impacts. By doing this, Western can minimize human safety and fire hazards that result in electrocution, damage to the transmission line, or outages which would interrupt service. Regular maintenance of the transmission line, towers and access roads is essential to prevent these types of occurrences. ROW maintenance may include vegetation removal and road repairs to allow equipment access to transmission lines and towers.

To date Western's focus has been on sites where our transmission lines cross or parallel the Sacramento, American, and Cosumnes Rivers. As a part of this process we are trying to address any potential impacts to listed fish species in the area and use best management practices to maintain a high level of environmental responsibility under our ROWs. Our ROWs are usually 150 feet wide, and we often have to cut/trim trees and brush to keep our lines clear. There are also occasions when we find it necessary to apply herbicides to maintain low growing plant communities. In general, our protocols for maintenance near waterbodies are meant to minimize any negative impacts to the natural system.

We would appreciate any information on the Sacramento, American, and Cosumnes Rivers, and other associated tributaries within the project area that may assist us in minimizing potential effects to listed species, and support Western in incorporating the best management practices into it's routine maintenance activities.

We appreciate your attention to this matter and we anticipate hearing from you soon. If you have any questions, please contact Mr. Steve Tuggle, Western's Project Manager for this EA, at (916) 353-4549 or Mr. Nick Hindman, Western's Fisheries Biologist, at (916) 353-4529.

Sincerely,

ORIGINAL SIGNED BY

Bruce Thomas
Acting Environmental Manager

bcc:
N0400, N0417, N0415 (RF OF)

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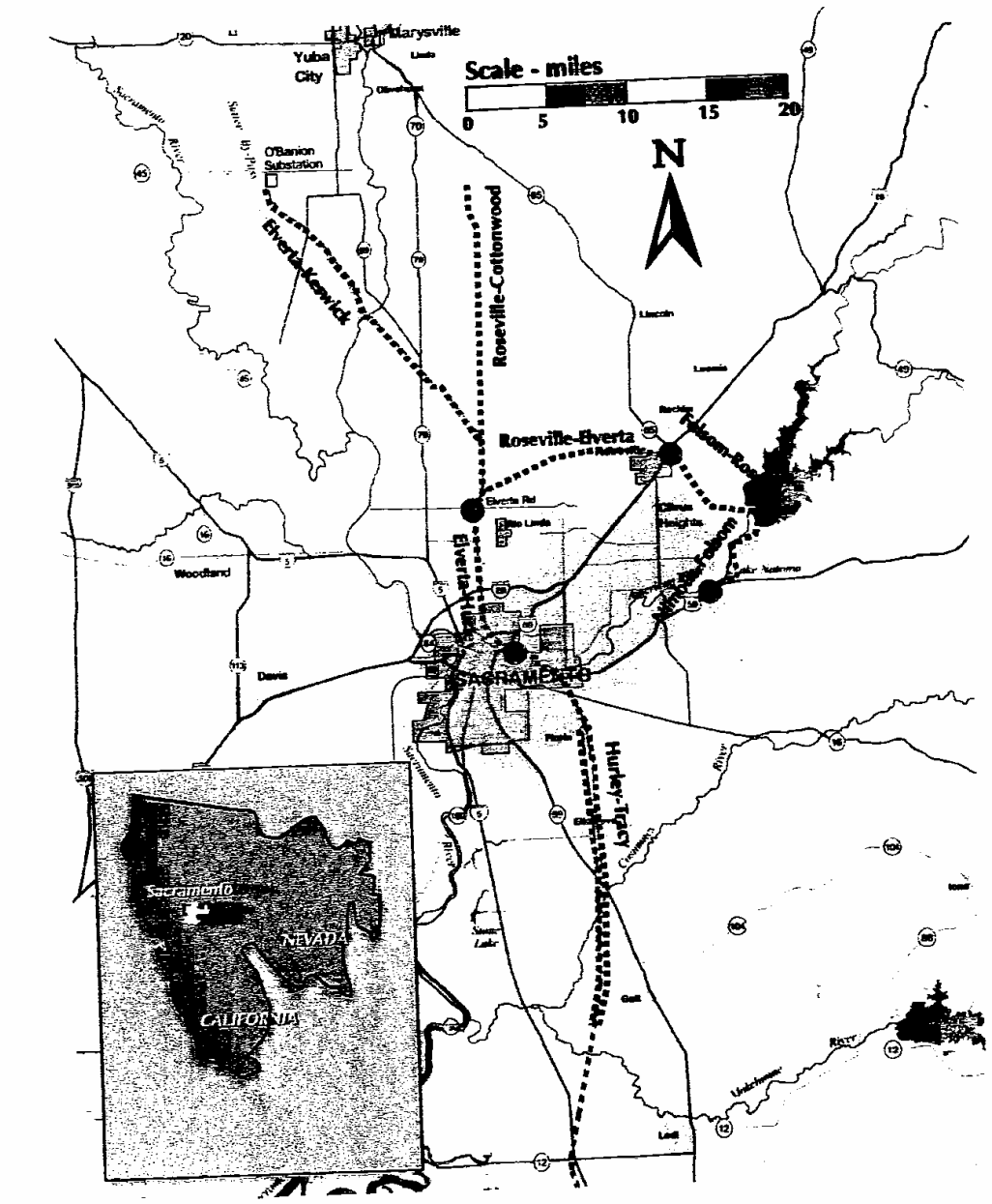


FIGURE 1-1. LOCATION OF STUDY AREA AND TRANSMISSION LINE RIGHTS-OF-WAY

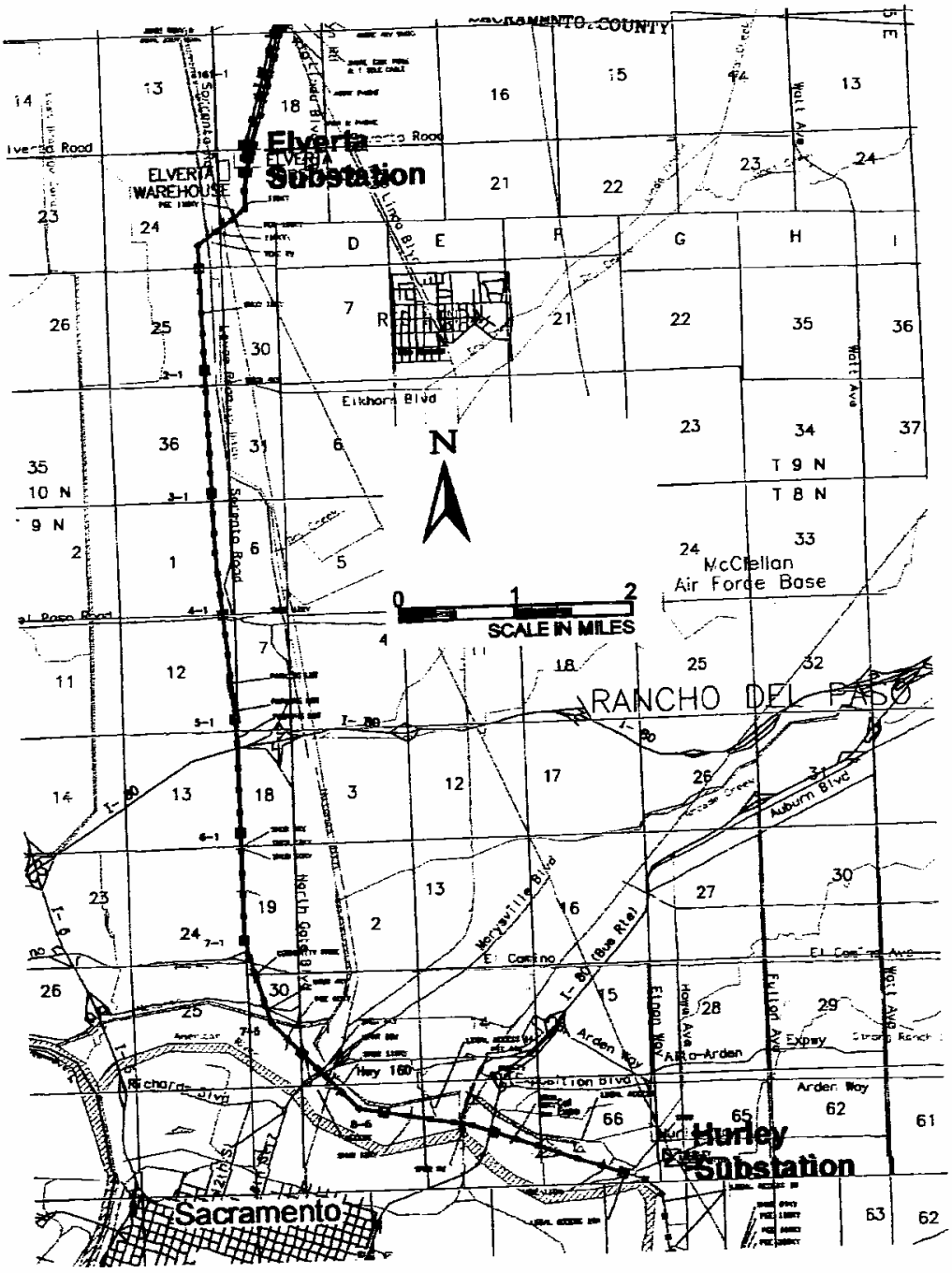


FIGURE 1-2. LOCATION OF ELVERTA-HURLEY TRANSMISSION LINE

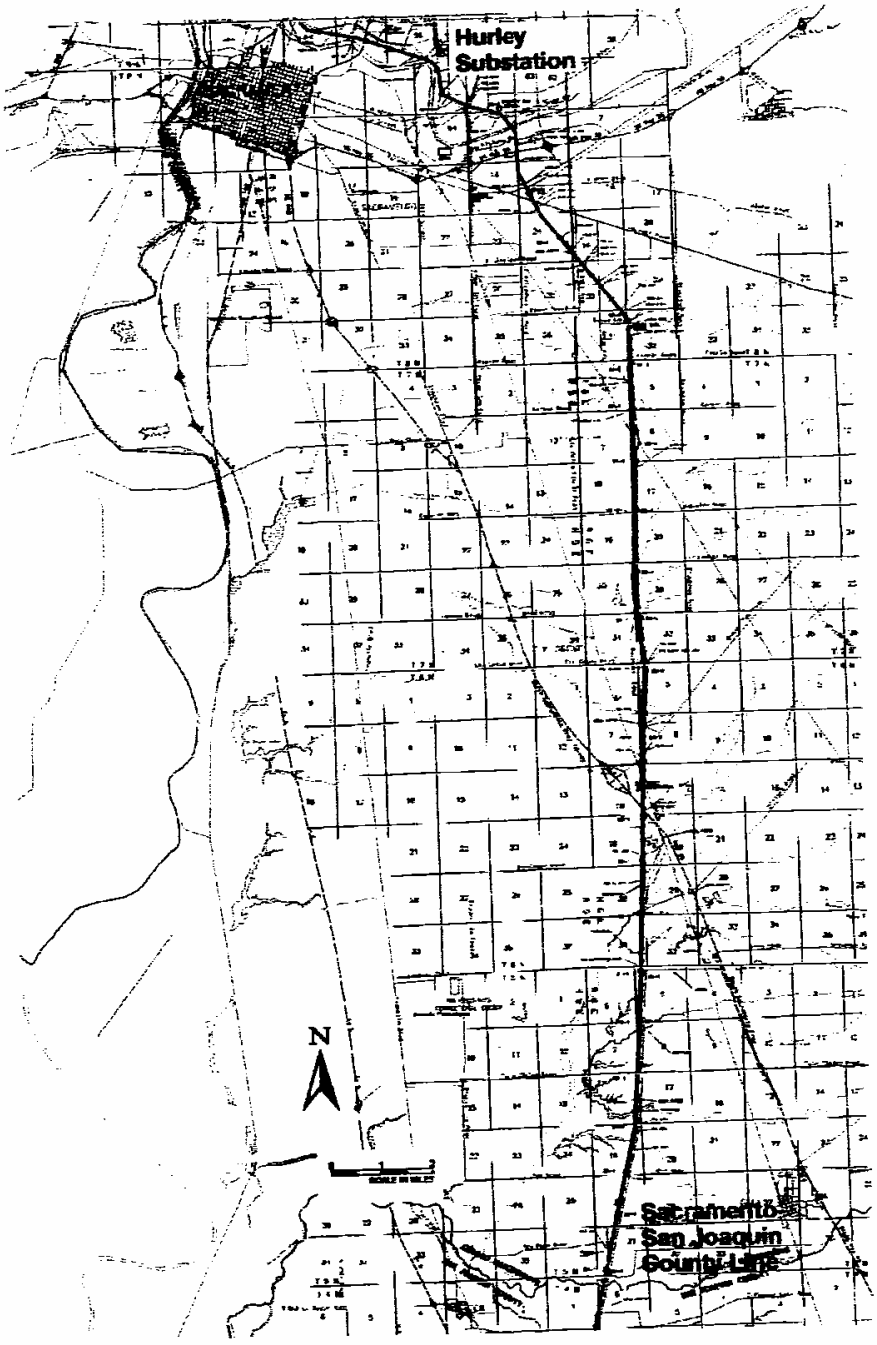


FIGURE 1-3. LOCATION OF HURLEY-TRACY TRANSMISSION LINE

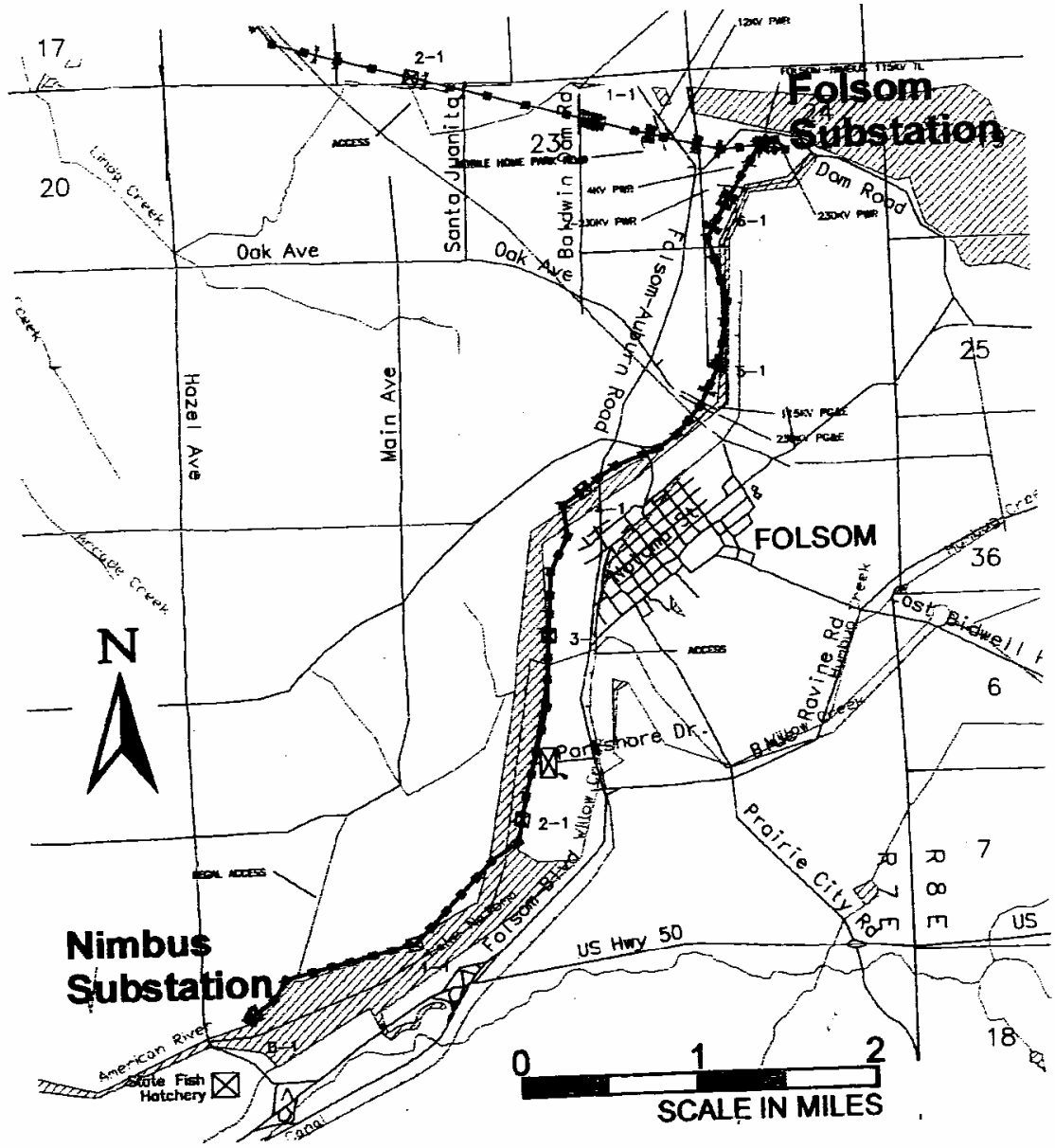


FIGURE 1-4. LOCATION OF NIMBUS-FOLSOM TRANSMISSION LINE

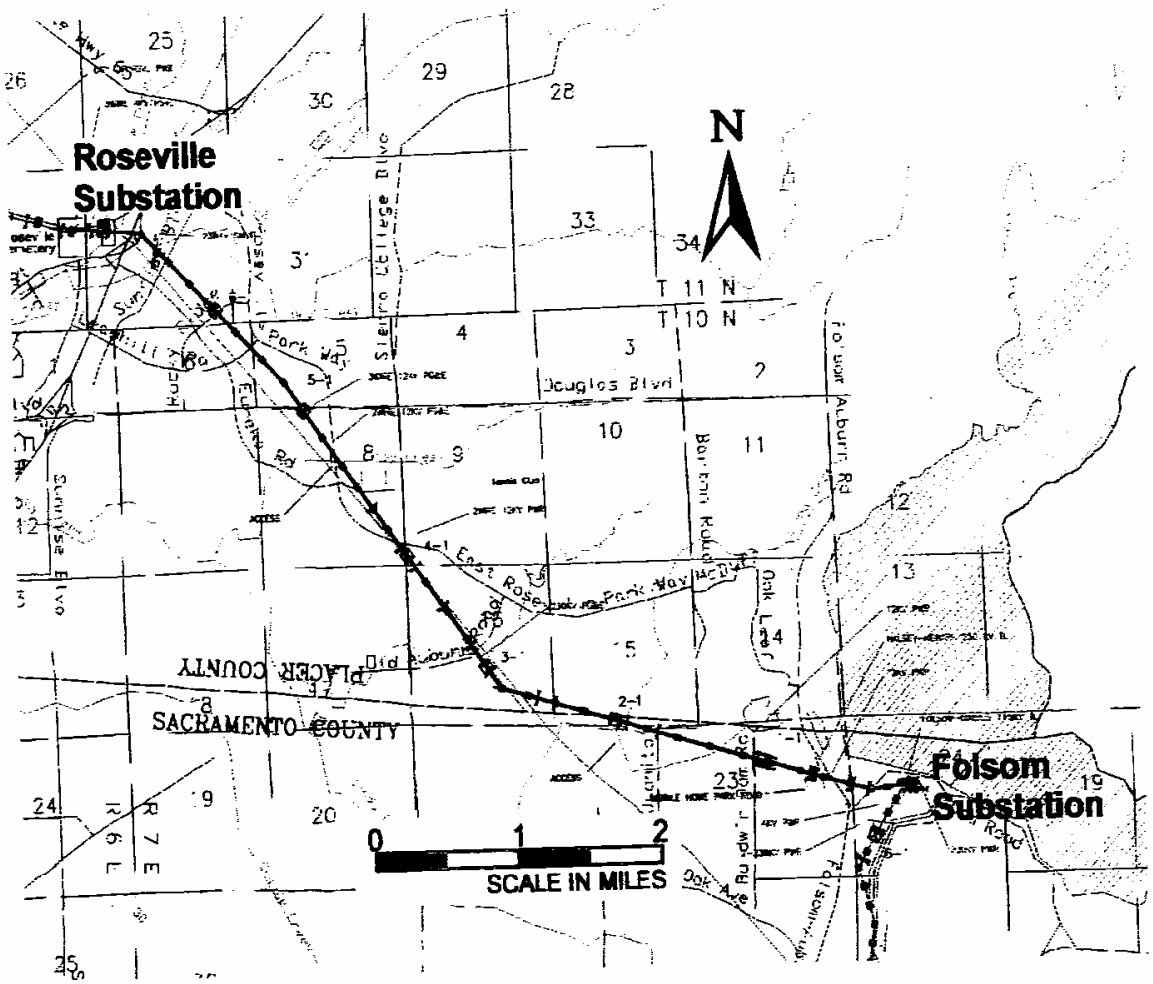


FIGURE 1-5. LOCATION OF FOLSOM-ROSEVILLE TRANSMISSION LINE

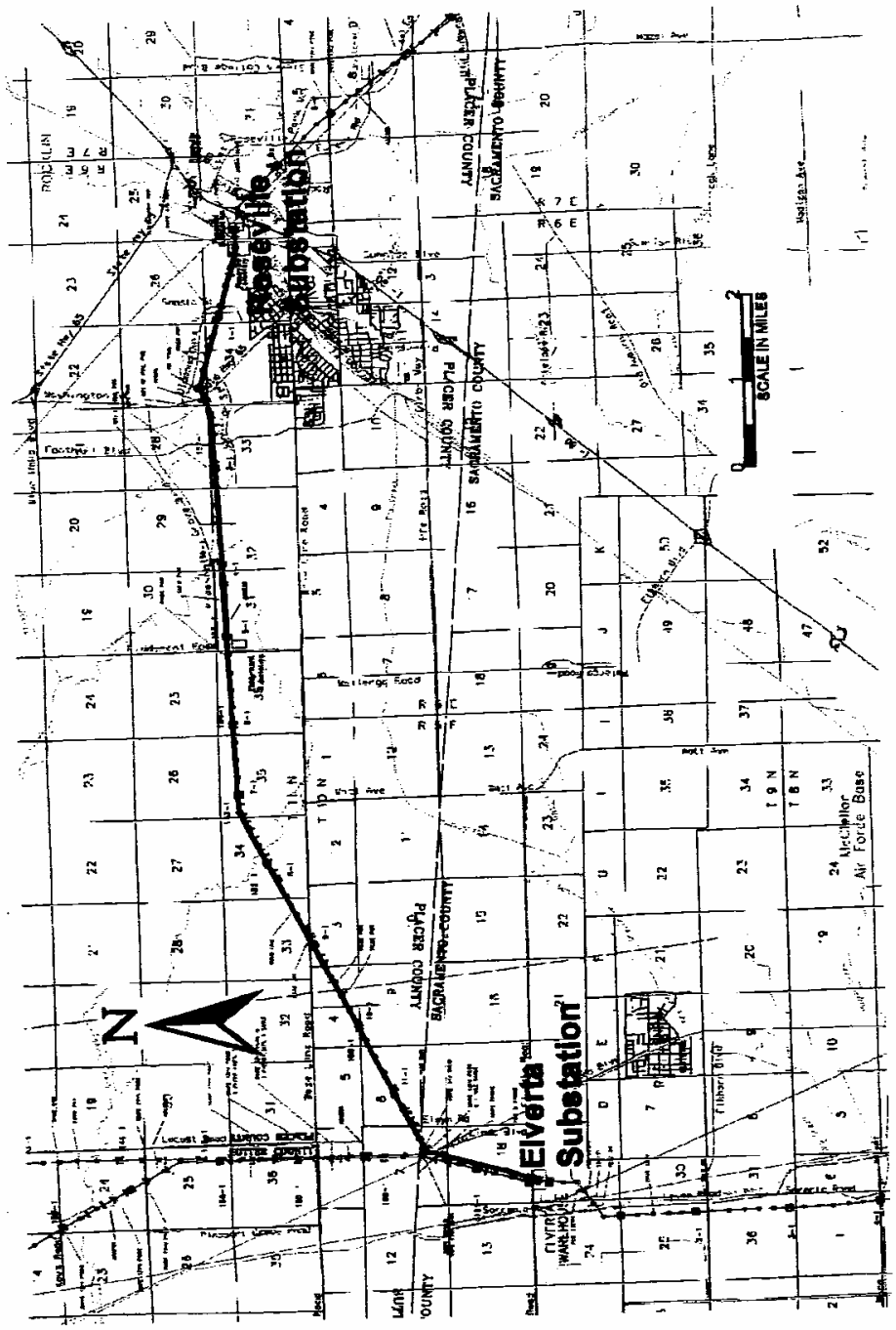


FIGURE 1-6. LOCATION OF ROSEVILLE-ELVERTA TRANSMISSION LINE

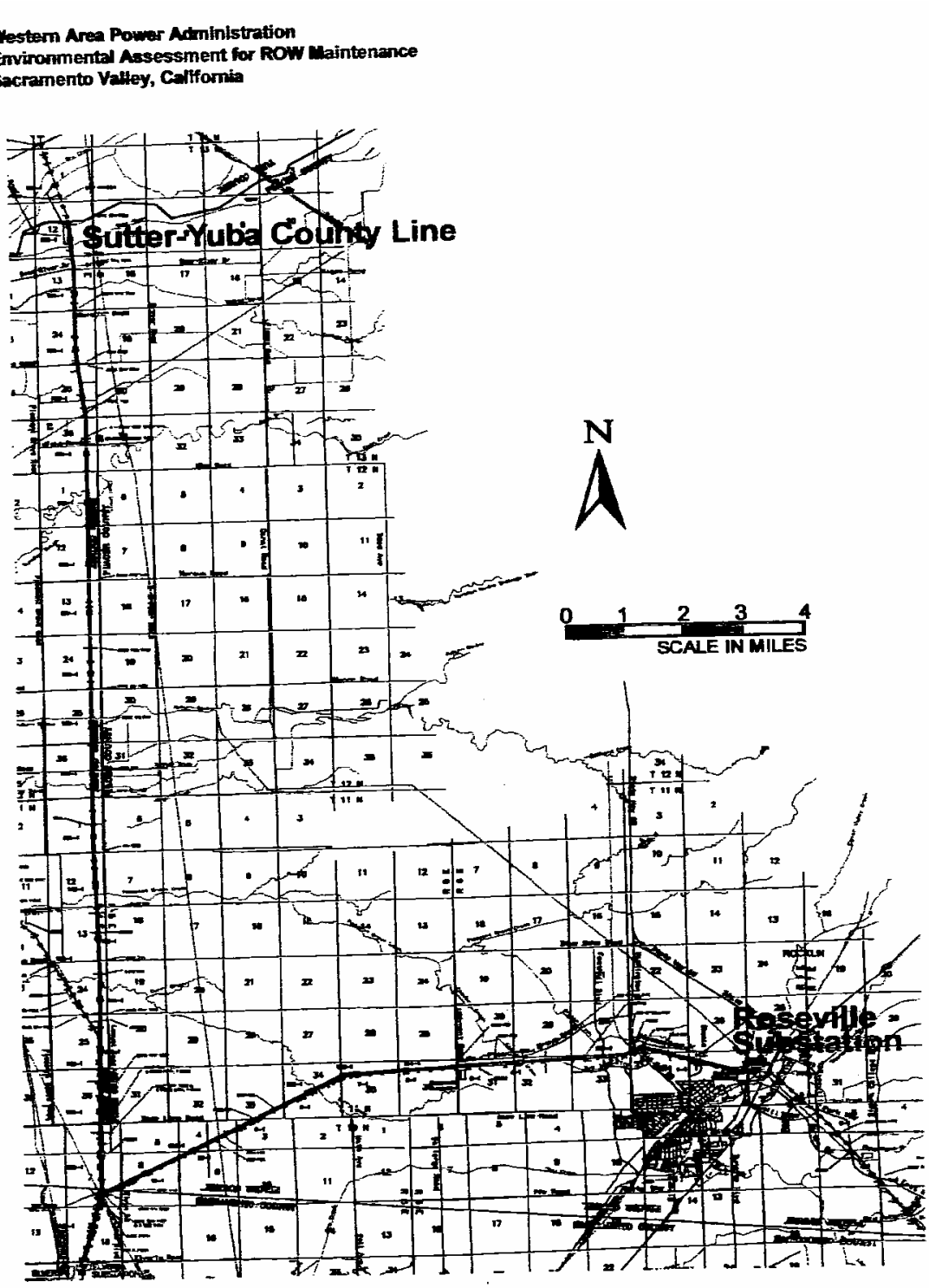


FIGURE 1-7. LOCATION OF ROSEVILLE-COTTONWOOD TRANSMISSION LINE

FIGURE 1-8. LOCATION OF ELVERTA-KESWICK TRANSMISSION LINE

State of California **The Resources Agency**

Memorandum

To: Mr. Bruce Thomas
Acting Environmental Manager
Department of Energy, Western Area Power Administration
Sierra Nevada Customer Service Region
114 Parkshore Drive
Folsom, CA 95630-4710

Date: February 8, 2002

From: **Sacramento Valley-Central Sierra Region 2**

Subject: Rights-of-Way Maintenance

The California Department of Fish and Game (DFG) has reviewed your letter for preparing and Environmental Assessment (EA) for maintenance of transmission line rights-of-ways (ROWs) on sites where your transmission lines cross or parallel the Sacramento, American, and Cosumnes Rivers. The DFG understands that Western Area Power Administration must comply with the National Electric Safety Code, Western Systems Coordinating Council, and Western directives for protecting human safety, minimizing fire damage, and maintaining the reliable operation of the transmission system.

The proposed work for ROW maintenance includes vegetation removal; road repairs to allow equipment access to transmission lines and towers which cross or parallel the Sacramento, American, and Cosumnes Rivers; and occasional herbicide applications to control plant communities. Each river maintains an important fishery for resident and anadromous species and is designated as critical habitat for several endangered, or threatened fish species. The Sacramento River contains endangered winter-run chinook salmon (*Oncorhynchus tshawytscha*), Central Valley steelhead (*Oncorhynchus mykiss*), and threatened Central Valley spring-run chinook salmon pursuant to California Endangered Species Act (CESA). The American and Cosumnes Rivers contain Central Valley steelhead. Other listed species that may be present in the proposed work area include threatened giant garter snake (*Thamnophis couchi gigas*) and red-legged frog (*Rana aurora*).

The EA should include any adverse effects associated with the proposed project on CESA-listed species and critical habitat resulting from increased water temperature, siltation and pollution from runoff. Efforts to avoid these impacts should be included in the EA that include the following:

1. The work must include an operational plan that would not harm any age class of fish, which consist of anadromous and resident fish populations, reptile, or amphibian. The DFG would like to participate in the approval of any such plan.

Mr. Bruce Thomas
February 8, 2002
Page Two

2. Projects may not decrease or degrade water quality or usable habitat for Endangered Species Act (ESA) listed species in any life stage in the rivers. The specifics of the proposed work and associated access roads, and their effects on shaded riparian habitat and water quality would be critical. Any impacts that cannot be avoided may have to be mitigated.

3. Depending on the delineated impacts of the proposed work, consultation may be required with the National Marine Fisheries Service (NMFS) regarding ESA issues.

The listed anadromous species may be present during certain periods of the year, and the DFG has concerns regarding the timing of the proposed work. Therefore, to minimize potential impacts to listed species, the DFG recommends that the proposed work be performed from July through September. Construction of any access roads must be carefully designed and constructed to insure that additional silt is not added to the rivers. Protocols for the application of herbicides must be done in a manner to prevent over-spray to areas outside of the project work area and to minimize any negative impacts to the natural system.

The DFG agrees that minimizing adverse effects on the existing riparian habitat along the Sacramento, American, and Cosumnes Rivers, as well as incorporation of an EA as part of the proposed project would be suitable to protect the above-mentioned listed species.

If you have any further questions please contact me at (916) 358-4334.

Michael P. Healey

Michael Healey
Associate Biologist

STATE OF CALIFORNIA - THE RESOURCES AGENCY
GRAY DAVIS, Governor
DEPARTMENT OF FISH AND GAME
SACRAMENTO VALLEY AND CENTRAL SIERRA REGION
1701 NIMBUS ROAD, SUITE A
RANCHO CORDOVA, CALIFORNIA 95670
Telephone (916) 358-2900

June 17, 2002

Mr. Steve Tuggle
Project Manager
Western Area Power Administration
Sierra Nevada Regional Office
114 Parkshore Drive
Folsom, CA 95630-4710

Dear Mr. Tuggle:

The Department of Fish and Game (DFG) has reviewed the Draft Environmental Assessment (EA) for Right-Of-Way Maintenance in the Sacramento Valley, California (SCH# 2002054007). The project proposes modifications of existing maintenance activities within power transmission right of ways in portions of Sacramento, Sutter and Placer Counties.

As the draft EA notes, several state listed species occur or may occur within the project area. Maintenance activities may directly, indirectly and cumulatively impact these species.

The DFG recommends the following specific mitigation measures be incorporated into the final EA:

Swainson's Hawk

1) Preconstruction surveys during the nesting season (March 1 through September 15), within 0.5 mile of maintenance areas, shall be conducted by a qualified biologist prior to beginning construction and related activities in each maintenance phase. Survey results shall be provided to the Department in a written report, 30 days prior to commencement of maintenance activities. If nesting Swainson's hawks are found, the Wester Area Power Administration shall consult with the Department to determine if construction activities could cause reproductive failure (nest abandonment and loss of eggs and/or young). If, in the course of consultation with the Department, a determination is made that the construction activities could cause reproductive failure, no maintenance activities will be allowed between May 1 and September 15 within 0.5 miles from the nest site until young have fledged, or the adults are no longer nesting.

Mr. Tuggle
June 17, 2002
Page Two

2) For unavoidable impacts to nest trees, the following mitigation measures shall be implemented to ensure full mitigation.

a. Known nest trees shall be removed outside of the nesting period (October 1 to February 1).

b. For every known nest tree removed, plant 40 trees (expected to be mature within 10 years) on protected lands adjacent to suitable foraging habitat.

c. Planted trees shall be chosen from a palette of native trees in which Swainson's hawks are known to nest.

d. Conduct monitoring of planted trees. A five-year maintenance and monitoring plan shall be completed for all mitigation plantings. The monitoring plan shall include appropriate irrigation schedules, as well as criteria for success and re-establishment during the five-year period. Any trees planted, as remedial action for failure of initial planting shall be monitored for five years in similar fashion to the initial planting. Planted trees must demonstrate a minimum 80 percent success rate to end the monitoring period.

Thank you for the opportunity to review this project. If we can be of further assistance, please contact Mr. Jeff Finn at (530) 477-0308 or Ms. Terry Roscoe, Habitat Conservation Planning Supervisor at (916) 358-2883.

Sincerely,

Larry L. Eng, Ph.D.
Assistant Regional Manager

cc: Ms. Terry Roscoe
Mr. Jeff Finn
Department of Fish and Game
1701 Nimbus Road, Suite A
Rancho Cordova, CA 95670

STATE OF CALIFORNIA - CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY PETE WILSON, Governor

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
NORTH COAST REGION
5550 SKYLANE BLVD. SUITE A
SANTA ROSA, CA 95403
PHONE: (707) 576-2220

January 29, 1997

Environmental Assessment for Integrated
Vegetation Management
Western Area Power Administration
Environmental Services Division
114 Parkshore Drive
Folsom, CA 95630

Re: Integrated Vegetation Management Fffort

While we have no specific comments at this time, we are interested in your assessment and the activities you will propose for vegetation and erosion control.

We are involved in a number of watershed groups that are dealing with similar issues, and are interested in how others are dealing with erosion and vegetation issues. We would like to see your assessment and plan in draft and, especially, final form, since we may benefit from your knowledge and experience.

Please put us on your mailing list for the Environmental Assessment. Thank you for the opportunity to comment.

Sincerely,

Robert R. Klamt
Senior Land and Water Use Analyst

RRK:lmf/doe_erod.wpd

Department of Energy
Western Area Power Administration
Sierra Nevada Customer Service Region
114 Parkshore Drive
Folsom, California 95630-4710

Mr. Patrick Gillum
California Regional Water Quality Control Board
Central Valley Region
3443 Routier Road, Suite A
Sacramento, CA 95827-3015

Dear Mr. Gillum:

The Western Area Power Administration (Western), Sierra Nevada Customer Service Region, a power marketing administration of the U.S. Department of Energy (DOE), owns, operates, and maintains all or a portion of six 230-kilovolt (kV) transmission lines and one 115-kV transmission line in Placer, Sacramento, and Sutter counties, California. This letter is to submit an application for a programmatic water quality certification following the Clean Water Act Section 401 for all of Western's rights-of-way (ROW) within the Sacramento Valley region (enclosed Figure 1). Enclosed is the State Water Quality Certification Application, an Environmental Assessment (EA) for the Sacramento Valley ROW Maintenance Project, and the required $1,000 fee under the Title 23 CCR Section 3832b(2) (A).

Western must comply with the National Electric Safety Code, Western Systems Coordinating Council and Western directives for protecting human safety and maintaining the reliable operation of the transmission system. Western needs to keep vegetation away from its electric facilities, increase efficiency and consistency, and maximize the range of tools used while minimizing environmental impacts. By doing these things, Western can minimize human safety and fire hazards that result in electrocution, damage to the transmission line or outages, which would interrupt service. Regular maintenance of the transmission lines, towers and access roads is essential to prevent these types of occurrences. ROW maintenance may include vegetation removal and road repairs to allow equipment access to transmission lines and towers.

Western proposes an EA to conduct ROW maintenance on these transmission lines and associated legal access roads. Under the proposed action, Western would adopt the management approach of promoting low-growing plant communities. To achieve this objective, Western would extend the set of vegetation maintenance methods available to include expanded use of herbicides in combination with manual and mechanical methods. Western would continue its current practices for access road maintenance and maintenance of transmission lines and associated structures,

hardware, and equipment. This alternative would be cost effective, ensure that system reliability and safety remain at acceptable levels, while extending the lifetime of transmission components.

We are requesting your concurrence with our application for the Clean Water Act Section 401, water quality certification. If you have any project related questions, please contact Mr. Steve Tuggle at (916) 353-4549.

Sincerely,

Bruce Thomas
Environmental Manager

Enclosures

cc:
Mr. Mike Finan
US Army Corps of Engineers
1325 J Street
Sacramento, CA 95814

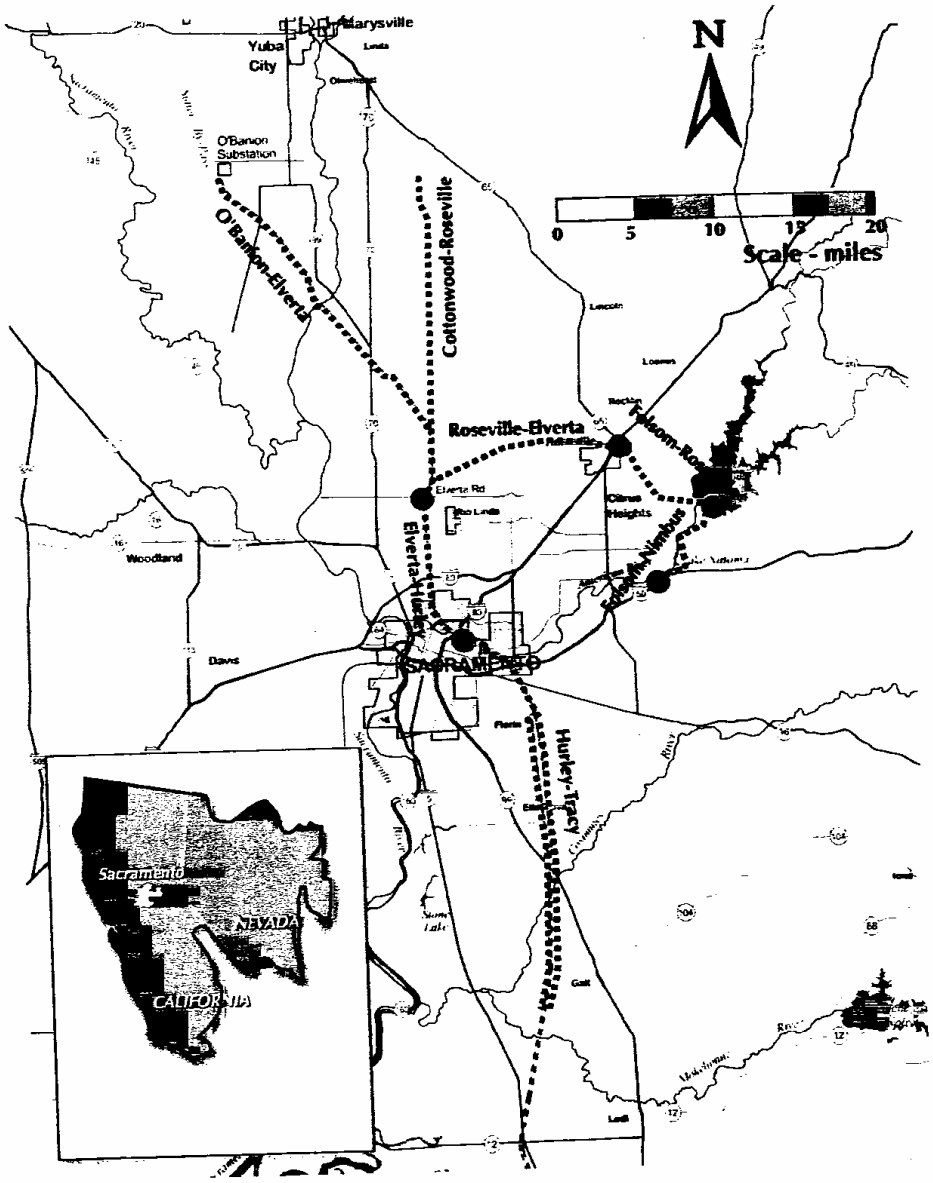


FIGURE 1 - LOCATION OF STUDY AREA AND TRANSMISSION LINE RIGHTS-OF-WAY

California Regional Water Quality Control Board
Central Valley Region
Robert Schneider, Chair

Winston H. Hickox
Secretary for Environmental Protection

Gray Davis
Governor

Sacramento Main Office
Internet Address: http://www.swrcb.ca.gov/rwqcb5
3443 Routier Road, Suite A, Sacramento, California 95827-3003
Phone (916) 255-3000 • FAX (916) 255-3015

1 November 2002

Mr. Steve Tuggle
Department of Energy-Western Area Power Administration
114 Parkshore Drive
Folsom, CA 95630

ACTION ON REQUEST FOR CLEAN WATER ACT §401 WATER QUALITY CERTIFICATION FOR DISCHARGE OF DREDGED AND/OR FILL MATERIALS FOR THE DEPARTMENT OF ENERGY SACRAMENTO VALLEY RIGHT OF WAY/ MAINTENANCE AND ENVIRONMENTAL ASSESSMMENT PROJECT (WDID #5A34CR00026), PLACER, SACRAMENTO AND SUTTER COUNTIES

ACTION:

1. ☐ Order for Standard Certification
2. ■ Order for Technically-conditioned Certification
3. ☐ Order for Denial of Certification

WATER QUALITY CERTIFICATION STANDARD CONDITIONS:

1. This certification action is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to §13330 of the California Water Code and §3867 of Title 23 of the California Code of Regulations (23 CCR).

2. This certification action is not intended and shall not be construed to apply to any discharge from any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license unless the pertinent certification application was filed pursuant to 23 CCR subsection 3855(b) and the application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.

3. The validity of any non-denial certification action shall be conditioned upon total payment of the full fee required under 23 CCR §3833, unless otherwise stated in writing by the certifying agency.

ADDITIONAL CONDITIONS (for Certification Action 2):

In addition to the three standard conditions, the applicant shall satisfy the following:

1. Department of Energy shall notify the Board in writing of the start of any in-water activities.

2. Except for activities permitted by the U.S. Army Corps under §404 of the Clean Water Act, soil, silt, or other organic materials shall not be placed where such materials could pass into surface water or surface water drainage courses.

3. The discharge of petroleum products or other excavated materials to surface waters is prohibited.

4. Activities shall not cause turbidity increases in surface waters to exceed:

   (a) where natural turbidity is between 0 and 5 Nephelometric Turbidity Units (NTUs), increases shall not exceed 1 NTU;
   (b) where natural turbidity is between 5 and 50 NTUs, increases shall not exceed 20 percent;
   (c) where natural turbidity is between 50 and 100 NTUs, increase shall not exceed 10 NTUs;
   (d) where natural turbidity is greater than 100 NTUs, increases shall not exceed 10 percent.

   Except that these limits will be eased during in-water working periods to allow a turbidity increase of 15 NTU over background turbidity as measured in surface waters 300 feet downstream from the working area. In determining compliance with the above limits, appropriate averaging periods may be applied provided that beneficial uses will be fully protected.

5. Activities shall not cause settleable matter to exceed 0.1 ml/l in surface waters as measured in surface waters 300 feet downstream from the project.

6. Activities shall not cause visible oil, grease, or foam in the work area or downstream.

7. All areas disturbed by project activities shall be protected from washout or erosion.

8. In the event that project activities result in the deposition of soil materials or creation of a visible plume in surface waters, the following monitoring shall be conducted immediately upstream and 300 feet downstream of the work site and the results reported to this office within two weeks:

Parameter	*Unit*	*Type of Sample*	*Frequency of Sample*
Turbidity	**NTU**	**Grab**	Every 4 hours during in water work
Settleable Material	**ml/l**	**Grab**	Same as above.

9. Department of Energy shall notify the Board immediately if the above criteria for turbidity, settleable matter, oil/grease, or foam are exceeded.

10. Department of Energy shall notify the Board immediately of any spill of petroleum products or other organic or earthen materials.

REGIONAL WATER QUALITY CONTROL BOARD CONTACT PERSON:

Patrick G. Gillum, Environmental Specialist III,
3443 Routier Road, Suite A
Sacramento, California 95827-3015
(916) 255-3397
gillump@rb5s.swrcb.ca.gov

WATER QUALITY CERTIFICATION:

I hereby issue an order certifying that any discharge from the Department of Energy Sacramento Valley Right of Way/Maintenance and Environmental Assessment Project, Placer, Sacramento, and Sutter Counties (WDID #5A34CR00026) will comply with the applicable provisions of §301 ("Effluent Limitations"), §302 ("Water Quality Related Effluent Limitations"), §303 ("Water Quality Standards and Implementation Plans"), §306 ("National Standards of Performance"), and §307 ("Toxic and Pretreatment Effluent Standards") of the Clean Water Act.

THOMAS R. PINKOS
Acting Executive Officer

Enclosure: Project Information

cc: U.S. Army Corps of Engineers, Sacramento
Timothy Vendlinski, Wetlands Section Chief (WTR-8), U.S. Environmental Protection Agency, Region 9, San Francisco
U.S. Fish & Wildlife Service, Sacramento
Oscar Balaguer, Certification Unit, State Water Resources Control Board, Sacramento

PROJECT INFORMATION

Application Date: 28 May 2002

Applicant: Department of Energy-Western Area Power Administration
114 Parkshore Drive
Folsom, CA 95630

Applicant Representatives: Mr. Steve Tuggle
Department of Energy-Western Area Power Administration
114 Parkshore Drive
Folsom, CA 95630

Project Name: Department of Energy Sacramento Valley Right of Way/ Maintenance and Environmental Assessment Project

Application Number: N/A

Type of Project: Regular maintenance of transmission lines, towers and access roads

Project Location: The project is located in the Sacramento Valley of northern California and the Right-of-Ways (ROWs) lie within Sutter, Sacramento, and Placer counties. Seven transmission line ROWs and 108 miles of transmission lines and road comprise the area.

County: Sutter, Sacramento, and Placer Counties

Receiving Water(s) (hydrologic unit): Sacramento Hydrologic Basin; Marysville Hydrologic Unit #515.10; Lower Bear River HA; Sacramento Hydrologic Basin, American River Hydrologic Unit #514.23, Folsom Reservoir HSA, Sacramento Hydrologic Basin, Valley-American Hydrologic Unit #519.21, Lower American HSA, and Sacramento Hydrologic Basin; Valley-American Hydrologic Unit #519.11, Franklin HSA

Water Body Type: Streambed, Riparian, Wetland and River

Designated Beneficial Uses: The Basin Plan for the Central Valley Regional Board has designated beneficial uses for surface and ground waters within the region. Beneficial uses that could be impacted by the project include: Municipal and Domestic Water Supply (MUN); Agricultural Supply (AGR); Industrial Supply (IND), Hydropower Generation (POW); Groundwater Recharge, Water Contact Recreation (REC-1); Non-contact Water Recreation (REC-2); Warm Freshwater Habitat (WARM); Cold Freshwater Habitat (COLD); and Wildlife Habitat (WILD).

Project Description (purpose/goal): The purpose of the project/action is to continue to maintain transmission line and access road right of ways, to ensure that Western's maintenance crews have safe and all-weather access to transmission line structures, consistent with safety and environmental regulations and policies.

Preliminary Water Quality Concerns: Sedimentation and Erosion are of concern.

Proposed Mitigation to Address Concerns: Department of Energy will implement Best Management Practices to control Erosion and Sedimentation.

Fill/Excavation Area: None.

Dredge Volume: <0.0 cubic yards

U.S. Army Corps of Engineers Permit Number: Department of Energy qualifies for a Nationwide Permit #3 because they are not working within U.S. waters. If there was any work done to a culvert, it would be maintenance only.

Federal Public Notice: WDID #5A34CR00026

Department of Fish & Game Streambed Alteration Agreement: Western is an agency of the Federal Government and is exempt from 1601/1603 requirements.

Possible Listed Species: None.

Status of CEQA Compliance: The maintenance of existing facilities is exempt from CEQA in accordance with Section 15301. The Department of Energy is conducting a NEPA review.

Compensatory Mitigation: None required

Application Fee Provided: A $1000 fee was submitted on 28 May 2002 as required by 23 CCR § 2200(e).

Appendix E
Correspondence with the SHPO and Native American Heritage Commission

From: Mary Barger
To: internet:cwhat@ohp.parks.ca.gov
Date: 6/6/01 11:24AM
Subject: APE for Sacramento Vegetation Management Project

Chuck, This email serves as formal consultation of the Area of Potential Effect for Western's Vegetation Management Project.

Topographic maps are being sent to your office for this Project.

The project entails removing vegetation growing into the conductor or restricting access to transmission line structures. Removal can be by hand or with mechanical equipment Access road improvements may also occur. These improvements would be restricted to the road prism.

The project involves the following transmission lines:

Nimbus-Folsom

Folsom-Roseville

Roseville-Cottonwood

Roseville-Elverta

Elverta-Hurley

Hurley-Tracy

Elverta-Keswick

Two lines were already surveyed:

Motz. Lee

1980 A Cultural Resource Assessment of the Current and Proposed Right-of-Way of the Nimbus-Folsom Transmission Line. Prepared for R.W. Beck and Associates, Denver, Colorado. Archaeological Study Center, Department of Anthropology, California State University, Sacramento.

Mikkelsen, Pat

1986 An Archaeological Reconnaissance of a 14 Mile Long Transmission Line Corridor Between the Elverta Street Substation, Sacramento County; and the Berry Street Substation, Placer County. California. Prepared for Western Area Power Administration, Department of Energy, Sacramento, California. Far Western Anthropological Research Group. Davis, California.

The first reference is for the Folsom-Nimbus line. The second reference is for the Roseville to Elverta ROW, which actually contains two rows of towers and four separate transmission lines: Cottonwood-Roseville Roseville-Elverta, Roseville-Fiddyment, Fiddyment-Elverta (the last three are located an the same row of towers).

Whatever was previously surveyed, will not be surveyed for this project. All previously recorded sites will be relocated and GPSed.

Far Western will be doing the surveys. Two of the transmission lines are over 45 years in age and will be recorded. Levees in the Sacramento area will be recorded as one site with multiple components.

All ROWs will be surveyed except in rice fields, disturbed areas such as parking lots, and encroached back yards or people's homes Any areas not surveyed will be mapped and documented.

The ROW widths vary on each line. This is due to whatever legal ROW was obtained prior to construction. Western has no rights outside the ROW, so we will only inventory the ROW. Impacts will not occur outside the ROW, except on designated access roads which will be inventoried at 30' wide.

ROW widths by line are addressed below

Elverta-Hurley #1/#2 230 kV - This line includes one row of double circuit towers. The ROW is 120 feet total; 55 feet from centerline to the east/north and 85 feet from centerline to the west/south. The Inventory will start at the Natomas East Canal (Tower 0/8) and run south and east to the Hurley Substation (Tower 11/2). The length of this portion of the Inventory is 52,800 feet or 9.98 miles Thus the survey area is 144.8 acres.

Hurley-Tracy #1/#2 230 kV The Inventory will start at the Hurley Substation end continue south to the Sacramento County line. This line has two different configurations and ROWs:

From the Hurley Substation (Tower 11/2) to the Hedge Substation (Tower 16/2), the line continues with one row of double towers with the same 120 foot ROW as above. The length of this portion of the Inventory is 34,300 feet or 8.5 miles. Thus the survey area is 94.5 acres.

From the Hedge Substation (Tower 18/2) to the county line (Tower 37/2). The line splits into two separate ROWs, each with one row of single circuit towers. Line #1 is on the east, line #2 is on the west. Each ROW is 125 feet total: 62.5 feet on each side of centerline. The length of this portion of the Inventory is 95,900 feet or 18.15 miles. Thus the survey area is 550.4 acres.

Folsom-Roseville 230 kV - This line includes one row of single circuit towers. The ROW is 250 feet total 62.5 feet from centerline to the north/east and 187.5 feet from centerline to the southwest. The Inventory will start at Folsom Substation and run north and west

to Roseville Substation. The length of this portion of the Inventory is 34,900 feet or 5.5 miles. Thus the survey area is 200.3 acres.

Cottonwood-Roseville/Keswick-Elverta/Obanion-Elverta Shared ROW - This section of ROW contains the Cottonwood-Roseville single circuit row of towers and the Keswick-Elverta/O'Banion-Elverta double circuit row of towers. The ROW is 225 feet total west boundary is 60 feet west of K-E/O'B-E centerline and east boundary is 50 feet east of the C-R centerline. The Inventory will start at Riego Road and run north to C-R Tower 144-4 and K-E/O'B-E Tower 157-4. The length of this portion of the Inventory is 8,000 feet or 1.5 miles. Thus, the survey area is 200.3 acres.

Cottonwood-Roseville 230 kV - This line includes one row of single circuit towers. The ROW is 100 feet total: 50 feet on each side of centerline. The Inventory will start at Tower 144-4 arid run north to the Sutter and Yuba County line. The length of this portion of the Inventory is 75,700 feet or 14.34 miles. Thus the survey area is 173.8 acres.

Keswick-Elverta/O'Banion-Elverta 230 kV - This line includes one row of double circuit towers. The Inventory will start at Tower 157-4 and run north to O'Banion Road. The ROW varies along this transmission line.

From O'Banion Road (Tower 135-1) to Tower 144-2, the ROW is a total of 112.5 feet: 50 feet to the west and 62.5 feet to the east of centerline. The length of this portion of the Inventory is 44,000 feet or 8.3 miles. Thus the survey area is 113.6 acres.

From Tower 144-2 to 157-4, the ROW is a total of 125 feet: 52.5 feet on each side of centerline. The length of this portion of the Inventory is 58,200 feet or 12.91 miles. Thus the survey area is 195.7 acres.

The total length of Inventory for the transmission line is 78.33 miles. The total Inventory area for the transmission lines is 1514.5 acres.

All of the legal access ROWS in the project area will be addressed by the Inventory. None of the legal access ROW has been previously inventoried. The standard ROW width for the legal access ROWS is 30 feet The legal access ROWS are located along the following transmission lines

Elverta-Hurley #1/#2 -at Towers 9/3 and 11/1 through 12/1.

Hurley-Tracy #1/#2-at Towers 11/1 through 12/1, 16/2 through 18/5, 26/2, 27/2, 28/4, 29/2, 29/3, 30/1, and 33/3.

The total length of Inventory for the legal access ROWs is 8.7 miles. The total Inventory area for the legal access ROWs is 31.6 acres.

Chuck, let me know if you need anything else. The maps should be there by Monday or Tuesday thanks.

Mary

cc: Bridges, John; Chevance, Nick; Tuggle, Steve; Werdel, Nancy

From: “Mike McGuirt” <mmcgurtt@ohp.parks.ca.gov
To: "Mary Barger" <BARGER@wapa.gov
Date: 7/04/01 5:03PM
Subject: RE: APE for Sacramento Vegetation Management Project

Dear Ms Barger,

This email is an informal response to your request for an informal consultation on an appropriate area of potential effect. (APE) for the Sacramento Vegetation Management Project. I would like to emphasize that this is an informal consultation on the delineation at an APE pursuant to 35 CFR § 800.4(a)(1). I do not have a complete project description with which I would be able to formally assess the adequacy of your proposed APE. Your original email of 6 June 2001 and subsequent email correspondence with Chuck Whatford also raises various questions about Section 106 compliance that go beyond considerations of an APE and include what appear to have been preliminary discussions about what the appropriate level of effort for the identification of historic properties for the present undertaking might be. These discussions would, of course, have us moving into the identification phase of consultation for the undertaking under 36 CFR § 800.4(b).

With the information that I have presently at hand from you (a series of emails from 6 June to 13 June 2001, an overview map of the transmission line routes in question, and a set of USGS 7.5' topographic quadrangles with the same transmission line routes marked on them), I am prepared to informally comment on the appropriateness of your APE, and I would like to make a few informal comments on select aspects of the level of effort that would appear to be appropriate for the identification of historic properties for the undertaking.

The proposed APE as you intimate it in your email of 6 June 2001 would appear to be appropriate to the scale and nature of the undertaking. You never provide a formal, or informal in this case, description of the APE in your email, but you seem, based on my interpretation of the email, to conceive of it as including the complete rights-of-way (R.O.W.) of portions of each of the seven transmission lines involved in the undertaking (Nimbus-Folsom, Folsom-Roseville, Roseville-Cottonwood, Roseville-Elverta, Elverta-Hurley, Hurley-Tracy, Elverta-Keswick) and the complete R.O.W. for portions of the access roads on or adjacent to the Elverta-Hurley and Hurley-Tracy transmission lines. This APE will be adequate presuming that it encompasses all potential storage and staging areas for equipment and materials, and places where any potential effects related to the movement of people, materials, and equipment to and from the various work areas for the undertaking might occur.

As the new reviewer for this undertaking, I want to reconfirm your and Chuck’s agreement (email correspondence of 11 and 13 June 2001) that, contrary to the statements in the original 6 June email an effort will be made to identify historic properties on the portions of all of the transmission lines in the undertaking including the Nimbus-Folsom and Roseville-Elverta R.O.W. I agree with Chuck that the R.O.W. for the latter two transmission lines probably ought to be re-surveyed.

As I read the balance of the description of the proposed identification effort for the undertaking in the 6 June 2001 email, the statement that "all ROWs will be surveyed except in rice fields, disturbed areas such as parking lots, and encroached backyards of peoples homes. Any area not surveyed will be mapped and documented" made me a bit nervous. If that statement is meant to indicate that you have in mind doing some sort of phased identification as provided for at 36 CFR 800.4(b)(2) then I am sure we could work that out. However, if the above mentioned areas are to remain in the APE, then there will probably have to be some sort of an identification effort in relation to them at some point during the course of formal consultation.

I hope that this email provides you with the information that you sought. If can clarify anything that I have said here for you, or if you have any other questions, please do not hesitate to contact me directly by email or phone. I look forward to working with you on this project.

Sincerely.

Mike

Michael D. McGuirt, RPA
Staff Archaeologist
Office of Historic Preservation
P.O. Box 942896
Sacramento, California 042896-OOO1
Office. 916.858.8920
FAX. 918.853.9824

Original Message

From: Mary Barger (mailto:BARGER@wapa.gov)
Sent: Tuesday, July 03, 2001 7:23 AM
To: mmcgurt@ohp.parks.ca.gov
Cc: roxlauk@ttus.com; Nick Chevance
Subject: APE for Sacramento Vegetation Management Project

Mike.

We sent over topo maps and art email description of the APE for the project We need to get staff in the field and would like confirmation of our proposal.

thanks

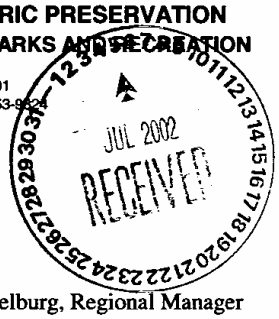
Let me know if you need more information. Mary

5470.04.01
SUROWM

STATE OF CALIFORNIA – THE RESOURCES AGENCY

GRAY DAVIS, Governor

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
P.O. BOX 942896
SACRAMENTO, CA 94296-0001
(916) 653-6624 Fax: (916) 653-9824
calshpo@ohp.parks.ca.gov
www.ohp.parks.ca.gov



July 2, 2002

In reply refer to:
WAPA020617B

James D. Keselburg, Regional Manager
Western Area Power Administration (WAPA)
114 Parkshore Drive
Folsom, CA 95630-4710
Attention: Steve Tuggle

RE: *Cultural Resources Survey for Right-of-Way Maintenance along the WAPA Transmission Lines in Sacramento, Placer, and Sutter Counties, California,* by Far Western Anthropological Research Group, May, 2002

Dear Mr. Keselburg:

Thank you for your letter of June 13, 2002, requesting my review of and comments on the consultant-prepared report referenced above. You are consulting with me in accordance with 36 CFR Part 800, regulations implementing Section 106 of the National Historic Preservation Act. It appears that you are requesting my concurrence on four steps in the Section 106 process: (1) the appropriateness of the Area of Potential Effects (APE); (2) the adequacy of efforts to identify historic properties; (3) WAPA's Determinations of Eligibility for resources identified within the undertaking's APE; and (4) WAPA's finding of "No Historic Properties Affected" for the undertaking.

Your submittal regards WAPA's efforts to identify and evaluate cultural resources within approximately 108.5 linear miles of transmission line right-of-ways (ROWs) and associated access roads in Sacramento, Placer, and Sutter Counties. These efforts are associated with WAPA's long-term maintenance needs, rather than a specific project or undertaking envisioned in the near future. Possible future maintenance activities identified in the report fall within three broad categories, including (1) vegetation maintenance, (2) maintenance of legal access roads, and (3) transmission line maintenance. Vegetation maintenance activities that have the potential to affect historic properties include manual and mechanical clipping of vegetation, handgrubbing or mechanical clearing of vegetation, and herbicide application. Access road maintenance activities which have the potential to affect historic properties include: grading, re-surfacing, maintenance and construction of water-diversion and control structures such as ditches, culverts, and water bars, and maintenance and repairs of areas damages by erosion. This could involve the use of graders, bulldozers, backhoes, and dumptrucks, depending on the types of maintenance activities undertaken. Transmission line maintenance activities which have the potential to affect historic properties include maintenance and repair of transmission lines and all associated structures within the ROW, such as towers and substations. This would involve the use of a variety of equipment, depending on the maintenance activities performed.

The submitted report documents a joint effort by Far Western Anthropological Research Group (FWARG), PAR, and JRP, on behalf of WAPA, to inventory, evaluate, and make management recommendations for historic properties within the WAPA ROWs and associated access roads. The archaeological survey report by FWARG and PAR documents the presence of at least four prehistoric archaeological sites and three historic archaeological sites within the project APE. The "Historic Properties Report" by JRP Historical Consulting Services documents the presence of approximately 28 historic-period resources within the project APE.

I appreciate WAPA's proactive approach to managing cultural resources, and believe your submittal represents a substantial initial effort on the part of WAPA to arrive at a more efficient and effective process for considering effects to historic properties. However, given the geographic scope of the project and the variety of potential maintenance activities to take place, I have some concerns. These are explained below by theme.

Appropriateness of APE

The APE for the different segments of transmission line corresponds with the line ROWs and associated legal access roads. Generally the line ROWs measure from 120' to 250' in width, and access roads measure 30' in width. Considering the nature and scope of the undertaking, I concur that this APE is appropriate.

Adequacy of Identification and Evaluation Effort

I am unable to concur at this time that the identification and evaluation efforts for this undertaking are adequate. While the records searches and field surveys for archaeological and historic-period resources appear to be adequate, there is no evidence of consultation with Native American groups. Such consultation might result in the identification of additional properties eligible to the National Register under criteria other than D. A partial list of such resources might include traditional cultural properties (TCPs) and/or locations of economic, cultural, or spiritual significance to present Native American communities. Such consultation may also provide new data important to fully evaluate archaeological sites that have already been identified.

Determinations of Eligibility

It appears that you are requesting my concurrence with your determination that resources FW-WAPA-1 (an isolated can scatter), FW-WAPA-4 (an historic dumpsite), and CA-SAC-414 (an isolated bedrock milling feature) are not eligible to the NRHP. I concur that FW-WAPA-1, CA-SAC-414 and FW-WAPA-4 are not eligible.

Volume III of the submitted report evaluates a number of historic-period built environment resources, but they are not addressed in the cover letter submitted with the report, so I will not further address them here. I did notice, however, that the NRHP eligibility of previously identified historic-period resources was not clearly documented (i.e., several are "evaluated as not eligible", but it is unclear if SHPO concurrence was obtained).

Finding of Effect

You are proposing to treat unevaluated resources as "potentially eligible" and then modify your maintenance regimes in the locations of these resources and NRHP-eligible resources in order to avoid effects. Based on this strategy, WAPA has found that "future undertakings will not affect historic properties provided that WAPA follows the special conditions of compliance [as detailed in the letter]." I cannot concur with this finding at this time. Besides the concerns I have raised above regarding the adequacy of identification and evaluation efforts, WAPA's proposal to use conditions suggests a conditional No Adverse Effect finding, rather than a "No Effect" or "No Historic Properties Affected," both of which are mentioned in the cover letter. In the event of a finding of "conditional No Adverse Effect", I would recommend submitting a more detailed explanation of the avoidance measures to be observed and how they will be observed, as well as graphics clearly indicating the location of avoidance measures in relation to historic property boundaries.

Thank you for consulting with me. I look forward to further consultation to resolve the concerns that I have shared with you. If you have any questions or comments, please contact John Sharp, Staff Archaeologist, at (916) 653-2716 or at jshar@ohp.parks.ca.gov

Sincerely,

Dr. Knox Mellon
State Historic Preservation Officer

NOV 15 2001

Mr. Larry Myers
Executive Secretary
Native American Heritage Commission
915 Capitol Mall, Room 364
Sacramento, CA 95814

Dear Mr. Myers:

At the recommendation of the California State Historic Preservation Office, we are contacting you regarding the proposed Western Area Power Administrations (Western) Sacramento Valley Right-of-Way Maintenance Environmental Assessment (FA). Western has been asked to conduct a study in the near future to address the maintenance needs of the existing transmission line right-of-ways in the Sacramento Valley.

The study area encompasses roughly 100 miles of existing transmission lines, extending from the southern boundary of Sacramento County to the northern boundary of Sutter County, and from east O'Banion to Folsom (see enclosed map). These studies will include the following three phases:

1) Identify alternatives to meet the maintenance needs of the transmission lines;

2) Preparation of an EA to analyze potential impacts to the human and natural environments arising from routine operation and maintenance activities; and

3) Development of a Geographic Information Systems (GIS) —based database for Western's use in long-term planning of maintenance activities.

These studies will include extensive Federal and state agency coordination and consultation, and a public involvement program that will include addressing the concerns of Native American groups. One of the many environmental resources that will be analyzed in the studies will be cultural and historic resources', including Native American heritage resources.

Western would like to initiate its consultation with Native American groups soon. Please provide us with a list of Native American groups who may have interests or concerns in this study area. We understand that you provide listings of Native American groups by

county. The counties included in our project area are Sacramento, Placer, and Sutter.

Western has retained the firm Tetra Tech, Inc. to assist in the preparation of the EA and related studies. If you will be assigning a project representative, please let us know so we may direct Ms. Mary Barger, Westerns' Historic Preservation Officer, to that staff member. Ms. Barger may be reached at (702) 962-7253.

We look forward to working with you on this important project. If you have any questions, please contact Steve Tuggle, Western's Project Document Manager, at (916) 353-4549.

Sincerely,

ORIGINAL SIGNED BY

George McAlister
Acting Environmental Manager

Enclosure

cc:
Ms. Kathy Roxlau
Tetra Tech, Inc.
2300 Buena Vista SE, Suite 110
Albuquerque, NM 87106

bcc:
N7400, M. Barger, Lakewood, CO
N0000, N0413, N0415 (RF OF)

N041 5:STuggle:x4549:clt:1 1/07/01

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SVPOWMT

1926

STATE OF CALIFORNIA Gray Davis, Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4082
Fax (916) 657-5390

2002 RECEIVED

January 15, 2002

David Vader
Native American Coordinator
US Department of Energy
Western Area Power Administration
Environment A7400
PO Box 281213
Lakewood, CO 80228-8213

RE: Native American Contact List: Placer, Sacramento, and Sutter Counties

Fax #: (720) 962-7263
# of Pages: 5

Dear Mr. Vader:

I recommend that you contact the Native Americans contacts on the attached list for this project. They may be able to provide input concerning the project site and assist in the mitigation measures. It is with the understanding that the list is to be used only to determine possible areas of cultural sensitivity

The Commission makes no recommendation or preference of a single individual, or group over another. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest that all of those indicated be contacted, if they cannot supply information, they may recommend others with specific knowledge. A minimum of two weeks must be allowed for responses after notification.

If you receive notification of change of addresses and phone numbers from any these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 653-4038.

Sincerely,

Debbie Pilas-Treadway
Debbie Pilas-Treadway
Environmental Specialist III

NATIVE AMERICAN CONTACTS
Sutter County
January 15, 2002

Maidu Elders Organization
Martha Noel
PO Box 206 Maidu
Dobbins, CA 95935

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regards to the cultural assessment for the proposed Sacramento Valley Right-of-Way Maintence Environmental Assessment, Sutter County.

NATIVE AMERICAN CONTACTS
Placer County
January 15, 2002

Hickey J. Murray
4745 Koto Road Maidu
Placerville, 95667-9
CA

Rose Enos
15310 Bancroft Road Maidu
Auburn, 95603 Washoe
CA
(530) 878-2378

Shingle Springs Band of Miwok Indians
Jeff Murray, Cultural Resources Manager
P.O. Box 1340 Miwok
Shingle, CA 95682 Maidu
(530) 676-8010
(530) 676-8033 Fax

Todd Valley Miwok-Maidu Cultural Foundation
Christopher Suehead, Cultural Representative
PO Box 1490 Miwok
Foresthill, CA 95631 Maidu
(530) 367-3893 - Voice / Fax
tvmmcf@foothill.net

United Auburn Indian Community of the Auburn
David Keyser
961 Indian Rancheria Road Maidu
Auburn, CA 95603 Miwok
(530) 885-8229 - Home
(916) 663-3720 - Work

United Auburn Indian Community of the Auburn
Jessica Tavares, Chairperson
661 Newcastle Road, Suite 1 Maidu
Newcastle, CA 95658 Miwok
916 663-3720
916 663-3727 - Fax

United Auburn Indian Community of the Auburn
Sam Starkey
953 Indian Rancheria Road Maidu
Auburn, CA 95603 Miwok
(530) 878-2378 - work
(530) 885-2533 - home

Washoe Tribe of Nevada and California
Washoe Archive & Cultural Ctr
861 Crescent Drive Washoe
Carson City, NV 89701
(775) 888-0936
(775) 888-0937 FAX

This list is current only as of the date of this document.

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This list is only applicable for contacting local Native Americans with regards to the cultural assessment for the proposed Sacramento Valley Right-of-Way Maintence Environmental Assessment, Placer County.

NATIVE AMERICAN CONTACTS
Sacramento County
January 15, 2002

Shingle Springs Band of Miwok Indians
Jeff Murray, Cultural Resources Manager
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Shingle , CA 95682 Maidu
(530) 676-8010
(530) 676-8033 Fax

Wilton Rancheria
Mary Daniels-Tarango
7916 Farnell Way Miwok
Sacramento, , CA 95823
(916) 427-2909 Home
(916) 322-9867 Work

Sierra Native American Council
Dwight Dutschke, Chairperson
Box 12045 Miwok
Ione , CA 95640

United Auburn Indian Community of the Auburn
David Keyser
961 Indian Rancheria Road Maidu
Auburn , CA 95603 Miwok
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(916) 663-3720 - Work

United Auburn Indian Community of the Auburn
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916 663-3727 - Fax

United Auburn Indian Community of the Auburn
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(530) 885-2533 - home

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This list is only applicable for contacting local Native Americans with regards to the cultural assessment for the proposed Sacramento Valley Right-of-Way Maintence Environmental Assessment, Sacramento County.

NATIVE AMERICAN CONTACTS
Sacramento County
January 15, 2002

Billie Blue Elliston
604 Pringle Ave., #42
Galt, CA 95632
916 324-7008 work
Miwok

Ione Band of Miwok Indians
Glenn Villa Jr., Cultural Committee Chairperson
PO Box 1190
Ione, CA 95640
(209) 274-0372
gvilla@cdepot.net
Miwok

Joe Marine
1025 S. 35th Avenue
Sacramento, CA 95822
916 429-7307
Maidu

Ione Band of Miwok Indians
Kathryn Ramey, Interim Chairperson
PO Box 1190
Ione, CA 95640
(209) 274-6753
(209) 274-6636 Fax
Miwok

Leland Daniels
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Sacramento, CA 95828
(916) 689-7330
Miwok

Maidu Elders Organization
Martha Noel
PO Box 206
Dobbins, CA 95935
Maidu

Randy Yonemura
4305 - 39th Avenue
Sacramento, CA 95824
(916) 421-1600
Miwok

Miwok Indian Community of the Wilton Rancheria
Clifford McKean
9301 Rancheria Drive
Wilton, CA 95693
(916) 687-6747
Miwok

Rose Enos
15310 Bancroft Road
Auburn, CA 95603
(530) 878-2378
Maidu
Washoe

Miwok Indian Community of the Wilton Rancheria
Kenneth McKean
9344 Rancheria Drive
Wilton, CA 95693
916 687-8697
Miwok

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regards to the cultural assessment for the proposed Sacramento Valley Right-of-Way Maintence Environmental Assessment, Sacramento County.

Appendix F
Floodplain/Wetlands Assessment

FLOODPLAIN/WETLANDS ASSESSMENT FOR THE WESTERN AREA POWER ADMINISTRATION ENVIRONMENTAL ASSESSMENT FOR RIGHT-OF-WAY MAINTENANCE, SACRAMENTO VALLEY, CALIFORNIA

1.0 INTRODUCTION

1.1 PROJECT BACKGROUND

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

Western has a Biological Opinion from the U.S. Fish and Wildlife Service (USFWS) addressing current routine right-of-way (ROW) maintenance practices for these transmission lines (USFWS 1998). The Biological Opinion identifies threatened and endangered species and their habitats and identifies mitigation measures to apply based on Western's current routine ROW maintenance methods. However, Western proposes expanding the scope of these maintenance methods, thus requiring an Environmental Assessment (EA) entitled *EA for ROW Maintenance in the Sacramento Valley, California*.

Several sections of the ROW are within a floodplain/wetland area and require a Floodplain/Wetlands Assessment in accordance with Department of Energy Floodplain and Wetland Regulations. This Floodplain/Wetlands Assessment examines the effects of proposed ROW maintenance on floodplains and wetlands along existing ROWs identified in Section 2.1.

The study area is in the Sacramento Valley and crosses Sutter County, Sacramento County, and Placer County. The transmission lines extend from the San Joaquin-Sacramento County line on the south, to the Yuba County-Sutter County line on the north. One lateral transmission line runs generally west to east, from the intersection of Sacramento, Sutter, and Placer Counties, to Folsom Dam, then southwest to the Nimbus Powerplant at the west end of Lake Natoma. A second side transmission line runs northwest (at an approximate 30 degree angle) from north of Riego Road to the O'Banion Substation.

Cities encountered along the Rights-of-Way include: Sacramento, Roseville, and Folsom in the central part of the study region and near Elk Grove and Galt to the South.

The majority of the ROWs and access roads are on private, developed, or agricultural land. Portions of these transmission lines cross or are adjacent to State and Federal owned land such as the American River Parkway, Folsom Prison, and U.S. Bureau of Reclamation. The transmission lines cross various rivers or streams where vegetation is plentiful and re-growth is high, causing recurring access problems. The transmission line ROWs vary from 100- to 225-ft wide. Access road ROWs are 30-ft wide. Maintenance activities will be directly under the transmission line towers and along the transmission line where vegetation grows higher than the required distance for clearance to conductors, or hinders access to the transmission towers.

Some maintenance-related activities associated with Western's proposed action would occur in floodplains along the ROW.

1.2 REGULATORY BACKGROUND

Title 10 CFR Part 1022 requires DOE to determine whether wetlands would be affected by the proposed action and, if necessary, to conduct a wetlands assessment. As required by 10 CFR Part 1022.11(c), DOE examined the following information with regard to possible wetlands in the study area:

- U.S. Fish and Wildlife Service National Wetlands inventory. Maps from the National Wetlands Inventory identify many naturally occurring wetlands in the vicinity of the seven Western ROWs of the study area (FWS 1995, all).
- U.S. Department of Agriculture, Soil Conservation Service Local Identification Maps.
- U.S. Geological Survey Topographic Maps. Topographic maps of the vicinity (for example, USGS 1983, all) show springs, permanent streams, and other indications of wetlands.
- State Wetlands Inventories. There are numerous State of California wetlands inventories in the vicinity of the Western ROWs of the study area.
- Biological survey conducted from September 11 through December 10, 2001. A meandering pedestrian survey of the entire 108 miles of transmission line and access road ROWs recorded the locations of a variety of features of biological importance, including:
    - ♦ vernal pools and other wetlands
    - ♦ rivers and streams
    - ♦ other potential habitat of threatened and endangered species
- Western collected and examined extensive data on threatened and endangered species potentially present within the study area, including California Natural

Diversity Database (CNDDB) records and the USFWS biological opinion (USFWS 1998).

Pursuant to Executive Order 11988, Floodplain Management, each Federal agency is required, when conducting activities in a floodplain, to take actions to reduce the risk of flood damage; minimize the impact of floods on human safety, health, and welfare; and restore and preserve the natural and beneficial values served by floodplains. Pursuant to Executive Order 11990, Protection of Wetlands, each Federal agency is to avoid, to the extent practicable, the destruction or modification of wetlands, and to avoid direct or indirect support of new construction in wetlands if a practicable alternative exists. Regulations issued by the DOE that implement these Executive Orders are contained in Title 10 of the Code of Federal Regulations (CFR) Part 1022, Compliance with Floodplain/Wetlands Environmental Review Requirements.

Title 10 CFR Part 1022.4 defines a flood or flooding as "...a temporary condition of partial or complete inundation of normally dry land areas from...the unusual and rapid accumulation of runoff of surface waters..." Title 10 CFR Part 1022.4 identifies floodplains that must be considered in a floodplain assessment as the base floodplain and the critical-action floodplain. The base floodplain is the area inundated by a flood having a 1.0 percent chance of occurrence in any given year (referred to as the 100-year floodplain). The critical-action floodplain is the area inundated by a flood having a 0.2 percent chance of occurrence in any given year (referred to as the 500-year floodplain). Critical action is defined as any activity for which even a slight chance of flooding would be too great. Such actions could include the storage of highly volatile, toxic, or water-reactive materials.

Title 10 CFR Part 1022.11 requires DOE to use Flood Insurance Rate Maps or Flood Hazard Boundary Maps to determine if a proposed action would be located in the base or critical-action floodplain. On Federal or state lands where Flood Insurance Rate Maps or Flood Hazard Boundary Maps are not available, DOE is required to seek flood information from the appropriate land-management agency or from agencies with expertise in floodplain analysis.

2.0 WETLANDS

2.1 EXISTING CONDITIONS

The existing environment is described in Chapter 3 of the EA. The information below summarizes several of the more important aspects of the environment that pertain to this wetlands assessment. Note that wetland acreage is calculated from the total extent of wetlands crossed by ROWs.

Elverta-Hurley 230-kV. This transmission line is comprised of one row of double-circuit towers. The ROW is 120 ft wide in total: 55 ft from centerline to the east/north and 65 ft from centerline to the west/south The length of this transmission line is 56,000 ft or 10.6

miles, with a ROW area of 154.3 acres. The Elverta-Hurley crosses over 121 acres of wetlands identified on the National Wetland Inventory. All but 12 acres is Palustrine Emergent with the remainder being Palustrine Open Water in the American River just west of the Hurley Substation.

Hurley-Tracy, ending at Sacramento-San Joaquin County Line 230-kV. This transmission line starts at the Hurley Substation and continues south to the Sacramento-San Joaquin County line. This transmission line has two different configurations and ROWs:

- From the Hurley Substation (tower 11/2) to the Hedge Substation (tower 18/2), the transmission line continues with one row of double-circuit towers with the same 120 foot ROW as above. The length of this portion is 34,300 ft or 6.5 miles, with a ROW area of 94.5 acres.
- From the Hedge Substation (tower 18/2) to the county line (tower 37/2), the transmission line splits into two separate ROWs, each with one row of single circuit towers. Line #1 is on the east, line #2 is on the west. Each ROW is 125 ft wide in total: 62.5 ft on each side of centerline. The length of this portion of the Inventory is 95,900 ft or 18.16 miles, with a ROW area of 550.4 acres.

The Hurley-Tracy transmission line crosses 161 acres Palustrine wetland. The majority of these wetlands are forested in the northern stretches and either seasonally flooded or permanently flooded by dikes in the southern part of this transmission line near the Tracy Substation. Biological surveys have also identified vernal pools along the Hurley-Tracy line.

Folsom-Nimbus 115-kV. This transmission line includes one row of single circuit towers (the towers are concrete poles). The ROW is 150 ft total: 75 ft on each side of centerline. The transmission line starts at the Nimbus Powerplant and runs north and east to the Folsom Substation. The length of this transmission line is 32,400 ft or 6.14 miles, with a ROW area of 111.6 acres.

The towers of the Folsom-Nimbus transmission line closely parallel the shoreline of Lake Natoma between the State Fish Hatchery near the Nimbus Powerplant. Lake Natoma is characterized as Lacustrine Limnetic the total potentially impacted area of this wetland is 551 acres. There are also 16 acres of Palustrine Forested wetland located in the floodplain of the American River between the Nimbus Powerplant and Folsom Substation. Biological surveys have also identified vernal pools along the Folsom-Nimbus line.

Folsom-Roseville 230-kV. This transmission line includes one row of single circuit towers. The ROW is 250 ft wide in total: 62.5 ft from centerline to the north/east and 187.5 ft from centerline to the south/west. The transmission line starts at the Folsom Substation and runs north and west to Roseville Substation. The length of this transmission line is 34,900 ft or 6.6 miles, with a ROW area of 200.3 acres. There is less than 1 acre of Palustrine Emergent wetland associated with the Folsom-Roseville transmission line.

Roseville-Elverta 230-kV (consisting of two separate lines, **Roseville-Fiddyment and Fiddyment-Elverta**) and **Cottonwood-Roseville 230-kV**. These lines share a ROW for a portion of their length. From Roseville Substation to just past the Sacramento County line, there are two rows of towers. The row on the north is the single circuit Cottonwood-Roseville transmission line. The row to the south is the double-circuit Roseville-Elverta transmission line. The ROW is 250-ft wide in total: the north boundary is 62.5 ft north of the Cottonwood-Roseville centerline, the south boundary is 53 ft south of the Roseville-Elverta/Cottonwood-Roseville centerline; the distance between these centerlines is 134.5 ft. The length of this portion of the ROW is 60,000 ft or 11.3 miles, with a ROW area of 344.3 acres.

At the Sacramento County line, the Roseville-Elverta transmission line turns south to the Elverta Substation. Through this portion of the route, it shares the ROW with the double-circuit O'Banion-Elverta transmission line, to the west. The ROW is a total of 612.5 ft in width; the west boundary is 50 ft west of the O'Banion-Elverta centerline. The length of this portion of the transmission line is 7,000 ft or 1.3 miles, with a ROW area of 98.4 acres. This segment of ROW crosses less than 2 acres of Palustrine Scrub/Shrub wetland.

At the Sacramento County line, the Cottonwood-Roseville transmission line turns north, sharing the ROW for the first portion with the O'Banion-Elverta transmission line. The Cottonwood-Roseville single circuit row of towers is on the east and the O'Banion-Elverta double-circuit row of towers on the west. The total ROW width is 225 ft. From the Sacramento-Placer County line north to Cottonwood-Roseville tower 144/4 is 14,300 ft or 2.7 miles, with a ROW area of 73.9 acres. Biological surveys have also identified vernal pools along the Roseville-Elverta and Cottonwood-Roseville lines.

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

O'Banion-Elverta 230-kV. This transmission line includes one row of double-circuit towers. Starting at the Elverta Substation, the ROW is shared with the Roseville-Elverta transmission line for 1.3 miles, and then with the Cottonwood-Roseville transmission line for 2.7 miles, as described above. At tower 157/4, the transmission line runs northwest to the O'Banion Substation on O'Banion Road. The ROW width varies along this transmission line:

- From tower 157/4 to 144/2, the ROW is a total of 125-ft wide, 62.5 ft on each side of centerline. The length of this portion of the transmission line is 68,200 ft or 12.91 miles, with a ROW area of 195.7 acres.
- From tower 144/2 to O'Banion Road (tower 135/1), the ROW is a total of 112.5-ft wide, 50 ft to the west and 62.5 ft to the east of centerline. The length of this portion of the transmission line is 44,000 ft or 8.3 miles, with a ROW area of 113.6 acres.

There are 89 acres of Palustrine wetlands crossed by the O'Banion-Elverta ROW. The ROW also closely parallels the Sutter Bypass channel. This 1055 acres of wetland near the ROW is characterized as Riverine Lower Perennial. Biological surveys have also identified vernal pools along the O'Banion-Elverta ROW.

2.2 IMPACTS

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

Potential indirect impacts on flora and fauna include increased emissions of fugitive dust during dry seasons, elevated noise levels (which temporarily disturbs many animal species), and human activities. Emissions of fugitive dust would be short-term and would not be expected to significantly affect vegetation or wildlife. Likewise, no significant long-term impacts to wildlife are expected from the temporary increase in noise during maintenance activities. Wildlife displaced during maintenance would likely return after maintenance was completed.

The use of herbicides, petroleum, oil, lubricants, and other hazardous materials during maintenance would be strictly controlled and spills would be promptly cleaned up according to best management practices. These best management practices, described in Western's IVM Environmental Guidance Manual (Western 1999) include:

- Reviewing Federal and California state pesticide regulations for restrictions on use of particular herbicides
- Reviewing property owner/interagency agreements for herbicide type or application method restrictions
- Observing site conditions to match specific herbicides and application methods to those conditions, including: the plants that are to be controlled; the season of the year and associated limitations; presence of sensitive environmental areas (e.g., endangered species, habitat, wetlands, etc.); presence/proximity of nontarget vegetation; and vegetation conditions (height, amount of tall, growing brush, etc.)
- Reviewing Western's environmental protection requirements
- Following all restrictions and guidance listed on the herbicide label

- Calibrating equipment to ensure proper mixture and volume of herbicide
- Selecting the proper nozzle tip to avoid overspray
- Handling herbicides to avoid accidental spills and ensure worker and public safety

3.0 FLOODPLAINS

3.1 EXISTING CONDITIONS

All transmission line ROWs in the study area cross some portion of floodplains, generally 100- or 500-year floodplains of various streams, ditches, or rivers (Figures F-1 through F-6). Of the eight transmission lines in the study area the O'Banion-Elverta and Folsom-Nimbus lines cross over the most area designated as either 100- or 500-year floodplain. The O'Banion-Elverta line lies within floodplains of the Sutter Bypass, Feather River, and smaller streams; the Folsom-Nimbus line lies entirely within an area designated as the 100-year floodplain of the American River. The Elverta-Hurley line is located within a 500-year floodplain between the American River and the Elverta Substation where it trends north-south. As the Elverta-Hurley line turns southeast the entire line is located within the 100-year floodplain of the American River. The Cottonwood-Roseville, Roseville-Elverta, Hurley-Tracy, and Folsom-Roseville lines are within 100- or 500-year floodplains only where the lines cross over rivers or creeks. For most of their length, the lines cross over land that is outside designated 500-year floodplains. (FEMA 1:24,000- and 1:12,000-scale Flood Insurance Rate Maps for the Sacramento Area).

Flooding throughout the area is controlled by the Central Valley Project, authorized by Congress in 1937 to serve water supply, hydropower-generation, flood control, navigation, fish and wildlife, recreation, and water quality control purposes. The Central Valley Project is now operated by the Bureau of Reclamation to store and transfer water from the Sacramento, San Joaquin, and Trinity River basins to the Sacramento and San Joaquin Valleys. Flow of water in many of the rivers of the study area are also regulated by the State Water Project and the U.S. Army Corps of Engineers.

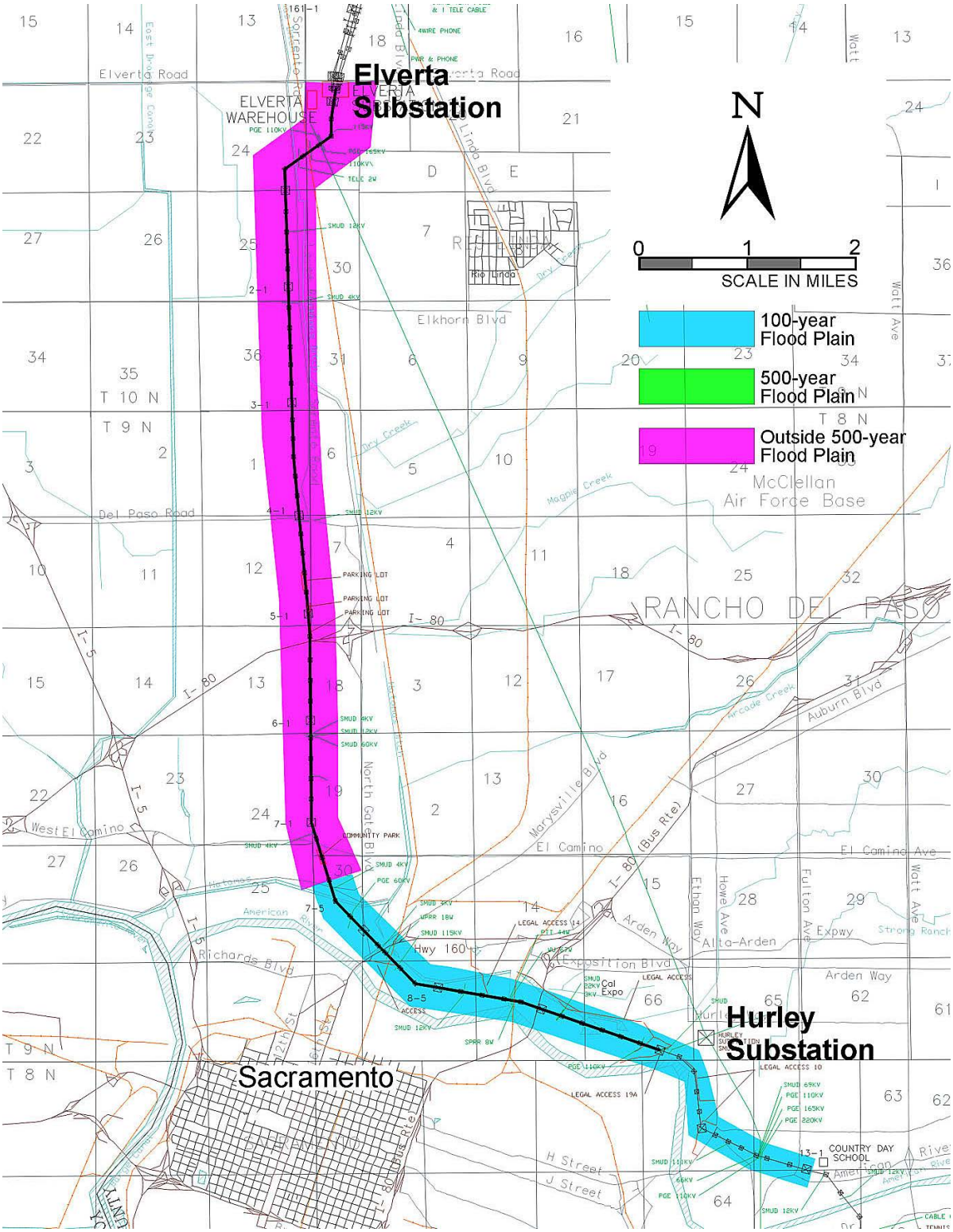

Figure F-1. Floodplains near Elverta-Hurley Transmission Line

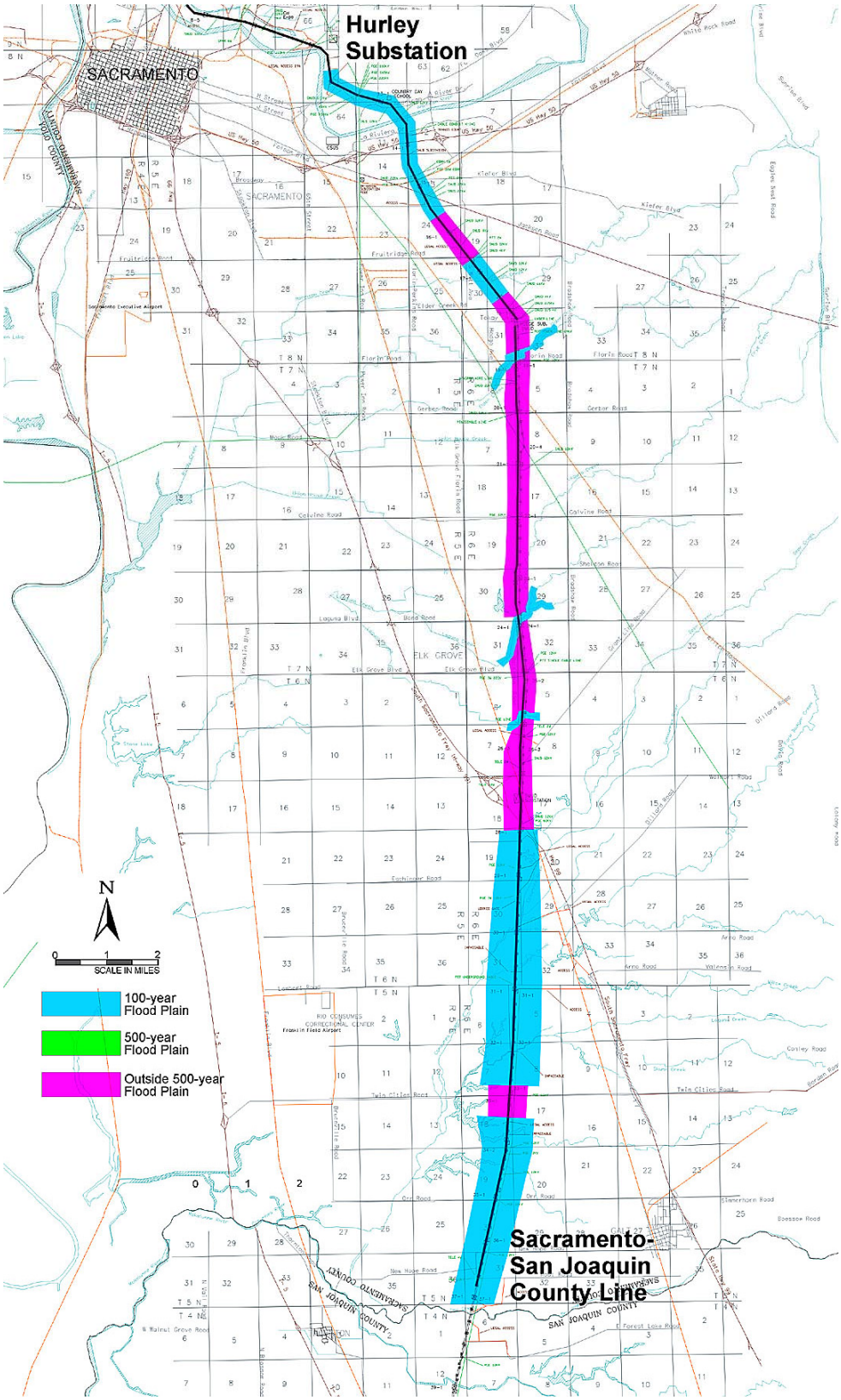

Figure F-2. Floodplains near Hurley-Tracy Transmission Line

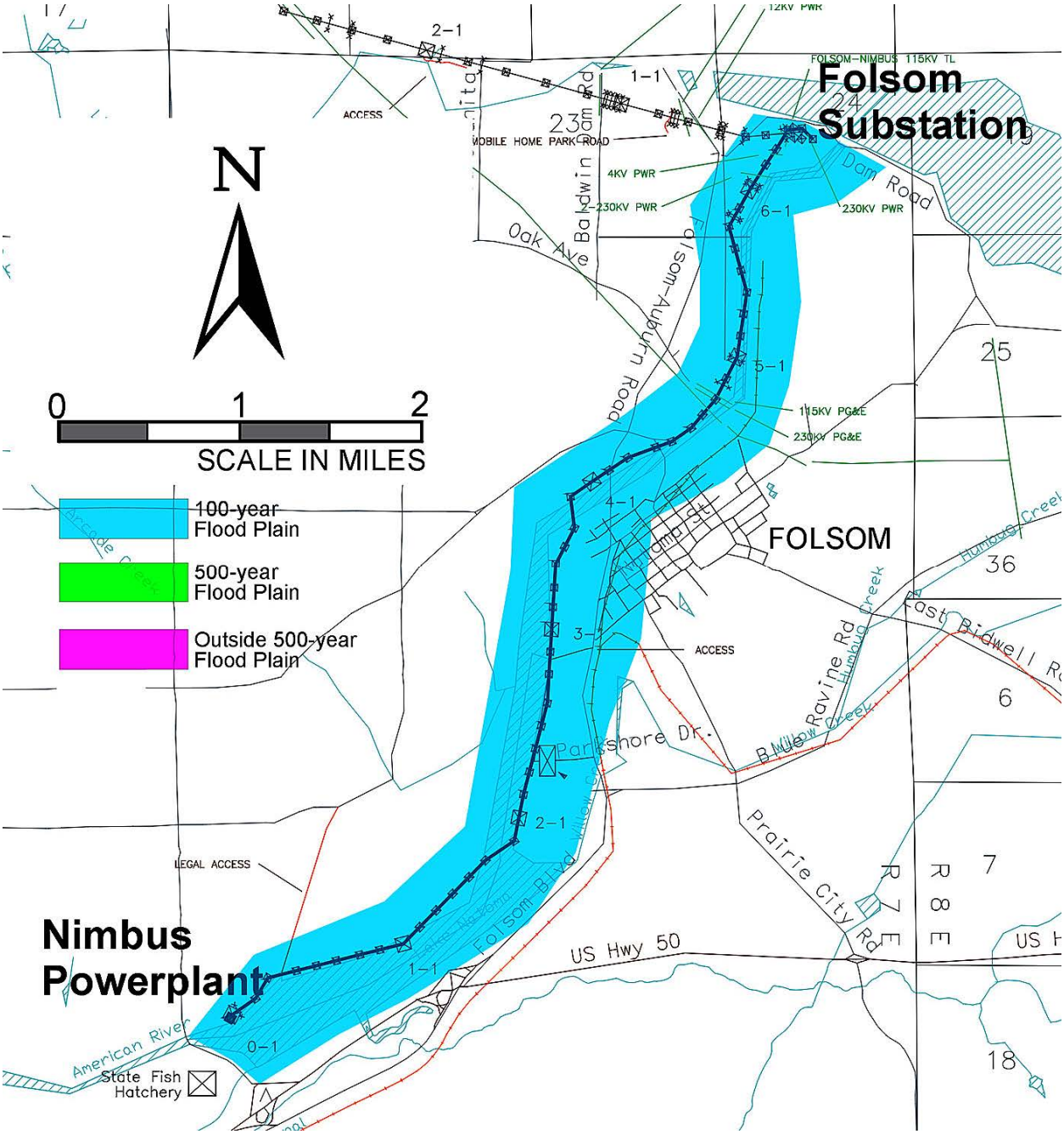

Figure F-3. Floodplains near Folsom-Nimbus Transmission Line

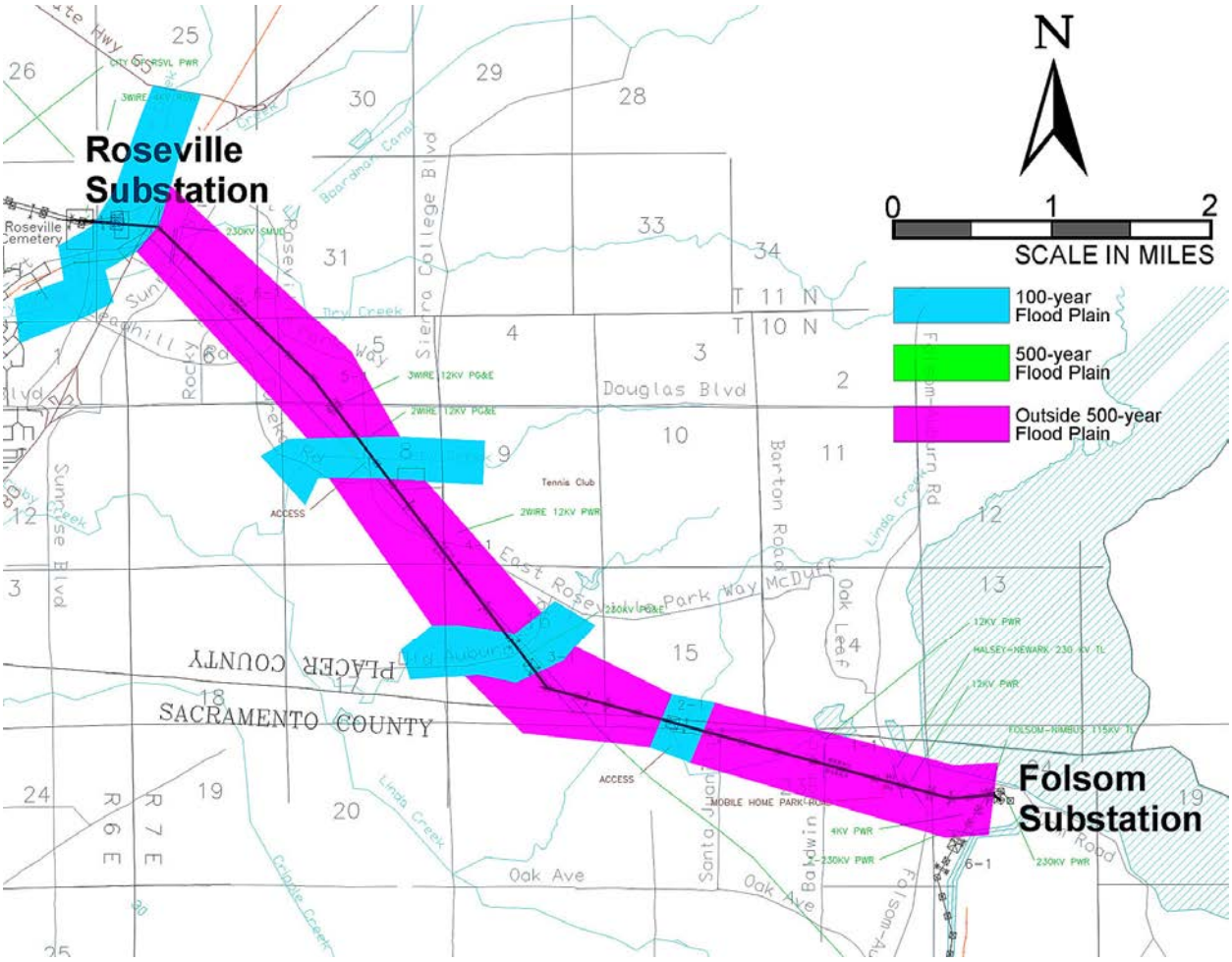

Figure F-4. Floodplains near Folsom-Roseville Transmission Line

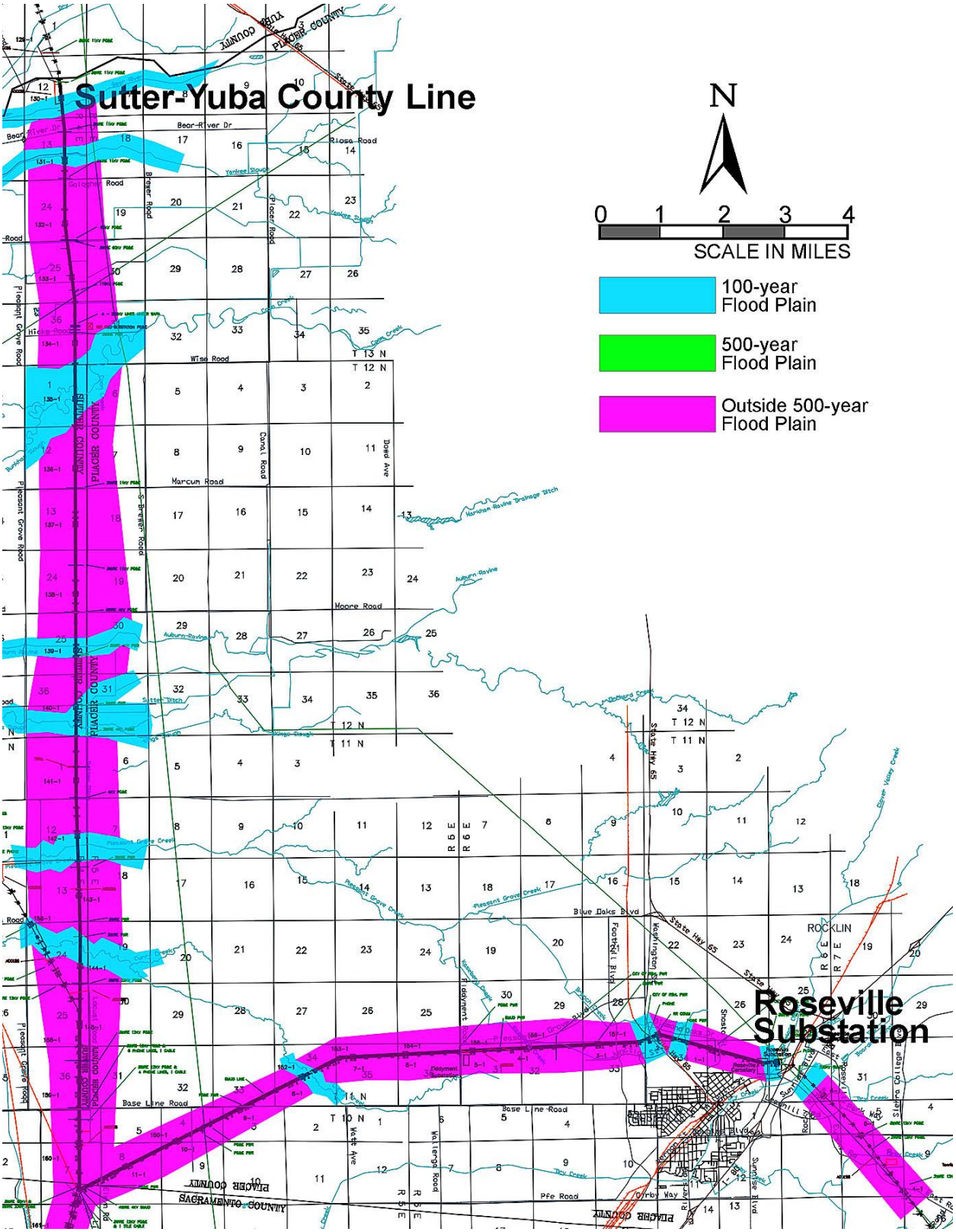

Figure F-5. Floodplains near Roseville-Elverta and Cottonwood-Roseville Transmission Lines

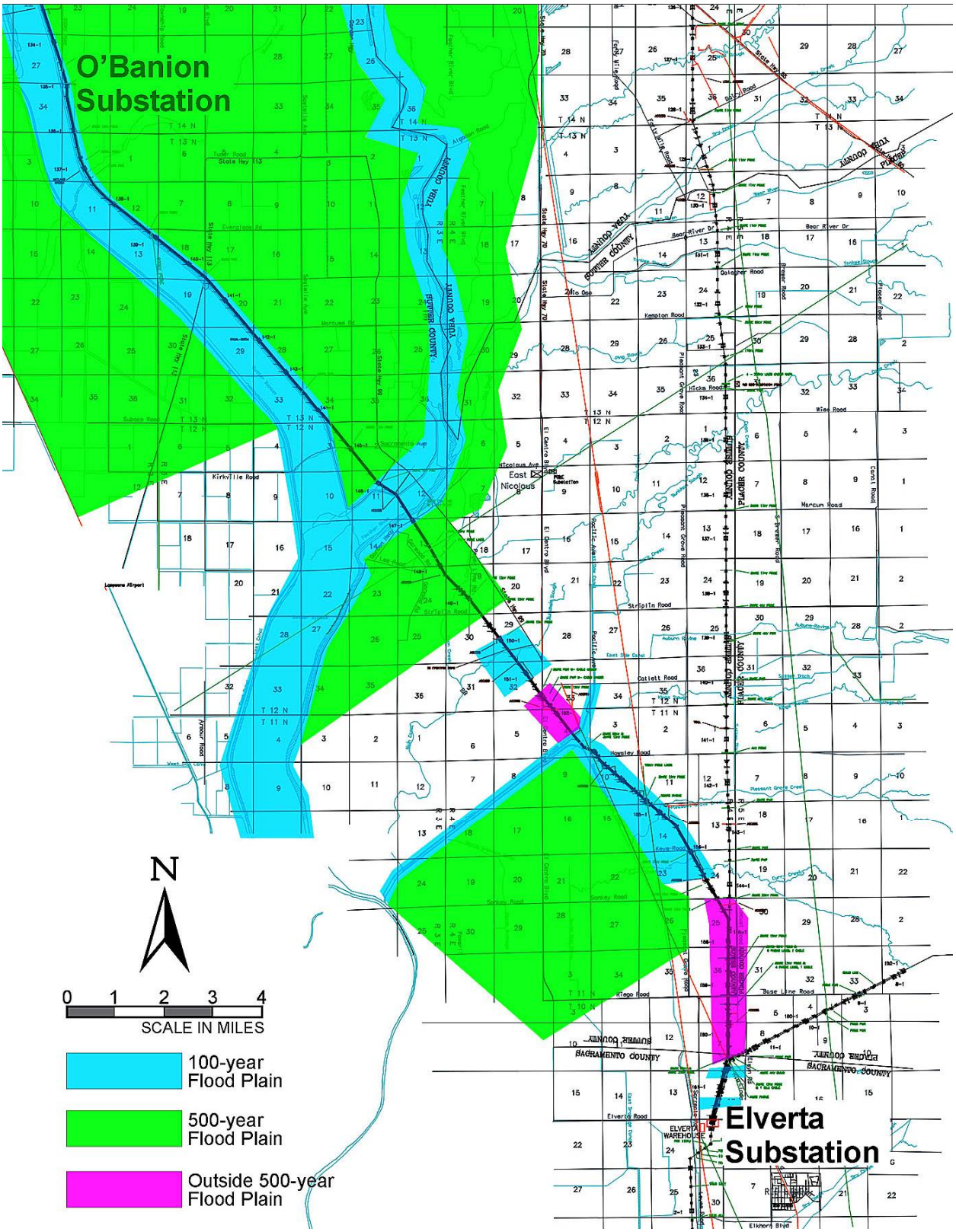

Figure F-6. Floodplains near O'Banion-Elverta Transmission Line

3.2 IMPACTS

Disturbances within a floodplain can have potential adverse effects not only near the disturbance but also in the stream channel and floodplain some distance downstream. Adverse impacts include the potential for flood damage to structures placed within the floodplain and increased flooding due to displacement of water from the normal floodplain by road construction activities. Impacts can also occur when resources are degraded enough to lessen the ability of the floodplain to store excess water. Access road maintenance could cause minor changes to land contours, thereby affecting floodwater flow, but on an insignificant scale. Access road ROWs are only 30-ft wide, and the total length of access roads throughout the entire study area is less than 10 miles. Access road reconstruction activities would be oriented toward improvements in water drainage, and decreasing erosion. Access roads on the Elverta-Hurley and Hurley-Tracy lines are located within areas designated as 100-year floodplains except the access road at tower 26/2 on the Hurley-Tracy line. For the Elverta-Hurley line, all access roads south of the Natomas Ditch to the Hurley Substation are located in the American River 100-year floodplain. On the Hurley-Tracy line, legal access roads along Morrison Creek, Elder Creek, Laguna Creek, and the Cosumnes River are located in the 100-year floodplain for the respective water courses. One hundred-year floods are anticipated to completely inundate access roads located within the floodplain. The flood would therefore have much more of an effect on the road than the road would have on the flood.

Under the proposed action, Western would establish low-growing vegetation that does not interfere with transmission lines or facilities or hamper access to the transmission line. Manual and mechanical vegetation control methods without herbicide follow up are largely corrective in that they act to remove tall-growing plants that have already been established on a site. Herbicide methods, either alone or in concert with manual and mechanical methods, can act to remove existing target vegetation and prevent its regrowth. Removal of vegetation along ROWs would not be expected to influence flow of water during 100- or 500-year flows. Maintaining and/or rebuilding access roads to limit the potential damage by washouts would reduce erosion and attendant water quality effects (Updegraff and Blinn 2000), and reduce the need for environmental disturbance during repair activities.

4.0 REFERENCES

10 CFR Part 1022, “Compliance with Floodplain/Wetlands Environmental Review Requirements,” U.S. Department of Energy, Title 10, Code of Federal Regulations, Washington, D.C., March 7, 1979.

42 FR 26961, “Wetlands Management,” Executive Order 11990, Federal Register, Volume 42, 26961, May 24, 1977.

CDFG, 2001 “California Natural Diversity Data Base,” California Department of Fish and Game, Natural Heritage Division.

USFWS, 1990 “National Wetlands Inventory Maps,” U.S. Fish and Wildlife Service, Washington, D.C., Various dates.

Updegraff & Blinn, 2000. Assessment of Water Diversion Options on Forest Roads and Trails in the United States and Canada. Staff Paper Series No. 140, College of Natural Resources and Minnesota Agricultural Experiment Station. University of Minnesota, St. Paul, MN.

Western, 1999 "Integrated Vegetation Management Environmental Guidance Manual," Western Area Power Administration, Folsom, California, date.

Appendix G
Herbicide Information

HERBICIDES APPROVED FOR USE BY WESTERN AND CURRENTLY REGISTERED FOR USE IN CALIFORNIA [a]

Herbicide	Trade Name [b]	EPA Registration Number	Manufacturer	Typical Use(s)
Bromacil and Diuron Krovar	1 DF®	352-505	DuPont	Substations
Chlorsulfuron	Telar® DF	352-522	DuPont	ROW
	Landmark MP® [c]	352-621	DuPont	ROW
Clopyralid	Transline®	62719-73	Dow AgroSciences	Noxious Weed Control
2,4-D	Weedar 64®	71368-1	Nufarm	Substations, ROW
Diglycolamine salt of Dicamba	Vanquish®	100-884	Novartis	ROW (Stump Treatment), Substations
Diuron	Karmex DF®	1812-362	Griffin	Substations
	Direx 4L®	1812-257	Griffin	Substations, ROW
Fluroxypyr	Vista®	62719-308	Dow AgroSciences	ROW, Substation, esp. for *Kochia*
Glyphosate	Accord® Concentrate	62719-324	Dow AgroSciences	Substations, ROW
	Roundup®	524-445	Monsanto	Substations
	Roundup PRO®	524-475	Monsanto	Substations
	Rodeo®	62719-324	Dow AgroSciences	Substations
Imazapyr	Arsenal®	241-299	BASF	Substations, ROW
	Imazapyr EZJECT®	61202-1	Odom	Stump Injection
	Stalker®	241-398	BASF	Stump Treatment
Mefluidide	Embark 2S® (Plant growth regulator)	2217-759	PBI/Gordon	Buffers, around subs. (on grass)
Oryzalin	Oryzalin Pro 4®	72167-15-74477	Vegetation Management	Substations, ROW
	Surflan A.S.®	62719-113	Dow AgroSciences	Substations
Oxyfluorfen	Goal® 2XL	62719-424	Dow AgroSciences	ROW
Paclobutrazol	Profile 2SC® (Tree growth regulator)	62719-234	Dow AgroSciences	ROW (sensitive areas), Substations (screens)
Pendimethalin	Pendulum WDG®	241-340	BASF	Substations
Sulfometuron Methyl	Oust®	352-401	DuPont	Storage Yards, Substations, ROW
	Landmark MP® [c]	352-621	DuPont	Storage Yards, Substations, ROW

HERBICIDES APPROVED FOR USE BY WESTERN AND CURRENTLY REGISTERED FOR USE IN CALIFORNIA (continued)[a]

Herbicide	Trade Name [b]	EPA Registration Number	Manufacturer	Typical Use
Triclopyr	Garlon 3A®	62719-37	Dow AgroSciences	ROW
	Garlon 4®	62719-40	Dow AgroSciences	ROW
	Pathfinder II®	62719-176	Dow AgroSciences	Stump Treatment
Trifluralin	Biobarrier®	59823-1	Reemay	Substations, yards
	Biobarrier II®	59823-3	Reemay	Substations, yards

[a] This table lists herbicides and common trade names for formulations. Note that herbicides are typically mixed with surfactants, adjuvants, drift-control agents, deposition-retention agents, dyes, etc., to aid application and herbicide effectiveness.
[b] Note that trade names are current common formulations using the listed herbicide as an active ingredient. Western may employ different formulations of the listed herbicide that develop with improvements in herbicide technology.
[c] Uses mix of two herbicides
Sources: Western 2003; California Department of Pesticide Regulation 2005

HERBICIDE INFORMATION

KROVAR—1 DF

Common or Chemical Name(s): Bromacil and Diuron

Manufacturer(s): DuPont

EPA Registration Number(s): 352-505

Formulation: ☑Granule ☐Liquid ☐Emulsifiable Concentrate ☐Wettable Powder ☐Other (specify):

Toxicity Information

Toxic Active Ingredients Listed on MSDS: Bromacil: (5-Bromo-3-Sec-Butyl-6-Methyluracil)

Diuron: (3-(3,4-Dichlorophenyl) -1,1-Dimenthylurea)

Toxicity Information on Toxic Active Ingredients (Lethal/Sub-lethal):

Microorganisms

Acute Oral Toxicity: ***LD50 (honey bee) > 1 microgram (µg)/bee***
Acute Contact Toxicity: ***LD50 (honey bee 48-hour) >100 µg/bee***
OVERALL TOXICITY: ***practically nontoxic***

Plants

Contact will injure or kill target and nontarget brush/woody plants

Aquatic Vertebrates

Acute Toxicity: ***LC50 (rainbow trout 96-hour) 36 mg/L***
Acute Toxicity: ***LC50 (bluegill sunfish 96-hour) 127 mg/L***
OVERALL TOXICITY: ***slightly toxic***

Aquatic Freshwater Invertebrates

Acute Toxicity: ***EC50 (Daphnia magna 48-hour) 121 mg/L***
OVERALL TOXICITY: ***practically nontoxic***

Aquatic Estuarine/Marine Invertebrates

Acute Toxicity: ***LC50 (Eastern oyster larvae 48-hour) 130 mg/L***
Acute Toxicity: ***LC50 (mysid 48-hour) 12.9 mg/L***
Acute Toxicity: ***LC50 (sheepshead minnow 48-hour) 1,620 mg/L***
OVERALL TOXICITY: ***practically nontoxic***

Terrestrial Animals

Avian Acute Oral Toxicity: ***LD50 (bobwhite quail) > 2,250 mg/kg***
Avian Subacute Dietary Toxicity: ***LC50 (bobwhite quail) > 10,000 mg/kg***
Avian Subacute Dietary Toxicity: ***LC50 (mallard duck) > 10,000 mg/kg***
Mammal Acute Oral Toxicity: ***LD50 (rat) 2,500 mg/kg***
OVERALL TOXICITY: ***practically nontoxic***

Bioaccumulation Potential

Low potential

Toxic Inert Ingredients Listed on MSDS: None

Toxicity Information on Toxic Inert Ingredients (Lethal/Sub-lethal): N/A

Trade Names of Adjuvants (Drift Control Agents, Stickers, Surfactants, Oils): N/A

Toxicity Information on Adjuvants (Lethal/Sub-lethal): N/A

Telar DF

Common or Chemical Name(s): Chlorsulfuron

Manufacturer(s): DuPont

EPA Registration Number(s): 352-522

Formulation: ☑Granule ☐Liquid ☐Emulsifiable Concentrate ☐Wettable Powder ☐Other (specify):

Toxicity Information

Toxic Active Ingredients Listed on MSDS: Chlorsulfuron (2-Chloro-N-[[4-Methoxy-6-Methyl-1,3,5-Triazin-2-Yl)Amino]Carbonyl]Benzenesulfonamide)

Toxicity Information on Toxic Active Ingredients (Lethal/Sub-lethal):

Microorganisms

Acute Contact Toxicity: ***LD50 (honey bee contact) > 100 µg/bee***
OVERALL TOXICITY: ***practically nontoxic***

Plants

Contact will injure or kill target and nontarget plants

Aquatic Vertebrates

Acute Toxicity: ***LC50 (rainbow trout 96-hour) > 250 mg/L***
Acute Toxicity: ***LC50 (bluegill sunfish 96-hour) > 300 mg/L***
OVERALL TOXICITY: ***practically nontoxic***

Aquatic Freshwater Invertebrates

Acute Toxicity: ***LC50 (Daphnia magna 48-hour) 370.9 mg/L***
OVERALL TOXICITY: ***practically nontoxic***

Aquatic Estuarine/Marine Invertebrates

Acute Toxicity: ***EC50 (Eastern oyster larvae 48-hour) 385 mg/L***
Acute Toxicity: ***LC50 (sheepshead minnow 96-hour) > 980 mg/L***
OVERALL TOXICITY: ***practically nontoxic***

Terrestrial Animals

Avian Acute Oral Toxicity: ***LD50 (bobwhite quail) > 5,000 mg/kg***
Avian Acute Oral Toxicity: ***LD50 (mallard duck) > 5,000 mg/kg***
Avian Subacute Dietary Toxicity: ***LC50 (bobwhite quail) > 5,620 mg/kg***
Avian Subacute Dietary Toxicity: ***LC50 (mallard duck) > 5,000 mg/kg***
Mammal Acute Oral Toxicity: ***LD50 (rat) > 5,000 mg/kg***
OVERALL TOXICITY: ***practically nontoxic***

Bioaccumulation Potential

No potential

Toxic Inert Ingredients Listed on MSDS: None

Toxicity Information on Toxic Inert Ingredients (Lethal/Sub-lethal): N/A

Trade Names of Adjuvants (Drift Control Agents, Stickers, Surfactants, Oils): Syl-Tac

Toxicity Information on Adjuvants (Lethal/Sub-lethal): N/A

Landmark MP

Common or Chemical Name(s): Chlorsulfuron, Sulfometuron Methyl

Manufacturer(s): DuPont

EPA Registration Number(s): 352-621

Formulation: ☑Granule ☐Liquid ☐Emulsifiable Concentrate ☐Wettable Powder ☐Other (specify):

Toxicity Information

Toxic Active Ingredients Listed on MSDS: Chlorsulfuron (2-Chloro-N-[[4-Methoxy-6-Methyl-1,3,5-Triazin-2-Yl)Amino]Carbonyl]Benzenesulfonamide) 25%

Toxicity Information on Toxic Active Ingredients (Lethal/Sub-lethal):

Microorganisms

Acute Contact Toxicity: ***LD50 (honey bee contact) > 100 µg/bee***
OVERALL TOXICITY: ***practically nontoxic***

Plants

Contact will injure or kill target and nontarget plants

Aquatic Vertebrates

Acute Toxicity: ***LC50 (rainbow trout 96-hour) > 250 mg/L***
Acute Toxicity: ***LC50 (bluegill sunfish 96-hour) > 300 mg/L***
OVERALL TOXICITY: ***practically nontoxic***

Aquatic Freshwater Invertebrates

Acute Toxicity: ***LC50 (Daphnia magna 48-hour) 370.9 mg/L***
OVERALL TOXICITY: ***practically nontoxic***

Aquatic Estuarine/Marine Invertebrates

Acute Toxicity: ***EC50 (Eastern oyster larvae 48-hour) 385 mg/L***
Acute Toxicity: ***LC50 (sheepshead minnow 96-hour) > 980 mg/L***
OVERALL TOXICITY: ***practically nontoxic***

Terrestrial Animals

Avian Acute Oral Toxicity: ***LD50 (bobwhite quail) > 5,000 mg/kg***
Avian Acute Oral Toxicity: ***LD50 (mallard duck) > 5,000 mg/kg***
Avian Subacute Dietary Toxicity: ***LC50 (bobwhite quail) > 5,620 mg/kg***
Avian Subacute Dietary Toxicity: ***LC50 (mallard duck) > 5,000 mg/kg***
Mammal Acute Oral Toxicity: ***LD50 (rat) > 5,000 mg/kg***
OVERALL TOXICITY: ***practically nontoxic***

Bioaccumulation Potential

No potential

Toxic Inert Ingredients Listed on MSDS: None

Toxicity Information on Toxic Inert Ingredients (Lethal/Sub-lethal): N/A

Trade Names of Adjuvants (Drift Control Agents, Stickers, Surfactants, Oils): Syl-Tac

Toxicity Information on Adjuvants (Lethal/Sub-lethal): N/A

Toxic Active Ingredients Listed on MSDS: sulfometuron methyl: (methyl 2-(4,6-dimethyl-2-pyrimidinyl)- mino]carbonyl]amino]sulfonyl]benzoate) 50%

Toxicity Information on Toxic Active Ingredients (Lethal/Sub-lethal):

Microorganisms

Acute Contact Toxicity: ***LD50 (honey bee contact) > 11 µg/bee***
OVERALL TOXICITY: ***practically nontoxic***

Plants

Contact will injure or kill target and nontarget plants

Aquatic Vertebrates

Acute Toxicity: ***LC50 (rainbow trout 96-hour) > 148 mg/L***
Acute Toxicity: ***LC50 (bluegill sunfish 96-hour) > 150 mg/L***
OVERALL TOXICITY: ***practically nontoxic***

Aquatic Freshwater Invertebrates

Acute Toxicity: ***LC50 (Daphnia magna 48-hour) > 150 mg/L***
OVERALL TOXICITY: ***practically nontoxic***

Aquatic Estuarine/Marine Invertebrates

Acute Toxicity: ***EC50 (Eastern oyster larvae 48-hour)***
Acute Toxicity: ***LC50 (sheepshead minnow 96-hour) > 45 mg/L***
OVERALL TOXICITY: ***practically nontoxic***

Terrestrial Animals

Avian Acute Oral Toxicity: ***LD50 (bobwhite quail) > 5,000 mg/kg***
Avian Acute Oral Toxicity: ***LD50 (mallard duck) > 5,000 mg/kg***
Avian Subacute Dietary Toxicity: ***LC50 (bobwhite quail) > 5,620 mg/kg***
Avian Subacute Dietary Toxicity: ***LC50 (mallard duck) > 5,000 mg/kg***
Mammal Acute Oral Toxicity: ***LD50 (rat) > 5,000 mg/kg***
OVERALL TOXICITY: ***practically nontoxic***

Bioaccumulation Potential

No potential

Toxic Inert Ingredients Listed on MSDS: N/A

Toxicity Information on Toxic Inert Ingredients (Lethal/Sub-lethal): N/A

Trade Names of Adjuvants (Drift Control Agents, Stickers, Surfactants, Oils): N/A

Toxicity Information on Adjuvants (Lethal/Sub-lethal): N/A

Transline

Common or Chemical Name(s): Clopyralid

Manufacturer(s): Dow AgroSciences

EPA Registration Number(s): 62719-73

Formulation: ☐Granule ☑Liquid ☐Emulsifiable Concentrate ☐Wettable Powder ☐Other (specify):

Toxicity Information

Toxic Active Ingredients Listed on MSDS: Clopyralid: (3,6-Dichloro-2-pyridinecarboxylic acid, Monoethanolamine salt

Inert ingredients, total, including:

Isopropyl alcohol

Polyglycol 26-2

Toxicity Information on Toxic Active Ingredients (Lethal/Sub-lethal):

Microorganisms

Acute Contact Toxicity: ***LD50 (honey bee contact) > 100 µg/bee***
OVERALL TOXICITY: ***practically nontoxic***

Plants

Contact will injure or kill target and nontarget plants

Aquatic Vertebrates

Acute Toxicity: ***LC50 (rainbow trout 96-hour) > 100 mg/L***
Acute Toxicity: ***LC50 (bluegill sunfish 96-hour) > 100 mg/L***
OVERALL TOXICITY: ***practically nontoxic***

Aquatic Freshwater Invertebrates

Acute Toxicity: ***LC50 (Daphnia magna 48-hour) > 100 mg/L***
OVERALL TOXICITY: ***practically nontoxic***

Aquatic Estuarine/Marine Invertebrates

Acute Toxicity: ***LC50 (fiddler crab 96-hour) no information***
Acute Toxicity: ***LC50 (grass shrimp 96-hour) no information***
OVERALL TOXICITY: ***practically nontoxic***

Terrestrial Animals

Avian Acute Oral Toxicity: ***LD50 (bobwhite quail) less than (<) 2,000 mg/kg***
Avian Acute Oral Toxicity: ***LD50 (mallard duck) < 2,000 mg/kg***
Avian Subacute Dietary Toxicity: ***LC50 (bobwhite quail) < 5,000 mg/kg***
Avian Subacute Dietary Toxicity: ***LC50 (mallard duck) < 5,000 mg/kg***
Mammal Acute Oral Toxicity: ***LD50 (rat) > 5,000 mg/kg***
OVERALL TOXICITY: ***slightly toxic***

Bioaccumulation Potential

Little or no potential

Toxic Inert Ingredients Listed on MSDS:

Isopropyl alcohol

Polyglycol 26-2

Toxicity Information on Toxic Inert Ingredients (Lethal/Sub-lethal): N/A

Trade Names of Adjuvants (Drift Control Agents, Stickers, Surfactants, Oils): Syl-Tac

Toxicity Information on Adjuvants (Lethal/Sub-lethal): N/A

Weedar 64

Common or Chemical Name(s): 2,4-D

Manufacturer(s): Nufarm

EPA Registration Number(s): 71368-1

Formulation: ☐Granule ☑Liquid ☐Emulsifiable Concentrate ☐Wettable Powder ☐Other (specify):

Toxicity Information

Toxic Active Ingredients Listed on MSDS: 2,4-Dichlorophenoxyacetic acid (2,4-D)

Dimethylamine (DMA)

Diethanolamine

Ethylene glycol

Toxicity Information on Toxic Active Ingredients (Lethal/Sub-lethal):

Microorganisms

Acute Contact Toxicity: LD50 (honey bee contact) greater than (>) 100 µg /bee
Overall Toxicity: practically nontoxic

Plants

Contact will injure or kill target and nontarget plants

Aquatic Vertebrates

Acute Toxicity: ***LC50 (rainbow trout 96-hour) 1.1 to > 240 milligrams per liter (mg/L)***
Acute Toxicity: ***LC50 (bluegill sunfish 96-hour) 0.9 to > 524 mg/L***
OVERALL TOXICITY: ***highly toxic to practically nontoxic (depending on formulation)***

Aquatic Freshwater Invertebrates

Acute Toxicity: ***LC50 (Daphnia magna 48-hour) 5.8 to > 184 mg/L***
OVERALL TOXICITY: ***moderately toxic to practically nontoxic (depending on formulation)***

Aquatic Estuarine/Marine Invertebrates

Acute Toxicity: ***LC50 (Dungeness crab 96-hour) > 10.0 mg/L***
Acute Toxicity: ***LC50 (brown shrimp 96-hour) > 2.0 mg/L***

OVERALL TOXICITY: ***moderately toxic to slightly toxic (depending on formulation)***

Terrestrial Animals

Avian Acute Oral Toxicity: ***LD50 (various birds) 472 to > 2, 000 (mg/kg)***
Avian Subacute Dietary Toxicity: ***LC50 (various birds) > 1,000 mg/kg***
Mammal Acute Oral Toxicity: ***LD50 (various mammals) > 100 to > 5,000 mg/kg***
OVERALL TOXICITY: ***moderately toxic to practically nontoxic (depending on formulation)***

Bioaccumulation Potential

Low potential

Toxic Inert Ingredients Listed on MSDS: N/A

Toxicity Information on Toxic Inert Ingredients (Lethal/Sub-lethal): N/A

Trade Names of Adjuvants (Drift Control Agents, Stickers, Surfactants, Oils): N/A

Toxicity Information on Adjuvants (Lethal/Sub-lethal): N/A

Vanquish

Common or Chemical Name(s): Diglycolamine salt of Dicamba

Manufacturer(s): Novartis

EPA Registration Number(s): 100-884

Formulation: ☐Granule ☑Liquid ☐Emulsifiable Concentrate ☐Wettable Powder ☐Other (specify):

Toxicity Information

Toxic Active Ingredients Listed on MSDS: Dicamba (56.8%)

Chemical Name: 3,6-Dichloro-o-Anisic Acid

Chemical Class: Substituted Benzoic Acid Herbicide

Toxicity Information on Toxic Active Ingredients (Lethal/Sub-lethal):

Microorganisms

Acute Contact Toxicity: ***LD50 (honey bee contact) > 100 µg/bee***
OVERALL TOXICITY: ***practically nontoxic***

Plants

Contact will injure or kill target and nontarget plants

Aquatic Vertebrates

Acute Toxicity: ***LC50 (rainbow trout 96-hour) > 100 mg/L***
Acute Toxicity: ***LC50 (bluegill sunfish 96-hour) > 135 mg/L***
OVERALL TOXICITY: ***practically nontoxic***

Aquatic Freshwater Invertebrates

Acute Toxicity: ***LC50 (Daphnia magna 48-hour) 110 mg/L***
OVERALL TOXICITY: ***slightly toxic***

Aquatic Estuarine/Marine Invertebrates

Acute Toxicity: ***LC50 (fiddler crab 96-hour) > 180 mg/L***
Acute Toxicity: ***LC50 (grass shrimp 96-hour) > 100 mg/L***
OVERALL TOXICITY: ***practically nontoxic***

Terrestrial Animals

Avian Acute Oral Toxicity: ***LD50 (mallard duck) > 2,000 mg/kg***
Avian Subacute Dietary Toxicity: ***LC50 (bobwhite quail) > 10,000 mg/kg***
Avian Subacute Dietary Toxicity: ***LC50 (mallard duck) > 10,000 mg/kg***
Mammal Acute Oral Toxicity: ***LD50 (rat) > 500 mg/kg***
OVERALL TOXICITY: ***slightly toxic***

Bioaccumulation Potential

Slight potential

Toxic Inert Ingredients Listed on MSDS: N/A

Toxicity Information on Toxic Inert Ingredients (Lethal/Sub-lethal): N/A

Trade Names of Adjuvants (Drift Control Agents, Stickers, Surfactants, Oils): N/A

Toxicity Information on Adjuvants (Lethal/Sub-lethal): N/A

Karmex DF & Direx 4L

Common or Chemical Name(s): Diuron

Manufacturer(s): Griffin

EPA Registration Number(s): 1812-362, 1812-257

Formulation: ☑Granule ☐Liquid ☐Emulsifiable Concentrate ☐Wettable Powder ☐Other (specify):

Toxicity Information

Toxic Active Ingredients Listed on MSDS: Diuron: (3-(3,4-Dichlorophenyl)-1, 1-Dimethylurea)

Toxicity Information on Toxic Active Ingredients (Lethal/Sub-lethal):

Microorganisms

Acute Contact Toxicity: ***LD50 (honey bee contact) > 100 µg/bee***
OVERALL TOXICITY: ***practically nontoxic***

Plants

Contact will injure or kill target and nontarget plants

Aquatic Vertebrates

Acute Toxicity: ***LC50 (rainbow trout 96-hour) 190 mg/L***
Acute Toxicity: ***LC50 (bluegill sunfish 96-hour) >300 mg/L***
OVERALL TOXICITY: ***moderately toxic***

Aquatic Freshwater Invertebrates

Acute Toxicity: ***LC50 (Daphnia magna 48-hour) 1.0 mg/L***
OVERALL TOXICITY: ***highly toxic***

Aquatic Estuarine/Marine Invertebrates

Acute Toxicity: ***LC50 (sheepshead minnow 96-hour)***
Acute Toxicity: ***LC50 (grass shrimp 96-hour)***
Acute Toxicity: ***LC50 (eastern oyster 96-hour)***
OVERALL TOXICITY: ***moderately toxic***

Terrestrial Animals

Avian Acute Oral Toxicity: ***LD50 (bobwhite quail) > 2,000 mg/kg***
Avian Acute Oral Toxicity: ***LD50 (mallard duck) > 2,000 mg/kg***
Avian Subacute Dietary Toxicity: ***LC50 (bobwhite quail) > 1,730 mg/kg***
Avian Subacute Dietary Toxicity: ***LC50 (mallard duck) > 1,730 mg/kg***
Mammal Acute Oral Toxicity: ***LD50 (rat) 2,800 mg/kg***
OVERALL TOXICITY: ***slightly toxic***

Bioaccumulation Potential

Slight potential

Toxic Inert Ingredients Listed on MSDS: N/A

Toxicity Information on Toxic Inert Ingredients (Lethal/Sub-lethal): N/A

Trade Names of Adjuvants (Drift Control Agents, Stickers, Surfactants, Oils): N/A

Toxicity Information on Adjuvants (Lethal/Sub-lethal): N/A

Vista

Common or Chemical Name(s): Fluroxypyr

Manufacturer(s): Dow AgroSciences

EPA Registration Number(s): 62719-308

Formulation: ☐Granule ☑Liquid ☐Emulsifiable Concentrate ☐Wettable Powder ☐Other (specify):

Toxicity Information

Toxic Active Ingredients Listed on MSDS:

Fluroxypyr: 1-Methylheptyl Ester 26.2%

Toxicity Information on Toxic Active Ingredients (Lethal/Sub-lethal):

Microorganisms

Acute Contact Toxicity: ***(no information available)***
OVERALL TOXICITY: ***practically nontoxic***

Plants

Contact will injure or kill target and non-target plants

Aquatic Vertebrates

Acute Toxicity:
Acute Toxicity:
OVERALL TOXICITY: ***practically nontoxic***

Aquatic Freshwater Invertebrates

Acute Toxicity: ***LC50 (Daphnia magna 48-hour) > 100 mg/L***
OVERALL TOXICITY: ***practically nontoxic***

Aquatic Estuarine/Marine Invertebrates

Acute Toxicity:
Acute Toxicity***:***
Acute Toxicity:
OVERALL TOXICITY: ***practically nontoxic***

Terrestrial Animals

Avian Acute Oral Toxicity: ***LD50 (bobwhite quail) > 2,250 mg/kg***
Avian Acute Oral Toxicity: ***no information***
Avian Subacute Dietary Toxicity: ***no information***
Avian Subacute Dietary Toxicity: ***no information***
Mammal Acute Oral Toxicity: ***LD50 (rat) > 3,738 mg/kg***
OVERALL TOXICITY: ***moderately toxic***

Bioaccumulation Potential

Moderate potential

Toxic Inert Ingredients Listed on MSDS: N/A

Toxicity Information on Toxic Inert Ingredients (Lethal/Sub-lethal): N/A

Trade Names of Adjuvants (Drift Control Agents, Stickers, Surfactants, Oils): N/A

Toxicity Information on Adjuvants (Lethal/Sub-lethal): N/A

Accord Concentrate, Roundup, Roundup PRO, & Rodeo

Common or Chemical Name(s): Glyphosate

Manufacturer(s): Dow AgroSciences (Accord Concentrate, Rodeo), Monsanto (Roundup, Roundup PRO)

EPA Registration Number(s):

Accord Concentrate	62719-324
Roundup	524-445
Roundup PRO	524-475
Rodeo	62719-324

Formulation: ☐Granule ☑Liquid ☐Emulsifiable Concentrate ☐Wettable Powder ☐Other (specify):

Toxicity Information

Toxic Active Ingredients Listed on MSDS: Isopropylamine salt of N-(phosphonomethyl)glycine: Isopropylamine salt of glyphosate

Toxicity Information on Toxic Active Ingredients (Lethal/Sub-lethal):

For Glyphosate formulations labeled for terrestrial uses

Microorganisms

Acute Contact Toxicity: ***LD50 (honey bee contact) > 100 μg/bee***
OVERALL TOXICITY: ***practically nontoxic***

Plants

Contact will injure or kill target and nontarget plants

Aquatic Vertebrates

Acute Toxicity: ***LC50 (rainbow trout 96-hour) 8.2 mg/L***
Acute Toxicity: ***LC50 (bluegill sunfish 96-hour) 5.8 mg/L***
Acute Toxicity: ***LC50 (chinook salmon 96-hour) 20 mg/L***
Acute Toxicity: ***LC50 (coho salmon 96-hour) 22 mg/L***
OVERALL TOXICITY: ***moderately toxic***

Aquatic Freshwater Invertebrates

Acute Toxicity: ***EC50 (Daphnia magna 48-hour) 12.9 mg/L***
OVERALL TOXICITY: ***slightly toxic***

Aquatic Estuarine/Marine Invertebrates

Acute Toxicity: ***LC50 (fiddler crab 96-hour) 934 mg/L***
Acute Toxicity: ***LC50 (grass shrimp 96-hour) 281 mg/L***
OVERALL TOXICITY: ***practically nontoxic***

Terrestrial Animals

Avian Acute Oral Toxicity: ***LD50 (bobwhite quail) > 2,000 mg/kg***
Avian Acute Oral Toxicity: ***LD50 (mallard duck) > 2,251 mg/kg***
Avian Subacute Dietary Toxicity: ***LC50 (bobwhite quail) > 5,620 mg/kg***
Avian Subacute Dietary Toxicity: ***LC50 (mallard duck) > 5,620 mg/kg***
Mammal Acute Oral Toxicity: ***LD50 (goat) > 5,000 mg/kg***
OVERALL TOXICITY: ***practically nontoxic***

Bioaccumulation Potential

Little or no potential
For Glyphosate formulations labeled for aquatic/terrestrial uses

Microorganisms

Acute Contact Toxicity: ***LD50 (honey bee contact) > 100 µg/bee***
OVERALL TOXICITY: ***practically nontoxic***

Plants

Contact will injure or kill target and nontarget plants

Aquatic Vertebrates

Acute Toxicity: ***LC50 (rainbow trout 96-hour) > 1,000 mg/L***
Acute Toxicity: ***LC50 (bluegill sunfish 96-hour) > 1,000 mg/L***
OVERALL TOXICITY: ***practically nontoxic***

Aquatic Freshwater Invertebrates

Acute Toxicity: ***EC50 (Daphnia magna 48-hour) 930 mg/L***
OVERALL TOXICITY: ***practically nontoxic***

Aquatic Estuarine/Marine Invertebrates

Acute Toxicity: ***LC50 (Eastern oyster larvae 48-hour) > 10 mg/L***
Acute Toxicity: ***LC50 (fiddler crab 96-hour) 934 mg/L***
Acute Toxicity: ***TL50 (grass shrimp 96-hour) > 281 mg/L***

OVERALL TOXICITY: ***slightly toxic***

Terrestrial Animals

Avian Acute Oral Toxicity: ***LD50 (bobwhite quail) > 3,851 mg/kg***
Avian Subacute Dietary Toxicity: ***LC50 (bobwhite quail) > 4,640 mg/kg***
Avian Subacute Dietary Toxicity: ***LC50 (mallard duck) > 4,640 mg/kg***
Mammal Acute Oral Toxicity: ***LD50 (goat) > 5,000 mg/kg***
OVERALL TOXICITY: ***practically nontoxic***

Bioaccumulation Potential

Little or no potential

Toxic Inert Ingredients Listed on MSDS: N/A

Toxicity Information on Toxic Inert Ingredients (Lethal/Sub-lethal): N/A

Trade Names of Adjuvants (Drift Control Agents, Stickers, Surfactants, Oils): N/A

Toxicity Information on Adjuvants (Lethal/Sub-lethal): N/A

Arsenal, Imazapyr EZJECT, & Stalker

Common or Chemical Name(s): Imazapyr

Manufacturer(s): BASF (Arsenal, Stalker), Odom (EZJECT)

EPA Registration Number(s): Arsenal (241-299)
Imazapyr EZJECT (61202-1)
Stalker (241-398)

Formulation: ☐Granule ☑Liquid (Arsenal) ☑Emulsifiable Concentrate (Stalker) ☐Wettable Powder ☑Other (specify): Capsule Solid (Imazapyr EZJECT)

Toxicity Information

Toxic Active Ingredients Listed on MSDS: 2-(4-isopyropyl-4-methyl-5-oxo-2imidazoli-2-yl) nicotinic acid, salt with isopropylamine (1:1)

2-(4,5-dihydro-4-methyl-4-(1-methylethyl)-oxo-1H-imidazol-2-yl)-3pyridinecarbolylic acid, salt with 2-propanamine (1:1)

Toxicity Information on Toxic Active Ingredients (Lethal/Sub-lethal):

Microorganisms

Acute Contact Toxicity: ***LD50 (honey bee contact) > 100 µg/bee***
OVERALL TOXICITY: ***practically nontoxic***

Plants

Contact will injure or kill target and nontarget plants

Aquatic Vertebrates

Acute Toxicity: ***LC50 (rainbow trout 96-hour) > 100 mg/L***
Acute Toxicity: ***LC50 (bluegill sunfish 96-hour) > 100 mg/L***
OVERALL TOXICITY: ***practically nontoxic***

Aquatic Freshwater Invertebrates

Acute Toxicity: ***LC50 (Daphnia magna 48-hour) > 100 mg/L***

OVERALL TOXICITY: ***practically nontoxic***

Aquatic Estuarine/Marine Invertebrates

Acute Toxicity: ***LC50 (sheepshead minnow 96-hour)***
Acute Toxicity: ***LC50 (grass shrimp 96-hour)***
Acute Toxicity: ***LC50 (eastern oyster 96-hour)***

OVERALL TOXICITY: ***practically nontoxic (based on freshwater data, imazapyr is not expected to be toxic to estuarine invertebrates)***

Terrestrial Animals

Avian Acute Oral Toxicity: ***LD50 (bobwhite quail) > 2,150 mg/kg***
Avian Acute Oral Toxicity: ***LD50 (mallard duck) > 2,150 mg/kg***
Avian Subacute Dietary Toxicity: ***LC50 (bobwhite quail) > 5,000 mg/kg***
Avian Subacute Dietary Toxicity: ***LC50 (mallard duck) > 5,000 mg/kg***
Mammal Acute Oral Toxicity: ***LD50 (rat) > 5,000 mg/kg***
OVERALL TOXICITY: ***practically nontoxic***

Bioaccumulation Potential

Little potential

Toxic Inert Ingredients Listed on MSDS: N/A

Toxicity Information on Toxic Inert Ingredients (Lethal/Sub-lethal): N/A

Trade Names of Adjuvants (Drift Control Agents, Stickers, Surfactants, Oils): Hasten

Toxicity Information on Adjuvants (Lethal/Sub-lethal): N/A

Embark 2S

Common or Chemical Name(s): Mefluidide

Manufacturer(s): PBI/Gordon

EPA Registration Number(s): 2217-759

Formulation: ☑Granule ☐Liquid ☐Emulsifiable Concentrate ☐Wettable Powder ☐Other (specify):

Toxicity Information

Toxic Active Ingredients Listed on MSDS: Flurprimidol: alpha-(1-Methyl ethyl)-alpha-(4-trifluoromethoxy)phenyl)-5-pyrimidine-methanol

Toxicity Information on Toxic Active Ingredients (Lethal/Sub-lethal):

Microorganisms

Acute Contact Toxicity: ***LD50 (honey bee contact) > 100 µg/bee***
OVERALL TOXICITY: ***practically nontoxic***

Plants

Contact may injure or kill target and non-target plants.

Aquatic Vertebrates

Acute Toxicity: ***LC50 (rainbow trout 96-hour) < 100 mg/L***
Acute Toxicity: ***LC50 (bluegill sunfish 96-hour) < 100 mg/L***
OVERALL TOXICITY: ***slightly toxic***

Aquatic Freshwater Invertebrates

Acute Toxicity: ***LC50 (Daphnia magna 48-hour) no information***
OVERALL TOXICITY: ***not available***

Aquatic Estuarine/Marine Invertebrates

Acute Toxicity: ***EC50 (Eastern oyster larvae 48-hour) no information***
Acute Toxicity: ***LC50 (sheepshead minnow 96-hour) no information***
OVERALL TOXICITY: ***not available***

Terrestrial Animals

Avian Acute Oral Toxicity: ***LD50 (mallard duck) > 4,640 mg/kg***
Avian Subacute Dietary Toxicity: ***LC50 (bobwhite quail) > 10,000 mg/kg***
Avian Subacute Dietary Toxicity: ***LC50 (mallard duck) > 10,000 mg/kg***
Mammal Acute Oral Toxicity: ***LD50 (rat) > 4,000 mg/kg***
OVERALL TOXICITY: ***practically nontoxic***

Bioaccumulation Potential

No potential

Toxic Inert Ingredients Listed on MSDS: N/A

Toxicity Information on Toxic Inert Ingredients (Lethal/Sub-lethal): N/A

Trade Names of Adjuvants (Drift Control Agents, Stickers, Surfactants, Oils): N/A

Toxicity Information on Adjuvants (Lethal/Sub-lethal): N/A

Oryzalin Pro 4 & Surflan A.S.

Common or Chemical Name(s): Oryzalin

Manufacturer(s): Vegetation Management (Oryzalin Pro 4), Dow AgroSciences (Surflan A.S.)

EPA Registration Number(s): 72167-15-74477 (Oryzalin Pro 4), 62719-113 (Surflan A.S.)

Formulation: ☐Granule ☑Liquid ☐Emulsifiable Concentrate ☐Wettable Powder ☐Other (specify):

Toxicity Information

Toxic Active Ingredients Listed on MSDS:

Oryzalin: 3,5-Dinitro-N4,N4-dipropyl-sulfanilamide

Toxicity Information on Toxic Active Ingredients (Lethal/Sub-lethal):

Microorganisms

Acute Contact Toxicity: ***LD50 (honey bee) > 11 µg/bee***
OVERALL TOXICITY: ***practically nontoxic***

Plants

Contact will injure or kill target and nontarget plants

Aquatic Vertebrates

Acute Toxicity: ***LC50 (rainbow trout 96-hour) 3.26 mg/L***
Acute Toxicity: ***LC50 (bluegill sunfish 96-hour) 2.88 mg/L***
OVERALL TOXICITY: ***moderately toxic***

Aquatic Invertebrates

Acute Toxicity: ***LC50 (Daphnia magna 48-hour) 1.4 mg/L***
OVERALL TOXICITY: ***moderately toxic***

Aquatic Estuarine/Marine Invertebrates

Studies not required by EPA. EPA calculates toxicity will be similar to freshwater invertebrates.

Terrestrial Animals

Avian Acute Oral Toxicity: ***LD50 (bobwhite quail) 1,046 mg/kg***
Avian Dietary Toxicity: ***LC50 (mallard duck) > 5,000 mg/kg***
Small Mammal Acute Oral Toxicity: ***LD50 > 10,000 mg/kg***
OVERALL TOXICITY: ***slightly to practically nontoxic***

Bioaccumulation Potential

Low potential

Toxic Inert Ingredients Listed on MSDS: N/A

Toxicity Information on Toxic Inert Ingredients (Lethal/Sub-lethal): N/A

Trade Names of Adjuvants (Drift Control Agents, Stickers, Surfactants, Oils): N/A

Toxicity Information on Adjuvants (Lethal/Sub-lethal): N/A

Goal 2XL

Common or Chemical Name(s): Oxyfluorfen

Manufacturer(s): Dow AgroSciences

EPA Registration Number(s): 62719-424

Formulation: ☐Granule ☐Liquid ☑Emulsifiable Concentrate ☐Wettable Powder ☐Other (specify):

Toxicity Information

Toxic Active Ingredients Listed on MSDS:

Oxyfluorfen: 2-chloro-1-(3-ethoxy-4-nitrophenoxy)-4-(trifluoromethyl)benzene

Toxicity Information on Toxic Active Ingredients (Lethal/Sub-lethal):

Microorganisms

Acute Contact Toxicity: ***N/A***
OVERALL TOXICITY: ***N/A***

Plants

Contact will injure or kill target and nontarget plants

Aquatic Vertebrates

Acute Toxicity: ***LC50 (rainbow trout 96-hour) 0.41 mg/L***
Acute Toxicity: ***LC50 (bluegill sunfish 96-hour) 0.2 mg/L***
OVERALL TOXICITY: ***very highly toxic***

Aquatic Invertebrates

Acute Toxicity: ***LC50 (Diatom 48-hour) 0.031 mg/L***
OVERALL TOXICITY: ***very highly toxic***

Aquatic Estuarine/Marine Invertebrates

Studies not required by EPA. EPA calculates toxicity will be similar to freshwater invertebrates.

Terrestrial Animals

Avian Acute Oral Toxicity: ***LD50 (bobwhite quail) >2,000 mg/kg***
Avian Dietary Toxicity: ***LC50 (mallard duck) > 5,000 mg/kg***
Small Mammal Acute Oral Toxicity: ***N/A***
OVERALL TOXICITY: ***slightly to practically nontoxic***

Bioaccumulation Potential

Moderate potential

Toxic Inert Ingredients Listed on MSDS: N/A

Toxicity Information on Toxic Inert Ingredients (Lethal/Sub-lethal): N/A

Trade Names of Adjuvants (Drift Control Agents, Stickers, Surfactants, Oils): N/A

Toxicity Information on Adjuvants (Lethal/Sub-lethal): N/A

Profile 2SC (Tree growth regulator)

Common or Chemical Name(s): Paclobutrazol

Manufacturer(s): Dow Agro Sciences

EPA Registration Number(s): 62719-234

Formulation: ☐Granule ☑Liquid ☐Emulsifiable Concentrate ☐Wettable Powder ☐Other (specify):

Toxicity Information

Toxic Active Ingredients Listed on MSDS:

Paclobutrazol: 4-chlorophenyl)methyl-1,1-dimethylethyl-1H-1,2,4-triazole-1-ethanol

Toxicity Information on Toxic Active Ingredients (Lethal/Sub-lethal):

Microorganisms

Acute Contact Toxicity: ***LD50 (honey bee contact) >100 µg/bee***
OVERALL TOXICITY: ***practically nontoxic***

Plants

Contact will slow the growth of target and nontarget trees

Aquatic Vertebrates

Acute Toxicity: ***LC50 (rainbow trout 96-hour) 27.8 mg/L***
Acute Toxicity: ***LC50 (bluegill sunfish 96-hour) 23.6 mg/L***

OVERALL TOXICITY: ***slightly toxic***

Aquatic Invertebrates

Acute Toxicity: ***LC50 (Daphnia magna 48-hour) 33.2 mg/L***
OVERALL TOXICITY: ***slightly toxic***

Aquatic Estuarine/Marie Invertebrates

Studies not required by EPA. EPA calculates toxicity will be similar to freshwater invertebrates.

Terrestrial Animals

Avian Acute Oral Toxicity: ***LD50 (mallard duck) 7,913 mg/kg***
Avian Dietary Toxicity: ***LC50 (mallard duck) > 20,000 mg/kg***
Avian Dietary Toxicity: ***LC50 (bobwhite quail) > 5,000 mg/kg***
Small Mammal Acute Oral Toxicity: ***LD50 > 2,140 mg/kg***
OVERALL TOXICITY: ***practically nontoxic***

Bioaccumulation Potential

Low potential

Toxic Inert Ingredients Listed on MSDS: N/A

Toxicity Information on Toxic Inert Ingredients (Lethal/Sub-lethal): N/A

Trade Names of Adjuvants (Drift Control Agents, Stickers, Surfactants, Oils): N/A

Toxicity Information on Adjuvants (Lethal/Sub-lethal): N/A

Pendulum WDG

Common or Chemical Name(s): Pendimethalin

Manufacturer(s): BASF

EPA Registration Number(s): 241-340

Formulation: ☑Granule ☐Liquid ☐Emulsifiable Concentrate ☐Wettable Powder ☐Other (specify):

Toxicity Information

Toxic Active Ingredients Listed on MSDS:

N-(1-ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzeneamine

Toxicity Information on Toxic Active Ingredients (Lethal/Sub-lethal):

Microorganisms

Acute Contact Toxicity: ***LD50 (no information available)***
OVERALL TOXICITY: ***practically nontoxic***

Plants

Contact will injure or kill target and nontarget plants

Aquatic Vertebrates

Acute Toxicity: ***LC50 (bluegill sunfish 96-hour) 0.199 mg/L***
OVERALL TOXICITY: ***highly toxic (depending on formulation)***

Aquatic Freshwater Invertebrates

Acute Toxicity: ***LC50 (Daphnia magna 48-hour) 0.28 mg/L***
OVERALL TOXICITY: ***highly toxic (depending on formulation)***

Aquatic Estuarine/Marine Invertebrates

Acute Toxicity: ***LC50 (Dungeness crab 96-hour) > 10.0 mg/L***
Acute Toxicity: ***LC50 (brown shrimp 96-hour) > 2.0 mg/L***
OVERALL TOXICITY: ***slightly toxic (depending on formulation)***

Terrestrial Animals

Avian Acute Oral Toxicity: ***LD50 (various birds) > 2,000 mg/kg***
Avian Subacute Dietary Toxicity: ***LC50 (bobwhite quail) > 3,149 mg/kg***
Mammal Acute Oral Toxicity: ***LD50 (rats) > 5,000 mg/kg***
OVERALL TOXICITY: ***moderately toxic to practically nontoxic (depending on formulation)***

Bioaccumulation Potential

Low potential

Toxic Inert Ingredients Listed on MSDS: N/A

Toxicity Information on Toxic Inert Ingredients (Lethal/Sub-lethal): N/A

Trade Names of Adjuvants (Drift Control Agents, Stickers, Surfactants, Oils): N/A

Toxicity Information on Adjuvants (Lethal/Sub-lethal): N/A

Oust

Common or Chemical Name(s): Sulfometuron Methyl

Manufacturer(s): DuPont

EPA Registration Number(s): 352-401

Formulation: ☐Granule ☐Liquid ☐Emulsifiable Concentrate ☐Wettable Powder ☑Other (specify): solid, dry, flowable

Toxicity Information

Toxic Active Ingredients Listed on MSDS: sulfometuron methyl: (methyl 2-(4,6-dimethyl-2-pyrimidinyl)- mino]carbonyl]amino]sulfonyl]benzoate) 75%

Toxicity Information on Toxic Active Ingredients (Lethal/Sub-lethal):

Microorganisms

Acute Contact Toxicity: ***LD50 (honey bee contact) > 11 µg/bee***
OVERALL TOXICITY: ***practically nontoxic***

Plants

Contact will injure or kill target and nontarget plants

Aquatic Vertebrates

Acute Toxicity: ***LC50 (rainbow trout 96-hour) > 148 mg/L***
Acute Toxicity: ***LC50 (bluegill sunfish 96-hour) > 150 mg/L***
OVERALL TOXICITY: ***practically nontoxic***

Aquatic Freshwater Invertebrates

Acute Toxicity: ***LC50 (Daphnia magna 48-hour) > 150 mg/L***
OVERALL TOXICITY: ***practically nontoxic***

Aquatic Estuarine/Marine Invertebrates

Acute Toxicity: ***EC50 (Eastern oyster larvae 48-hour)***
Acute Toxicity: ***LC50 (sheepshead minnow 96-hour) > 45 mg/L***
OVERALL TOXICITY: ***practically nontoxic***

Terrestrial Animals

Avian Acute Oral Toxicity: ***LD50 (bobwhite quail) > 5,000 mg/kg***
Avian Acute Oral Toxicity: ***LD50 (mallard duck) > 5,000 mg/kg***
Avian Subacute Dietary Toxicity: ***LC50 (bobwhite quail) > 5,620 mg/kg***
Avian Subacute Dietary Toxicity: ***LC50 (mallard duck) > 5,000 mg/kg***
Mammal Acute Oral Toxicity: ***LD50 (rat) > 5,000 mg/kg***
OVERALL TOXICITY: ***practically nontoxic***

Bioaccumulation Potential

No potential

Toxic Inert Ingredients Listed on MSDS: N/A

Toxicity Information on Toxic Inert Ingredients (Lethal/Sub-lethal): N/A

Trade Names of Adjuvants (Drift Control Agents, Stickers, Surfactants, Oils): N/A

Toxicity Information on Adjuvants (Lethal/Sub-lethal): N/A

Garlon 3A, Garlon 4, & Pathfinder II

Common or Chemical Name(s): Triclopyr

Manufacturer(s): Dow AgroSciences

EPA Registration Number(s):

Garlon 3A	62719-37
Garlon 4	62719-40
Pathfinder II	62719-176

Formulation: ☐Granule ☑Liquid ☐Emulsifiable Concentrate ☐Wettable Powder ☐Other (specify):

Toxicity Information

Toxic Active Ingredients Listed on MSDS:

Triclopyr ((3,5,6-trichloro 2-pyridinyl)oxy) acetic acid), triethylamine salt 44.4% - Garlon 3A

Triclopyr ((3,5,6-trichloro-2-pyridinyl)oxy) acetic acid, butoxy ethyl ester 61.6% - Garlon 4

Triclopyr ((3,5,6-trichloro-2-pyridinyl)oxy) acetic acid, butoxy ethyl ester 13.6% - Pathfinder II

Toxicity Information on Toxic Active Ingredients (Lethal/Sub-lethal):

Microorganisms

Acute Contact Toxicity: ***LD50 (honey bee contact) > 100 µg/bee***

OVERALL TOXICITY: ***practically nontoxic***

Plants

Contact will injure or kill target and nontarget plants

Aquatic Vertebrates

Acute Toxicity: ***LC50 (rainbow trout 96-hour) 0.08-4.9 mg/L***
Acute Toxicity: ***LC50 (bluegill sunfish 96-hour) 2.1 mg/L***
Acute Toxicity: ***LC50 (coho salmon 96-hour) 0.45 mg/L***
OVERALL TOXICITY: ***highly toxic***

Aquatic Freshwater Invertebrates

Acute Toxicity: ***LC50 (Daphnia magna 48-hour) 2.2 mg/L***
OVERALL TOXICITY: ***moderately toxic***

Aquatic Estuarine/Marine Invertebrates

Acute Toxicity: ***EC50 (grass shrimp 96-hour) 1.7 mg/L***
Acute Toxicity: ***EC50 (eastern oyster 96-hour) 56-87 mg/L***
Acute Toxicity: ***EC50 (tidewater silverside 96-hour) 0.45 mg/L***
OVERALL TOXICITY: ***highly toxic***

Terrestrial Animals

Avian Acute Oral Toxicity: ***LD50 (bobwhite quail) 8,490 mg/kg***
Avian Subacute Dietary Toxicity: ***LC50 (bobwhite quail) > 5,000 mg/kg***
Avian Subacute Dietary Toxicity: ***LC50 (mallard duck) > 5,000 mg/kg***
Mammal Acute Oral Toxicity: ***LD50 (rat) 1,581 mg/kg males, 1,338 mg/kg females***
OVERALL TOXICITY: ***practically nontoxic***

Bioaccumulation Potential

Little potential

Toxic Inert Ingredients Listed on MSDS: N/A

Toxicity Information on Toxic Inert Ingredients (Lethal/Sub-lethal): N/A

Trade Names of Adjuvants (Drift Control Agents, Stickers, Surfactants, Oils): Syl-Tac, Hasten

Toxicity Information on Adjuvants (Lethal/Sub-lethal): N/A

Biobarrier & Biobarrier II

Common or Chemical Name(s): Trifluralin

Manufacturer(s): Reemay

EPA Registration Number(s): 59823-1 & 59823-3

Formulation: ☐Granule ☐Liquid ☐Emulsifiable Concentrate ☐Wettable Powder ☑Other (specify): The herbicide is formulated as a liquid, emulsifiable concentrate, granular, flowable concentrate, impregnated material, soluble concentrate/liquid, soluble

concentrate/solid, and water dispersible granules (dry flowable).

Toxicity Information

Toxic Active Ingredients Listed on MSDS:

Trifluralin: a,a,a-trifluoro-2,6-dinitro-N,N-dipropyl-p-toluidine

Toxicity Information on Toxic Active Ingredients (Lethal/Sub-lethal):

Microorganisms

Acute Contact Toxicity: ***no information available***
OVERALL TOXICITY: ***unknown***

Plants

Contact will injure or kill target and nontarget plants

Aquatic Vertebrates

Acute Toxicity: LC50 (bluegill sunfish 96-hour) 58 µg/L
Acute Toxicity: LC50 (rainbow trout 96-hour) 41 µg/L
Acute Toxicity: LC50 (largemouth bass 96-hour) 75 µg/L
OVERALL TOXICITY: ***highly toxic (depending on formulation)***

Aquatic Freshwater Invertebrates

Acute Toxicity: ***LC50 (water flea 48-hour) 0.56 to 0.9 mg/L***
Acute Toxicity: ***LC50 (stone fly 48-hour) 2.8 mg/L***
Acute Toxicity: ***LC50 (side swimmer 48-hour) 2.2 mg/L***
OVERALL TOXICITY: ***highly toxic (depending on formulation)***

Aquatic Estuarine/Marine Invertebrates

Acute Toxicity: ***no available information***
OVERALL TOXICITY: ***unknown***

Terrestrial Animals

Avian Acute Oral Toxicity: ***LD50 (various birds) > 2,000 mg/kg***
Mammal Acute Oral Toxicity: ***LD50 (rats) > 5,000 mg/kg***
OVERALL TOXICITY: ***practically nontoxic (to birds and mammals)***

Bioaccumulation Potential

Moderate to high Potential in aquatic species

Toxic Inert Ingredients Listed on MSDS: N/A

Toxicity Information on Toxic Inert Ingredients (Lethal/Sub-lethal): N/A

Trade Names of Adjuvants (Drift Control Agents, Stickers, Surfactants, Oils): N/A

Toxicity Information on Adjuvants (Lethal/Sub-lethal): N/A