

Memorandum

Date : October 2, 1998

To : Naser J. Bateni, Chief
Northern District

From : Gail Kuenster
Northern District
Department of Water Resources

Subject: Offstream Storage Reservoir Surveys for the Valley Elderberry Longhorn Beetle

The valley elderberry longhorn beetle was listed by the U.S. Fish and Wildlife Service as threatened, with Critical Habitat on August 10, 1980. (Federal Register 45:52803-52807) The beetle is endemic to riparian systems along the margins of rivers and streams, occasional seeps, and in adjacent grassy savannas in the Sacramento and San Joaquin Valleys. VELB feeds on species of elderberry (Sambucus spp.). Eggs are deposited in crevices of the bark of living plants. The larvae bore into the pith of the larger elderberry stems where the majority of the animal's life span is spent. Following pupation, the adult beetle opens an emergence hole in the bark through which it exits. VELB emergence holes have been observed in shoots or branches with diameters as small as 0.5 inches (13mm) but are more common in older branches. (Barr 1991, USFWS 1984)

Methods

Surveys focused on identifying potential habitat for VELB and the presence or absence of emergence holes. According to Jones and Stokes (1986) "potential VELB habitat is defined by the presence of mature and immature elderberry shrubs (Sambucus spp.)." Surveys began in January 1998 and continued throughout the spring and summer. Because of the sparseness of riparian habitat within the Sites, Colusa, and Thomes-Newville Reservoir areas, aerial photos were used to determine which drainages or portions thereof were to be checked. Within the Red Bank Project Reservoir areas, all drainages were or are to be checked for the presence of elderberry plants.

The location of all elderberry plants measuring one inch or more at ground level were mapped according to mitigation guidelines set by the USFWS. The presence or absence of emergence holes was noted. Growth forms of elderberrys throughout the project area are varied. A stand may consist of a single individual with multiple trunks, several individuals growing in close proximity, or a tree-like individual with a single large trunk. Multiple trunks were counted as individual stems if it was apparent that the branching was off the root mass and exposed due to recent erosion. This method of counting individual stems and not the number of individual stands is consistent with guidelines sent by the USFWS. Photos were

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taken of the various types of individuals. Table 1 lists the percent of each proposed reservoir area that has been surveyed, the number of stems at each site, and the percentage of stems with emergence holes.

Results

Sites Reservoir Area - Surveys for VELB at the proposed Sites Reservoir area are approximately 95 percent complete. Six hundred thirty-two stems have been counted with emergence holes found in only 4.5 percent of the individuals. The plants within this area tend to be individuals with multiple trunks.

Colusa Cell Area - Surveys for VELB at the proposed Colusa cell of the Colusa Reservoir area are 95 percent complete. Only one stand of elderberry was found consisting of 38 stems. No emergence holes were found.

Thomes-Newville Reservoir Area - Surveys for VELB at the proposed Thomes-Newville Reservoir area are 75 percent complete. Three hundred twenty-seven stems have been counted. Emergence holes have been found in only 8.5 percent of the individuals. The plants at this site tend to be both multiple trunked and single-trunked older individuals.

Red Bank Project

Dippingvat Reservoir Area - Surveys are complete at the Dippingvat Reservoir site. Two hundred fifty individuals were counted, with emergence holes found in less than one percent of the stems. Individuals at this site tend to be older with a single trunk.

Bluedoor and Lanyan Reservoir Areas - Surveys are complete at these reservoir sites. No elderberry plants were found and thus no habitat for the beetle exists at this time. However, because potential habitat for elderberry plants does exist, this area will need to be resurveyed in the future in accordance with USFWS guidelines.

Schoenfield Reservoir Area - Surveys are continuing at the Schoenfield Reservoir site with approximately 30 percent of the area surveyed. Two hundred ten stems have been counted. No emergence holes have been found.

These data are summarized in Table One.

Table 1. Survey data for the valley elderberry longhorn beetle at the proposed westside offshore storage reservoir sites.

Reservoir	Percent Surveyed	Number of elderberry stems	Percentage of stems with emergence holes
Sites	95%	632	4.5%
Colusa Cell	95%	38	0
Thomes/Newville	70%	327	8.5%
Red Bank Project	75%	460	1%

Mitigation Guidelines

Guidelines have been issued by the USFWS in developing measures to mitigate for adverse effects on VELB if complete avoidance is not possible. Surveys are valid for a period of two years. Elderberry plants are to be transplanted if they cannot be avoided. However, at the discretion of the USFWS, a plant that would be extremely difficult to move because of access problems may be exempted from transplantation (USFWS 1996). Planting of additional seedling or cuttings may be required under the mitigation guidelines and is determined by the absence or percentage of elderberry plants with emergence holes found in the project area. Elderberry plants with no beetle exit holes are planted at a ratio of 2:1, elderberry plants with beetle holes in 50 percent or fewer of the plants are planted at a ratio of 3:1, and elderberry plants with beetle holes in more than 50 percent of the plants are planted in the ratio of 5:1. In addition, a mix of native plants associated with the elderberry shrubs at the project site are to be planted at a ratio of at least one specimen of native tree and shrub species for every elderberry plant.

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Mitigation will be required for the loss of all elderberry stems measuring one inch or more at ground level. The Colusa cell area had the least number of individuals and less suitable habitat, thus mitigation would be minimal for this reservoir area. Sites and Thomes-Newville Reservoir will require extensive replanting of elderberry plants and/or planting of seedlings or cuttings. Many of the plants in these areas are accessible and could be replanted. In the Red Bank project area, the number of individuals counted thus far is much less. However, the number of individuals will probably double after the Schoenfield Reservoir surveys are complete. The plants at Dippingvat Reservoir are mostly large and inaccessible for replanting. Much of the Schoenfield Reservoir would also be difficult for transplanting individuals.

References

- Barr, C. B. 1991. *The distribution, habitat, and status of the valley elderberry longhorn beetle Desmocerus californicus dimorphus*. U.S. Fish and Wildlife Service, Sacramento, California.
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