

**SACRAMENTO MUNICIPAL UTILITY DISTRICT
UPPER AMERICAN RIVER PROJECT
(FERC NO. 2101)**

**IOWA HILL PUMPED STORAGE DEVELOPMENT
VALLEY ELDERBERRY LONGHORN BEETLE
TECHNICAL REPORT**

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Description

- Iowa Hill Valley Elderberry Longhorn Beetle Study Plan

11.14 Valley Elderberry Longhorn Beetle Study Plan

11.14.1 Pertinent Issue Questions

This study addresses the following terrestrial resource questions for the proposed Iowa Hill Pumped Storage Development Project, as identified by the Upper American River Project (UARP) Relicensing Terrestrial Resources Technical Working Group (TWG) and as adapted from previously approved UARP studies:

- What is the distribution of elderberry (*Sambucus spp.*) within the area to be affected by the proposed Iowa Hill Development?
- To what extent will the valley elderberry longhorn beetle (VELB) be affected by development and operation of the proposed Project?

11.14.2 Background

The VELB, a federally listed threatened species, ranged historically throughout the Central Valley, extending up river canyons in the Sierra Nevada foothills to an elevation of about 3,000 feet. Project construction and operation could affect any elderberry plants in the project area that support VELB. VELB are obligate-users of elderberry (*Sambucus spp.*) plants during their larval stage. The beetle's use of elderberry is not readily apparent; often the only exterior evidence is an exit hole created by the larvae just prior to pupation. The life cycle takes one or two years to complete with most of that time spent as larvae living within the stems of the plant. Adults generally emerge from late March through June, and adults are short-lived. The U.S. Fish and Wildlife Service (USFWS) has issued specific conservation guidelines for the VELB that include survey protocols and measures for avoiding, protecting, restoring, and monitoring impacted VELB habitat (USFWS 1999). These guidelines apply to elderberry plants with one or more stems measuring 1.0-inch or greater in diameter at ground level that may be directly or indirectly impacted by the construction or operation of a project. All elderberry plants with stems that meet the 1.0-inch-diameter threshold on, or adjacent to, a project site must be thoroughly searched for beetle exit holes and the number of stems tallied by diameter size class for determination of compensation ratios. Elderberry plants lacking stems 1.0-inch or greater in diameter at ground level are considered unsuitable for use by VELB and are not protected under the guidelines. Surveys are valid for a period of two years.

11.14.3 Study Objectives

The objectives of the VELB study are: 1) to determine the distribution of elderberry plants within the Project area; 2) to assess the potential for the Project to affect these plants; and 3) apply USFWS protection and/or compensation protocols (USFWS 1999) where direct or indirect adverse impacts to elderberry plants may occur as a result of Project construction, operation, or maintenance.

11.14.4 Study Area and Sampling Sites

The VELB Study Area includes: 1) the entire footprint of the proposed Iowa Hill pump storage facility and intake structure and the area within 100-feet (i.e., per USFWS Protocols for buffer zones) of this footprint; and 2) a 100-foot wide corridor on each side of the proposed transmission line right-of-way centerline. Note: the entire Project Area lies at or below the 3,000-foot upper elevation limit for the VELB as identified by the USFWS survey protocol.

11.14.5 Information Needed From Other Studies

The locations of elderberry plants will be determined in-part by observations made by botanical field crews while performing surveys for special status plants, noxious weeds, and wetlands.

11.14.6 Study Methods and Schedule

Ground surveys for elderberry plants will be performed by field crews during the spring/summer 2004 flowering season for the species. Plants will be located by surveyors on foot within reasonable limits of safety. The locations

of all elderberry plants observed will be recorded using Global Positioning System (GPS) units where satellite reception is adequate, or plotted on aerial photos or field maps where reception is inadequate. For each elderberry location a qualitative assessment will be made of potential threats to the plant, distinguishing between Project- and non-Project influences. All elderberry plants with stems greater than 1.0-inch diameter will be inspected for use by VELB according to the USFWS protocols. These protocols include: 1) a thorough inspection of the affected plants for beetle exit holes; 2) a complete count (tallied by diameter size class; Table 1 in USFWS protocols) of all stems one inch or greater in diameter at ground level on affected plants; and 3) noting if a plant lies in a riparian or non-riparian area. These data are used to determine the type and extent of compensation required including avoidance, protection, transplanting, and replacement planting of elderberry seedlings/cuttings and associated native riparian trees/shrubs.

11.14.7 Analysis

Data collected in the study and proposed plans for Project-related construction, operation and maintenance will be used to determine the potential for direct or indirect impacts on elderberry plants located during field surveys. As stated above, USFWS protocols for VELB inspections and protection/compensation measures will be implemented for all plants determined to be adversely affected by the Project.

11.14.8 Study Output

Study results will be presented to the Terrestrial Resources Technical Working Group (TWG) during early summer. Ultimately, the results of the study will be incorporated into Exhibit E of the Licensee's application to FERC for a new license for the UARP. The output will likely include the issues addressed, objectives, study area, methods, analysis, results (elderberry locations to be plotted on a GIS-layer for overlay on the UARP vegetation map), discussion, and conclusions.

11.14.9 Technical Working Group Endorsement

This study plan was approved by the Terrestrial TWG via emails and faxes from the following entities: USFS (03/19/04), USFWS (03/19/04), CDFG (03/15/04) and SMUD. There have been no comments received from any Participant that they could not "live with" the study plan.

The study plan was approved by the Plenary Group on April 7, 2004 without modification. There was no one present at the meeting who objected to the study plan going forward for implementation.

11.14.10 Literature Cited

SMUD (Sacramento Municipal Utility District). 2003. Iowa Hill Pumped Storage Development Project Initial Information Package, revision 1. Sacramento, CA.

USFWS (U.S. Department of the Interior, Fish and Wildlife Service). 1999. Conservation guidelines for the valley elderberry longhorn beetle. U.S. Department of the Interior, Fish and Wildlife Service. Sacramento. July 9, 1999. 13 pp.

IOWA HILL PUMPED STORAGE DEVELOPMENT VALLEY ELDERBERRY LONGHORN BEETLE TECHNICAL REPORT

SUMMARY

This technical report provides the results of surveys for elderberry (*Sambucus* sp.), host plant for the valley elderberry longhorn beetle (VELB), a federally-listed threatened species, at the Iowa Hill Development, including the reservoir footprint, transmission line corridor, intake structure, and ancillary facilities. The study plan directed implementation of U.S. Fish and Wildlife Service (USFWS) conservation guidelines for VELB that include survey protocols and measures for avoiding, protecting, restoring, and monitoring impacted VELB habitat (USFWS 1999). Surveys were performed on foot during the spring/summer 2004 flower season for elderberry. No elderberry plants or clumps were found in the study area during these surveys.

1.0 INTRODUCTION

This technical report is one of a series of reports prepared by Devine Tarbell & Associates, Inc., (DTA) for the Sacramento Municipal Utility District (SMUD) as an appendix to SMUD's application to the Federal Energy Regulatory Commission (FERC) for a new license for the Upper American River Project (UARP or Project). The report addresses the valley elderberry longhorn beetle (VELB; *Desmocerus californicus dimorphus*), a federally-listed Threatened species, within the Iowa Hill Development study area and includes the following sections:

- **BACKGROUND** – Summarizes the applicable study plan approved by the UARP Relicensing Plenary Group; a brief description of the issue questions addressed, in part, by the study plan; the objectives of the study plan; the study area, and agency information requests. In addition, requests by resource agencies for additions to this technical report are described in this section.
- **METHODS** – A description of the methods used in the study, including a listing of study sites.
- **RESULTS** – A description of the data obtained during the study.
- **ANALYSIS** - An analysis of the results, where appropriate.
- **LITERATURE CITED** – A listing of all literature cited in the report.

This technical report does not include a detailed description of the UARP Alternative Licensing Process (ALP) or of the UARP, which can be found in the following sections of SMUD's application for a new license: The UARP Relicensing Process, Exhibit A (Project Description), Exhibit B (Project Operations), and Exhibit C (Construction).

Also, this technical report does not include a discussion of the effects of the Iowa Hill Development or the UARP on VELB and related environmental resources, nor does the report include a discussion of appropriate protection, mitigation and enhancement (PM&E) measures. An impacts discussion regarding the Iowa Hill Development and UARP is included in the applicant-prepared preliminary draft environmental assessment (PDEA) document, which is part of SMUD's application for a new license. Development of resource measures will occur in settlement discussions, which will commence in early 2004, and will be reported in the PDEA.

2.0 BACKGROUND

2.1 Iowa Hill Valley Elderberry Longhorn Beetle Study Plan

The VELB, a Federally-listed threatened species, historically ranged throughout the Central Valley, extending up river canyons in the Sierra Nevada foothills to an elevation of about 3,000 feet. VELB are obligate users of elderberry (*Sambucus* spp.) plants during their larval stage. The beetle's use of elderberry is not readily apparent; often the only exterior evidence is an exit hole created by the larvae just prior to pupation. The life cycle takes one or two years to complete with most of that time being spent as larvae living within the stem of the plant. Adults generally emerge from late March through June, and are short-lived. The U.S. Fish and Wildlife Service (USFWS) has issued specific conservation guidelines for the VELB that include survey protocols and measures for avoiding, protecting, restoring, and monitoring impacted VELB habitat (USFWS 1999). These guidelines apply to elderberry plants with one or more stems measuring 1.0-inch or greater in diameter at ground level that may be directly or indirectly impacted by the construction or operation of a project. All elderberry plants with stems that meet the 1.0-inch-diameter threshold on, or adjacent to, a project site must be thoroughly searched for beetle exit holes and the number of stems tallied by diameter size class for determination of compensation ratios. Elderberry plants lacking stems 1.0-inch or greater in diameter at ground level are considered unsuitable for use by VELB and are not protected under the guidelines. Surveys are valid for a period of two years.

Project construction and operation could potentially affect any elderberry plants that may exist in the project area that support VELB. In response to the status and protections afforded VELB under the Federal Endangered Species Act, the UARP Terrestrial Resources Technical Working Group (TWG) developed the Iowa Hill Valley Elderberry Longhorn Beetle Study Plan. This plan was approved initially by the Terrestrial Resources TWG via emails and faxes from the following entities: U.S. Forest Service (March 19, 2004), USFWS (March 19, 2004), California Department of Fish and Game (March 15, 2004), and SMUD. The study plan was approved by the Plenary Group on April 7, 2004, without modification. The study plan was designed to address, in part, the following issues questions developed by the Plenary Group:

Issue Question: What is the distribution of elderberry (*Sambucus* spp.) within the area to be affected by the proposed Iowa Hill Development?

Issue Question: To what extent will the valley elderberry longhorn beetle be affected by development and operation of the proposed Project?

Based on a review and discussion of the initial issue questions, the Terrestrial Resources TWG developed the following study objectives:

1. Determine the distribution of elderberry plants within the study area.
2. Assess the potential for the Project to affect these plants.

3. Apply USFWS protection and/or compensation protocols (USFWS 1999) where direct or indirect adverse impacts to elderberry plants may occur as a result of UARP construction, operation, or maintenance.

As noted above, this technical report does not address impacts to VELB, and accordingly, does not address the Issue Question or Objectives pertaining to the potential impacts of the construction, operation and maintenance of the proposed Iowa Hill Development on VELB and their habitat. The settlement negotiations group will assess impacts during settlement discussions.

The Iowa Hill Development VELB Study Area includes: 1) the entire footprint of the proposed Iowa Hill pump storage facility and intake structure and the area within 100-feet (i.e., per USFWS Protocols for buffer zones) of this footprint; and 2) a 100-foot wide corridor on each side of the proposed transmission line right-of-way centerline. Note: the entire Project Area lies at or below the 3,000-foot upper elevation limit for the VELB as identified by the USFWS survey protocol (Figure 2.1-1; Appendix A).

2.2 Agency Requested Information

In a letter dated December 17, 2003, to SMUD, the agencies identified, by study, information they believed they needed to begin settlement discussions, with the understanding that additional information might be requested. While the Iowa Hill Development Valley Elderberry Longhorn Beetle Study was not specifically addressed, the agencies following general comment regarding terrestrial studies is pertinent:

- All studies will need GIS shape files showing habitat/vegetation types and spatial relationships with meta-data.
- Shape files will need to include survey locations and positive sightings/responses.
- Spreadsheet formats that include: bats, bald eagle/osprey, mesocarnivores, goshawks, California spotted owl, willow flycatcher, rare plants, noxious weeds.
 - Location
 - Date
 - Species observed/captured and specific UTM coordinates
 - Habitat composition
 - On site (In situ) verification of WHR habitat types
 - Method of capture
 - Nest locations
 - Activity centers

The survey area is shown graphically in Figure 2.1-1 (Appendix A).

3.0 METHODS

3.1 Elderberry Surveys

Qualified biologists performed surveys for elderberry (*Sambucus* spp.) plants in the study area during the May – July flowering season of 2004. Biologists surveyed for plants on foot within reasonable limits of safety. Surveys for elderberry plants were also supplemented by observations made by botanical field crews while performing surveys for special status plants, noxious weeds, and wetlands.

4.0 RESULTS

4.1 Elderberry Surveys

No federally-designated critical habitat for VELB occurs in the UARP vicinity and no elderberry plants were found in the study area.

5.0 ANALYSIS

5.1 Known Threats to VELB Persistence

Documented threats to persistence of the VELB include habitat loss and fragmentation, pesticide and herbicide use, and egg predation by the exotic Argentine ant (*Linepithema humile*) (USFWS 1984; Huxel 2000; Collinge et al. 2001). Riparian forests, the primary habitat of VELB, have been severely depleted within the species' range over the last two centuries as a result of expansive agricultural and urban development (Thompson 1977; Katibah 1984; USFWS 2003). There is no comparable information on loss of non-riparian VELB habitat such as elderberry savanna, mixed chaparral-woodlands, or grasslands adjacent to riparian habitat, which would be more characteristic of elderberry locations in the study area.

6.0 LITERATURE CITED

Collinge, S. K., M. Holyoak, J. T. Marty, and C. B. Barr. 2001. Riparian habitat fragmentation and population persistence of the threatened Valley Elderberry Longhorn Beetle in central California. *Biological Conservation* 100:103-113.

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USFWS. 1984. Recovery plan for the valley elderberry longhorn beetle. U.S. Department of the Interior, Fish and Wildlife Service, Endangered Species Program, Portland, Oregon.

USFWS. 1999. Conservation guidelines for the valley elderberry longhorn beetle. U.S. Department of the Interior, Fish and Wildlife Service. Sacramento. July 9, 1999. 13p.

USFWS. 2003. Formal endangered species consultation on the Pacific Gas and Electric Company Transmission Separation Project. U.S. Department of the Interior, Fish and Wildlife Service. Sacramento. June 27, 2003.

APPENDIX A

IOWA HILL PUMPED STORAGE DEVELOPMENT PROJECT AREA

