

WESTERN AREA POWER ADMINISTRATION

**FINAL
MITIGATION ACTION PLAN**

FOR

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

AUGUST 2005

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ACRONYMS AND ABBREVIATIONS

BO	Biological Opinion
CFR	<i>Code of Federal Regulations</i>
DOE.....	U.S. Department of Energy
EA.....	Environmental Assessment
FONSI.....	finding of no significant impact
FR.....	<i>Federal Register</i>
ft	foot/feet
kV	kilovolt
MAP	Mitigation Action Plan
mi.....	mile/miles
NEPA.....	<i>National Environmental Policy Act</i>
NESC.....	National Electric Safety Code
ROW.....	right-of-way
SNR	Sierra Nevada Region
UC	University of California
U.S.C.....	<i>United States Code</i>
USFWS.....	U.S. Fish and Wildlife Service
VELB	valley elderberry longhorn beetle
Western	Western Area Power Administration
WSCC.....	Western Systems Coordinating Council

1.0 INTRODUCTION

1.1. 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 (NESC), Western Systems Coordinating Council (WSCC), and Western directives for protecting human safety and maintaining the reliable operation of the transmission system. Western needs to maintain its transmission line rights-of-way (ROWs) and access roads to allow crews and equipment entry to the ROWs for inspection, maintenance, and repair activities. Vegetation growing in the ROW could create a safety hazard to line crews and the public as well as interfere with the reliable transmission of electricity. As recently as 1996, vegetation growing too close to a transmission line in Oregon left more than 2,000,000 customers in 11 states without electricity (BPA 1996).

Western has a Biological Opinion (BO) from the U.S. Fish and Wildlife Service (USFWS) addressing current routine ROW maintenance practices for these transmission lines (USFWS 1998). The BO identifies threatened and endangered species and their habitats and identifies avoidance measures to apply based on Western's current routine ROW maintenance methods. However, Western proposes expanding the scope of these maintenance methods. The Final *Environmental Assessment (EA) for Right-of-Way Maintenance in the Sacramento Valley, California*, was developed to support further *Endangered Species Act* Section 7 consultation required when Western conducts maintenance activities that are beyond those covered in the BO. On March 30, 2005, the USFWS released a new BO (USFWS 2005), to be tiered under the 1998 BO. This new BO covers maintenance activities described for the proposed action, presented in the EA, within the study area described in Section 1.3.

The proposed action would result in impacts to habitat of the valley elderberry longhorn beetle (VELB) (*Desmocerus californicus dimorphus*), a Federally listed threatened species, through the removal of elderberry shrubs with stems of 1 inch or greater diameter near towers and trimming of elderberry shrubs above the 10-foot (ft) level. This impact will be fully mitigated through transplanting of removed shrubs and restoration of VELB habitat. 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 (FONSI) and, pursuant to Title 10, Code of Federal Regulations (CFR), §1021.33 1, have been incorporated into this MAP.

Based on the analyses in the EA, and with implementation of the actions prescribed in this MAP, Western has concluded that the ROW maintenance proposed action will result in minimal and insignificant consequences to the environment. Thus, Western considers that the proposed action is not a major Federal action significantly affecting the quality of the human environment, within the meaning of the *National Environmental Policy Act* (NEPA) of 1969, 42 United States Code (U.S.C.) §4321, *et seq.*

1.2. PURPOSE AND SCOPE

This MAP is a Western management document that identifies the potential environmental impacts of vegetation maintenance as decided upon in the Finding of No Significant Impact (FONSI). The MAP identifies commitments made in the FONSI to mitigate those potential impacts and establishes the actions to carry out each commitment.

The EA includes a discussion of controls built into the vegetation management program that are designed to minimize environmental impacts. These controls include performing maintenance activities according to guidelines provided in Western's *Integrated Vegetation Management Environmental Guidance Manual* (Western 2003). Western will undertake additional measures to fully mitigate the impacts of vegetation maintenance as outlined in the FONSI. In accordance with the DOE's implementing procedures for the NEPA (10 CFR §1021.331), this MAP has been prepared to address the mitigation commitments that would be expressed in the FONSI.

The mitigation measures presented in this MAP address habitat loss of the Federally listed threatened VELB. No other required mitigation measures were identified in the EA.

1.3. STUDY AREA DESCRIPTION

The study area is in the Sacramento Valley of northern California and crosses Sutter County, Sacramento County, and Placer County (Table 1-1). Eight transmission line ROWs, and associated access road ROWs and substations, comprise the study area. Descriptions of the transmission line ROWs are as follows:

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

Table 1-1. Transmission Lines in the Study Area

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

^a Length of transmission line is from origin to endpoint, including portions within substations or generating facilities

^b The Elverta-Hurley, Hurley-Tracy, and O'Banion-Elverta transmission line ROWs contain double-circuit towers—separate transmission lines, denoted as No. 1 and No. 2, share the same towers within the ROW.

ROW = Right-of-way

- **Folsom-Nimbus, 115-kV.** This transmission line includes one row of single-circuit towers (the towers are concrete poles). The ROW width 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 ROW is 32,400 ft or 6.14 mi, with a ROW area of 111.6 acres.
- **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 ROW is 34,900 ft or 6.6 mi, with a ROW area of 200.3 acres.
- **Roseville-Elverta (consisting of Roseville-Fiddymment and Fiddymment-Elverta), 230-kV, 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 mi, with a ROW area of 344.3 acres.

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

At the Sacramento County line, the **Cottonwood-Roseville** transmission line turns north, sharing the ROW for the first portion with the O'Banion-Elverta transmission line. The Cottonwood-Roseville single-circuit row of towers is on the east and the O'Banion-Elverta double-circuit row of towers on the west. The ROW is a total of 225 ft wide. 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.

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

- **O'Banion-Elverta No. 1 and No. 2, 230-kV.** This transmission line includes one row of double-circuit towers. Starting at the Elverta Substation, the ROW is shared with the Roseville-Elverta transmission line for 1.3 mi, and then with the Cottonwood-Roseville transmission line for 2.7 mi, as described above. At tower 157/4, the transmission line runs northwest to the O'Banion Substation on the south side of O'Banion Road. The ROW width varies along this transmission line.
 - ◆ From tower 157/4 to 144/2, the ROW is a total of 125 ft wide: 62.5 ft on each side of centerline. The length of this portion of the ROW is 68,200 ft or 12.91 mi, with a ROW area of 195.7 acres.
 - ◆ From tower 144/2 to O'Banion Road (tower 135/1), the ROW is a total of 112.5 ft wide: 50 ft to the west and 62.5 ft to the east of centerline. The length of this portion of the ROW is 44,000 ft or 8.3 mi, with a ROW area of 113.6 acres.

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

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

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

The total length of the legal access road ROWs is 8.7 mi, with a ROW area of 31.6 acres.

1.4. RELATED REPORTS

Several reports and data produced in association with the Final *Environmental Assessment for Right-of-Way Maintenance in the Sacramento Valley, California* (Western 2005) were used as sources for this MAP. The reports produced are the

- *Biological Data Report* (included as an appendix to the EA),
- Biological survey results, and the
- *Cultural Resources Report* (summary of findings included within EA).

Additional related reports include

- *Western's Integrated Vegetation Management Environmental Guidance Manual* (Western 2003);
- *USFWS Formal Programmatic Consultation on the Operations and Maintenance Activities of the Western Area Power Administration* (USFWS 1998);
- *USFWS Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (USFWS 1999); and
- *USFWS Valley Elderberry Longhorn Beetle Recovery Plan* (USFWS 1984); and

1.5. COORDINATION AND PARTICIPANTS

Mr. Steve Tuggle of Western's Sierra Nevada Region (SNR) Office in Folsom, California, leads this project. He is assisted by Mr. John Bridges (Biologist) of Western's Corporate Services Office in Lakewood, Colorado. Contractor support is provided by Tetra Tech NUS.

Mr. Tuggle has performed all coordination with Federal and state agencies, particularly the USFWS, Sacramento.

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2.0 MITIGATION OF IMPACTS TO PRIORITY HABITATS

2.1. SUMMARY DESCRIPTION OF PROJECT AREA

The VELB was listed as a threatened species on August 8, 1980 (45 Federal Register [FR] 52803-52807). The VELB is fully protected under the *Endangered Species Act* of 1973, as amended (16 U.S.C. §1531 *et seq.*). The VELB is completely dependent on its host plant, elderberry, which is a common component of the remaining riparian forests and adjacent upland habitats of California's Central Valley. Use of the elderberry by the VELB, a wood borer, is rarely apparent. Frequently, the only exterior evidence of the elderberry's use by the VELB is an exit hole created by the larva just prior to the pupal stage. The life cycle takes one or two years to complete. The animal spends most of its life in the larval stage, living within the stems of an elderberry plant. Adult emergence is from late March through June, about the same time the elderberry produces flowers.

Critical habitat for the VELB is designated in the Federal Register listing as follows:

- **Sacramento Zone.** An area in the city of Sacramento enclosed on the north by the Route 160 Freeway, on the west and southwest by the Western Pacific railroad tracks, and on the east by Commerce Circle and its extension southward to the railroad tracks. A portion of the Elverta-Hurley transmission line ROW, from towers 8/3 to 8/5, lies approximately 750 ft to the southwest of this area.
- **American River Parkway Zone.** An area of the American River Parkway on the south bank of the American River, bounded on the north by latitude 38° 37'30" N and on the South and east by Ambassador Drive and its extension north to latitude 38° 37'30" N, Goethe Park, and that portion of the American River Parkway northeast of Goethe Park, west of the Jedediah Smith Memorial Bicycle Trail, and north to a line extended eastward from Palm Drive. No portion of Western transmission line ROWs lies within this area.

In addition, an area along Putah Creek, Solano County, and an area west of Nimbus Dam along the American River Parkway, Sacramento County, are considered essential habitat, according to the VELB Recovery Plan (USFWS 1984). These areas support large numbers of mature elderberry shrubs with extensive evidence of use by the beetle. No portion of Western transmission line ROWs or access roads lies within these areas.

The VELB Recovery Plan cites the loss of riparian habitat as the major cause of population decline and suggests that an increase in elderberry habitat will encourage beetle recovery (USFWS 1984). The relationship between population decline and loss of habitat form the basis of the USFWS's application of mitigation ratios in response to the take of beetles or their habitat (Table 2-1). However, during surveys conducted in 1991 and 1997 (Barr 1991, Collinge et al. 2001), 75 percent of apparently suitable habitat was uninhabited by the VELB, suggesting that factors other than elderberry availability are preventing increases in VELB populations.

While there are many ecological principles guiding the population dynamics of sensitive species, the lack of success in generating stronger VELB populations indicates that these

principles may not be appropriate to VELB, even though they form the foundation of the recovery plan. Some complicating factors to VELB recovery include invasive predators and juvenile mortality, host quality, reduction of genetic variability from inbreeding, and climatic trends (Huxel 2001).

A biological survey conducted from September through December 2001, identified four major locations of elderberry along the following ROWs in the study area: Folsom-Nimbus (entire length) and the eastern end of the Folsom-Roseville transmission lines; southern end of Elverta-Hurley and northern end of Hurley-Tracy transmission lines; northern end of the Cottonwood-Roseville transmission line, near Bear River; and the southern end of Hurley-Tracy transmission line.

Table 2-1. Minimization Ratios Based on Location, Stem Diameter, and Presence or Absence of Exit Holes

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

Source: USFWS 1999

2.2. SUMMARY OF IMPACTS TO BE MITIGATED

Under the proposed action, 422 stems, 1-inch or greater diameter, would be removed from areas within 40 ft of tower centers (approximately 20 ft from tower legs) and within 20 ft of poles. This action is necessary for the safety and reliability of the system; elderberry have been observed growing within tower structures and causing stress to towers that could lead to structural failure (Figure 2-1). This is a serious public safety and environmental issue. The consequences of structural failure include



**FIGURE 2-1. ELDERBERRY CAUSING STRESS TO TOWER 9/4,
ELVERTA-HURLEY TRANSMISSION LINE**

- Fire (to structures and vegetation),
- Loss of electricity to customers (with attendant effects on emergency services and other public infrastructure), and
- Habitat destruction resulting from gaining access to towers and conductors as part of an emergency action (Figure 2-2).

Conservation guidelines for the VELB (USFWS 1999) prescribe minimization ratios as listed in Table 2-1.

A survey conducted in January and February, 2002, identified elderberry bushes for removal along Western's ROWs and counted stems according to protocols described in the Conservation Guidelines for the VELB (USFWS 1999). A follow-up survey conducted in April 2004 refined these numbers based on the latest site conditions. Results of these surveys and required mitigation are summarized in Table 2-2.

The total elderberry mitigation stems listed in Table 2-2 assumes 100 percent of elderberry stems would be transplanted. Because of concern for safety in working with equipment near transmission lines and the structural integrity of towers, Western may not be able to transplant all elderberry shrubs, and therefore be required to double mitigation for untransplanted stems.



**FIGURE 2-2. ELDERBERRY AND OTHER VEGETATION
BLOCKING TOWER ACCESS**

Table 2-2. Summary of Required VELB Mitigation

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

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

Western will evaluate each shrub at the time of removal to determine whether transplant is feasible. Western would add 2.8 acres to the 18.8 acres of compensation area calculated in Table 2-2 to account for 15 percent of plants, with various stem sizes, that would not be feasible to transplant. In addition, Western would perform compensation to cover incidental take of up to 10 elderberry shrub clusters per year as well as trimming elderberry above the 10-ft level. Western would set aside an additional 5 acres for this compensation over the 20-year term of the 1998 programmatic BO (USFWS 1998). The total size of the compensation area under the proposed action is 26.6 acres. If, due to funding or other constraints, Western scales back its maintenance program and decides not to remove some shrubs, the compensation acreage would be adjusted accordingly.

2.3. DESCRIPTION OF AREA TO BE MITIGATED

A breakdown of locations of stems proposed for removal is shown in Table 2-3.

2.4. MITIGATION ACTIONS

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

- 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.

More detailed information, including the project schedule, is provided in the Memorandum of Understanding.

A total of 411 of the 422 stems to be removed under the Proposed Action are located in the American River Parkway within 3 miles of the mitigation area.

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

Table 2-3. Stems Proposed for Removal, Listed by Tower

Line and Tower	Stem Diameter (in inches)	Riparian		Non-Riparian	
		Exit Holes	No Exit Holes	Exit Holes	No Exit Holes
Elverta-Hurley 9/4	≥ 1 & ≤ 3	10			
	> 3 & < 5	9			
	≥ 5	7			
Elverta-Hurley 9/5	≥ 1 & ≤ 3	14	22		
	> 3 & < 5	16	0		
	≥ 5	3	0		
Elverta-Hurley 10/1	≥ 1 & ≤ 3	13			
	> 3 & < 5	8			
	≥ 5	5			
Hurley-Tracy 10/5	≥ 1 & ≤ 3	23	21		
	> 3 & < 5	12	19		
	≥ 5	0	1		
Elverta-Hurley 10/6	≥ 1 & ≤ 3		3		
	> 3 & < 5		4		
	≥ 5		0		
Elverta-Hurley 11/A	≥ 1 & ≤ 3	3	4		
	> 3 & < 5	2	4		
	≥ 5	2	3		
Elverta-Hurley 11/B	≥ 1 & ≤ 3	21			
	> 3 & < 5	13			
	≥ 5	15			
Hurley-Tracy 11/2	≥ 1 & ≤ 3	16			
	> 3 & < 5	19			
	≥ 5	8			
Hurley-Tracy 11/3	≥ 1 & ≤ 3	7	89		
	> 3 & < 5	1	13		
	≥ 5	0	1		
Folsom-Roseville 0/1	≥ 1 & ≤ 3				6
	> 3 & < 5				3
	≥ 5				0
Folsom-Nimbus 0/8	≥ 1 & ≤ 3		2		
	> 3 & < 5		0		
	≥ 5		0		
Total		227	186	0	9

The proposed mitigation would enhance opportunities for survival of the VELB for the following reasons (Holyoak, 2004, pers. commun.):

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

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