Low-Effect Habitat Conservation Plan for Valley Elderberry Longhorn Beetle for the University of California, Davis 2001–2002 Campus Projects

Prepared for:

University of California, Davis
Planning and Budget Office
376 Mark Hall
One Shields Avenue
Davis, CA 95616
Contact: A. Sidney England, Environmental Planner
530/752-2432

Prepared by:

Jones & Stokes
2600 V Street
Sacramento, CA 95818-1914
Contact: Jim Estep, Project Manager
916/503-6681

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Contents

Section 1 Introduction .................................................................................................................. 1
  Background .............................................................................................................................. 1
  Organization of the Habitat Conservation Plan ................................................................. 2

Section 2 Planning Context and Planning Area ...................................................................... 3
  Regulatory Framework ......................................................................................................... 3
    Federal Endangered Species Act ...................................................................................... 3
    The Section 10 Process – Habitat Conservation Plan Requirements and Guidelines ...... 4
    National Environmental Policy Act .................................................................................. 5
  Project Description ............................................................................................................. 6
    Regional Location ............................................................................................................ 6
    Project Sites and Surrounding Land Uses ........................................................................ 6

Section 3 Biological Setting .................................................................................................... 10
  Characteristics of the Project Sites and Surrounding Lands ........................................... 10
  VELB Life History and Occurrence .................................................................................... 10
    Status and Distribution .................................................................................................... 10
    Habitat Characteristics ..................................................................................................... 11
    Habitat Use ....................................................................................................................... 12
    Occurrence in the Project Area and Project Sites ............................................................ 12

Section 4 Conservation Strategy ............................................................................................ 16
  Effects of the Proposed Projects on VELB ......................................................................... 16
  Avoidance, Minimization, and Compensation ................................................................ 17
    Avoidance ........................................................................................................................ 17
    Minimization and Compensation ..................................................................................... 19
    Biological Goals and Objectives ...................................................................................... 23
    Mitigation Area ................................................................................................................ 23
    Relocation ........................................................................................................................ 26
    Replacement Planting ....................................................................................................... 27
    Irrigation Specifications .................................................................................................... 28
    Maintenance of VELB Mitigation Site .............................................................................. 29

Section 5 Plan Implementation ............................................................................................... 30
  Responsibilities .................................................................................................................... 30
  Scope ................................................................................................................................... 30
  Permit Duration ................................................................................................................... 30
  Permit Holder/Permit Boundary .......................................................................................... 30
Monitoring ...........................................................................................................31
Performance and Success Criteria .................................................................32
Access ................................................................................................................32
Reporting ............................................................................................................32
Unforeseen/Changed Circumstances/No Surprises ........................................33
  Summary of Circumstances ........................................................................34
Adaptive Management .....................................................................................37
Funding .................................................................................................................38
Revisions and Amendments .........................................................................39
  Revisions (Changes to the HCP Not Requiring Amendment of the Plan or Incidental Take Permits) ..........39
  Amendments to the HCP ............................................................................40
  Amendments to the Section 10(a)(1)(B) Permits ..................................41
Suspension/Revocation ..................................................................................41
Alternatives Considered ...............................................................................42
  Alternative 1: No-Action Alternative .........................................................42
  Alternative 2: Alternative Sites Alternative .............................................42
  Alternative 3: Reduced Project Alternative .............................................43

Section 6 Citations ..........................................................................................44
Printed References ..........................................................................................44
Personal Communications .............................................................................46

Appendix A. Results of Sensitive Species Surveys for the NEES Centrifuge Building Project

Appendix B. Results of VELB Habitat Surveys for the Electrical Phase 2B Project

Appendix C. Correspondence with USFWS Regarding Possible Effects on VELB

Appendix D. Technical Assistance on the Proposed Construction of the Genome Launch Facility

Appendix E. Declaration of Restrictions
Tables and Figures

Table

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Number of Shrubs/Shrub Clusters Affected by Project Activities on Each Project Site and Number of Stems Greater than 1 Inch for Each Shrub</td>
</tr>
<tr>
<td>2</td>
<td>Compensation Ratios Based on USFWS Conservation Guidelines for VELB, July 9, 1999</td>
</tr>
<tr>
<td>3</td>
<td>Total Compensation Required for 2001-2002 Campus Projects</td>
</tr>
</tbody>
</table>

Figure

<table>
<thead>
<tr>
<th>Figure</th>
<th>Follows Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>University of California, Davis</td>
</tr>
<tr>
<td>2</td>
<td>Location of the Project Sites on the UC Davis Campus</td>
</tr>
<tr>
<td>3</td>
<td>Location of Elderberry Shrubs on the Genome Launch Facility Project Site</td>
</tr>
<tr>
<td>4</td>
<td>Location of Elderberry Shrubs on the Cole Facility Project Site</td>
</tr>
<tr>
<td>5</td>
<td>Location of Elderberry Shrubs on the Center for Companion Animal Health Facility Project Site</td>
</tr>
<tr>
<td>6</td>
<td>Location of Russell Ranch Mitigation Sites</td>
</tr>
</tbody>
</table>
Section 1

Introduction

Background

The Board of Regents of the University of California (the Regents) is currently in the planning or design phases of numerous capital improvement and maintenance projects at the University of California, Davis (UC Davis) campus. Among the projects scheduled for construction in fiscal year 2001–2002 are five projects that could potentially affect valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) (VELB), a species listed as threatened under the federal Endangered Species Act (ESA). These projects are:

- **Genome Launch Facility.** This project includes construction of an approximately 21,000-square-foot laboratory building.

- **Cole Facility Stormwater Improvements.** This project consists of implementing stormwater drainage improvements at the Cole Facility.

- **Center for Companion Animal Health (CCAH).** This project includes construction of an approximately 10,000-square-foot veterinary medicine building and parking lot.

- **NEES Centrifuge Support Building.** This project includes construction of a 4,720 square-foot support building adjacent to the existing centrifuge building.

- **Phase 2B Electrical Improvement Project.** This project includes upgrading approximately 2 miles of the campus electrical distribution lines west of State Route 113.

As a condition of these and other project approvals, UC Davis has committed to (1) conducting project-specific surveys of VELB habitat; (2) avoiding and protecting VELB habitat where feasible; and (3) where avoidance is infeasible, developing and implementing a VELB mitigation plan in accordance with the most current U.S. Fish and Wildlife Service (USFWS) Compensation guidelines (USFWS 1999) for unavoidable take of VELB, pursuant to Section 10(a) of the ESA.
May & Associates conducted project-specific surveys of potential VELB habitat at the Genome Launch Facility, Cole Facility, NEES Centrifuge facility, and Phase 2B Electrical Improvement project sites between February and October 2001 (May & Associates 2001a, b, c, and d). Jones & Stokes conducted project-specific surveys of potential VELB habitat at the CCAH facility site in October 2001 (Jones & Stokes 2001). The results of these surveys are summarized in Section 3 (Biological Setting). The surveys determined that a total of 12 elderberry shrubs (Sambucus mexicana), the host plant for VELB, occur in the proposed project areas and could be affected by project activities. According to USFWS, all elderberry shrubs in the Central Valley with stems more than 1 inch in diameter at ground level must be considered potential habitat for VELB. This habitat conservation plan (HCP) was prepared to minimize project-related impacts on VELB and to provide information necessary for seeking an incidental take permit under Section 10(a) of the ESA.

**Organization of the Habitat Conservation Plan**

This HCP is divided into six sections that are generally based on recommendations in the *Habitat Conservation Planning Handbook* (U.S. Fish and Wildlife Service and National Marine Fisheries Service 1996) (HCP Handbook). Section 1 is the introduction. Section 2 describes the regulatory framework, proposed project, and land uses within and surrounding the planning area. Section 3 describes the biological setting within and surrounding the planning area and discusses the legal status, distribution, and life history of VELB. Section 4 describes the conservation strategy for VELB on each of the project sites, including an impact assessment and mitigation measures. Section 5 describes implementation of the HCP, including responsibilities, monitoring, and estimated levels of incidental take. Section 6 presents the citations used in preparing this HCP.
Regulatory Framework

Federal Endangered Species Act

The ESA and its implementing regulations prohibit the take of any fish or wildlife species that is federally listed as threatened or endangered without prior approval pursuant to either Section 7 or Section 10(a)(1)(B) of the Act. ESA defines take as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” Federal regulation 50 CFR 17.3 further defines the term harm in the take definition to mean any act that actually kills or injures a federally listed species, including significant habitat modification or degradation.

Section 10(a) of the ESA establishes a process for obtaining an incidental take permit, which authorizes nonfederal entities to incidentally take federally listed wildlife or fish subject to certain conditions. Incidental take is defined by ESA as take that is “incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.” Preparation of a conservation plan, generally referred to as an HCP, is required for all Section 10(a) permit applications. USFWS and the National Marine Fisheries Service (NMFS) have joint authority under the Endangered Species Act for administering the incidental take program. NMFS has jurisdiction over anadromous fish species, and USFWS has jurisdiction over all other fish and wildlife species.

Section 7 of the ESA requires all federal agencies to ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any species listed under the ESA, or to result in the destruction or adverse modification of its habitat. Technically, the issuance of an incidental take permit is an authorization for take by a federal agency; consequently, in conjunction with issuing a permit, USFWS must conduct an internal Section 7 consultation on the proposed HCP. The internal consultation is conducted after an HCP is developed by a nonfederal entity (e.g., University of California) and submitted for formal processing and review. Provisions of Sections 7 and 10 of the ESA are similar, but Section 7 requires consideration of several factors not explicitly required by Section 10. Specifically, Section 7 requires consideration of the
indirect effects of a project, effects on federally listed plants, and effects on critical habitat. (ESA requires that USFWS identify critical habitat to the maximum extent that it is prudent and determinable when a species is listed as threatened or endangered.) The internal consultation results in a Biological Opinion prepared by USFWS regarding whether implementation of the HCP will result in jeopardy to any listed species or will adversely modify critical habitat.

The Section 10 Process – Habitat Conservation Plan Requirements and Guidelines

The Section 10 process for obtaining an incidental take permit has three primary phases: (1) the HCP development phase; (2) the formal permit processing phase; and (3) the post-issuance phase.

During the HCP development phase, the project applicant prepares a plan that integrates the proposed project or activity with the protection of listed species. An HCP submitted in support of an incidental take permit application must include the following information:

- impacts likely to result from the proposed taking of the species for which permit coverage is requested;
- measures that will be implemented to monitor, minimize, and mitigate impacts; funding that will be made available to undertake such measures; and procedures to deal with unforeseen circumstances;
- alternative actions considered that would not result in take; and
- additional measures USFWS may require as necessary or appropriate for purposes of the plan.

USFWS has established a special category of HCP, called a low-effect HCP, for projects with relatively minor or negligible impacts. Based on criteria for determining whether a low-effect HCP is appropriate, as described below and in the HCP Handbook, UC Davis believes this HCP qualifies as a low-effect HCP.

Low-effect HCPs are appropriate for projects that will have minor or negligible effects on federally listed, proposed, or candidate species and their habitats that are covered by the HCP and minor or negligible effects on other environmental resources. Implementation of low-effect HCPs and their associated incidental take permits, despite authorization of some small level of incidental take, individually and cumulatively have a minor or negligible effect on the species covered by the HCP. The determination of whether an HCP qualifies for the low-effect category is based on the anticipated impacts of the project prior to implementation of the mitigation plan. The purpose of the low-effect HCP is to expedite handling of HCPs for activities with inherently low impacts; this
category of HCP is not intended for projects with significant potential impacts that are subsequently reduced through mitigation programs.

The HCP development phase concludes and the permit processing phase begins when a complete application package is submitted to the appropriate permit-issuing office. A complete application package for a low-effect HCP consists of an HCP and a permit application and fee from the applicant. USFWS must also publish a Notice of Receipt of a Permit Application in the Federal Register; prepare a Section 7 Biological Opinion; prepare a Set of Findings, which evaluates the Section 10(a)(1)(B) permit application in the context of permit issuance criteria (see below); and prepare an Environmental Action Statement, a brief document that serves as USFWS’s record of compliance with the National Environmental Policy Act (NEPA) for categorically excluded actions (see below). An implementing agreement is not required for a low-effect HCP. A Section 10 incidental take permit is granted upon a determination by USFWS that all requirements for permit issuance have been met. Statutory criteria for issuance of the permit specify that:

- the taking will be incidental;
- the impacts of incidental take will be minimized and mitigated to the maximum extent practicable;
- adequate funding for the HCP and procedures to handle unforeseen circumstances will be provided;
- the taking will not appreciably reduce the likelihood of survival and recovery of the species in the wild;
- the applicant will provide additional measures that USFWS requires as being necessary or appropriate; and
- USFWS has received assurances, as may be required, that the HCP will be implemented.

During the post-issuance phase, the permittee and other responsible entities implement the HCP, and USFWS monitors the permittee’s compliance with the HCP as well as the long-term progress and success of the HCP. The public is notified of permit issuance by means of the Federal Register.

**National Environmental Policy Act**

NEPA requires that federal agencies analyze the environmental impacts of their actions (in this instance, issuance of an incidental take permit) and include public participation in the planning and implementation of their actions. NEPA compliance is obtained through one of three actions: (1) preparation of an environmental impact statement (generally prepared for high-effect HCPs); (2)
preparation of an Environmental Assessment (generally prepared for moderate-effect HCPs); or (3) a categorical exclusion (allowed for low-effect HCPs). The NEPA process helps federal agencies make informed decisions with respect to the environmental consequences of their actions and ensures that measures to protect, restore, and enhance the environment are included, as necessary, as a component of their actions. Low-effect HCPs, as defined in the HCP Handbook, are categorically excluded under NEPA, as specified by the Department of Interior Manual 516DM2, Appendix 1, and Manual 516DM6, Appendix 1.

Project Description

Regional Location

UC Davis is located in Yolo and Solano Counties approximately 72 miles northeast of San Francisco, 15 miles west of Sacramento, and adjacent to the city of Davis. The campus, in general, consists of four units: the Central Campus, the South Campus, the West Campus, and Russell Ranch (Figure 1). The Central Campus is roughly bounded by Russell Boulevard to the north, State Route 113 to the west, Interstate 80 (I-80) and the Union Pacific Railroad tracks to the south, and 1st Street or A Street to the east. The South Campus is south of I-80 and is bordered by the south fork of Putah Creek to the south and by privately owned agricultural land to the west. The West Campus is west of State Route 113 and is bordered by Putah Creek to the south, Russell Boulevard to the north, and private property approximately 0.5 mile west of County Road 98. The South and West Campus units are contiguous with the Central Campus and are used primarily for field teaching and research. The approximately 1,590-acre Russell Ranch lies to the west, separated from the West Campus by approximately 1.5 miles of privately owned agricultural land.

Project Sites and Surrounding Land Uses

The following constitute the covered activities under this HCP.

Genome Launch Facility

The proposed action for the Genome Launch Facility is the construction of an approximately 21,000-square-foot laboratory building. It is located on the Central Campus near Hutchinson Drive (Figure 2). The project entails the following five components.

- Demolishing the existing structures on site.
Figure 2
Location of the Project Sites on the UC Davis Campus
- Constructing the Genome Launch Facility building.
- Extending utilities along existing utility corridors.
- Converting an existing parking area and gravel driveway to landscaping.
- Replacing a paved road with a sidewalk and landscaping.

Surrounding land uses consist of the Transportation and Parking Services office to the east, Extension Center Drive and Parking Lot 30 to the north, the Bowley Plant Sciences Teaching Facility to the west and south, and Hutchinson Drive and several small agricultural buildings to the south. Construction has already begun on the Genome Launch Facility. Through earlier consultation with USFWS (USFWS 2001), UC Davis initially agreed to avoid the shrubs because construction on the facility could occur without affecting potential VELB use of the shrubs. However, because of the level of human activity and the increasing urbanization of the area, USFWS and UC Davis subsequently agreed that relocating the shrubs/clusters, although they would not be affected by the project, would be beneficial for the long-term status of the shrubs and would increase the likelihood of occupancy by VELB.

**Cole Facility**

The proposed action for the Cole Facility involves implementing stormwater improvements, including rain gutters, storm piping, and sewer lines. The Cole Facility is a large animal facility on the Central Campus along the north bank of the former channel of Putah Creek, now the University Arboretum (Figure 2). The purpose of the project is to separate stormwater that does not come into contact with animal wastes from stormwater that does and to send the contact water to the campus wastewater treatment plant rather than to the south fork of Putah Creek via the stormwater drainage system. The project comprises the following three components.

- Installing new rain gutters and downspouts on five buildings in the Cole Facility. This includes buildings D, E, and F; Barn SH; and a building at B Bedding.
- Installing new storm piping to collect rainwater from the downspouts of thirteen roofs. Currently, this roof rainwater runs onto the ground in animal stall areas, and eventually discharges to Putah Creek via the Arboretum Waterway. This installation will divert more than 33,500 square feet of roof rainwater runoff directly into the stormwater system.
- Installing a new sewer line (between buildings E and F) that will drain an existing storm line into the sewer system. This line is being installed because of the proximity of surrounding animal stall areas to the drop inlets, and the need to minimize nonpoint source contamination.
The former creek channel and adjacent areas support some remnant valley oaks (*Quercus lobata*), but most of the understory vegetation was removed decades ago for equestrian research. Very little vegetation exists at the Cole Facility. Surrounding land uses consist of the adjacent University Arboretum to the south and other campus facilities to the west, north, and east. These facilities include the former wastewater treatment plant, now the site of a campus chilled water facility; several parking lots; and Meyer Hall, an important office and research building. Construction of the Cole Facility project is scheduled to begin in spring 2003.

**Center for Companion Animal Health**

The proposed action for the CCAH facility involves construction of a new building and a parking lot in the Health Sciences District of the Central Campus (Figure 2). The proposed building is approximately 10,000 square feet; construction would entail removal of an existing building (the Radiology Barn) and Veterinary Medicine Teaching Hospital pastures currently present on the site. The parking area (Lot 55) would be constructed on approximately 1 acre immediately east of the CCAH building. This lot would be built in two phases, would occupy land currently used for livestock pasture, would replace parking removed by a major infrastructure project serving the Health Sciences District, and would accommodate parking demand generated by growth in the district. Most of the surrounding land use consists of other campus facilities, parking areas, and irrigated pastures. The University Arboretum is just south of the proposed facility. Construction of the CCAH facility is scheduled to begin in August 2002.

**NEES Centrifuge Support Building**

The proposed action for the NEES Centrifuge support building is construction of a 4,720 square-foot building in the Hydrology Lab area along Brooks Drive, southeast of the University Airport on the West Campus (Figure 2). The project site is hard-packed soil covered with gravel. The site is adjacent to the University’s Putah Creek Riparian Preserve, which encompasses the historical channel of Putah Creek. The former creek channel and adjacent area support some remnant valley oaks, but most of the understory vegetation adjacent to the project site was removed decades ago and landscaped for hydrology research and other University activities. Surrounding land uses consists primarily of cultivated agricultural crops and irrigated pasture.
Phase 2B Electrical Improvement Project

The proposed action for the Phase 2B Electrical Improvement Project consists of upgrading the campus electrical distribution lines, mainly west of State Route 113. The project involves replacing approximately 2 miles of electrical distribution lines. The electrical line improvements include pole, conductor, and insulator replacement and other miscellaneous mounting hardware. The entire project is along existing roadways in the West Campus area of UC Davis (Figure 2).

Equipment used for the proposed work includes an auger truck (where poles would be replaced), a bucket truck, and pick-up trucks. There is little or no work between poles. The conductor replacement operation will use the existing conductors to pull the new electric line. A wire truck is positioned at one end of the run to be replaced, and a pull truck is stationed at the other end. Pulleys are placed on top of all poles within the pull length. A single pull can span as many as 20 poles or about 1 mile. Bucket trucks are used to place the pulleys on top of the poles (three for each pole and one for each conductor). Surrounding land use consists of campus facilities, cultivated agricultural crops, and irrigated pastures.
Section 3

Biological Setting

Characteristics of the Project Sites and Surrounding Lands

All five project sites are within an approximately 1-square-mile area of the West and Central Campuses. General characteristics of each site and surrounding land uses are similar. The area is a combination of campus facilities: laboratory and office buildings, recreational facilities, small pastures for livestock grazing, teaching and research fields, roads, and other infrastructure. Putah Creek and the former North Fork of Putah Creek (i.e., University Arboretum) occur in the area and support native valley oaks, Fremont cottonwood (Populus fremontia), and other native trees and shrubs. The North Fork/arboretum does not flow; this section of the Putah Creek channel has been isolated for more than 100 years and has been the campus stormwater detention pond since the 1960s. The University Arboretum also supports numerous nonnative species. Virtually no other native vegetation exists in the vicinity of the proposed projects. In general, the project areas support existing facilities intermixed with lawns, open grassland fields, and ruderal vegetation.

VELB Life History and Occurrence

Status and Distribution

VELB is federally listed as threatened. The species has probably always been of limited abundance (U.S. Fish and Wildlife Service 1984); information on its historic distribution and abundance is scarce. However, the substantial reduction in Central Valley riparian vegetation in the last 150 years suggests that the beetle’s range has contracted and that remaining populations are discontinuous (U.S. Fish and Wildlife Service 1984). Recent work by Collinge et al. (2001) suggests that VELB occurs in drainages that function as distinct, relatively isolated metapopulations.
VELB was first described in 1921 from specimens collected in Sacramento (U.S. Fish and Wildlife Service 1984). By 1984, VELB was known from only three Central Valley drainages: the Merced River, Putah Creek, and the American River. Additional field surveys in the 1980s detected new locations of VELB through collections of adult beetles or observations of emergence (exit) holes in elderberry stems (Sambucus sp.). The new locations included the Yuba, American, Cosumnes, Sacramento, Mokelumne, Calaveras, San Joaquin, Tuolumne, Stanislaus, and Merced River drainages. More recent studies (Collinge et al. 2001, Huxel and Collinge in press) describe additional occurrences along smaller drainages in the Sacramento Valley. To date, no range-wide surveys of VELB have been conducted and therefore the data regarding the range distribution of the species, as well as the local distribution, are incomplete.

VELB’s range extends throughout the Central Valley and associated foothills from about the 3,000-foot elevation contour on the east to the watersheds of the Central Valley on the west (U.S. Fish and Wildlife Service 1999).

Because the information on VELB population and distribution is limited, it is not possible to accurately assess the species’ population status. However, based on the extent of habitat loss in the Central Valley, it is likely that populations have declined.

**Habitat Characteristics**

VELB is closely associated with elderberry shrubs (Sambucus sp.), an obligate host for beetle larvae (Barr 1991, USFWS 1999). Blue elderberry is considered a typical riparian shrub (Roberts et al. 1977, Katibah et al. 1984, Warner 1984) in California. It is a hardy shrub that successfully grows in a variety of riparian habitat types. Along Dry Creek in Sonoma County, it occurs at different elevations of the floodplain but is most prominent at the higher elevations (McBride and Strahan 1984). In a study of Sacramento Valley riparian vegetation, Conard et al. (1977) found that blue elderberry occurs mainly at an intermediate level in the floodplain in association with box elder (Acer negundo) and buttonbush (Cephalanthus occidentalis). In another study conducted along the Sacramento River (Jones & Stokes Associates 1987), elderberries were found with VELB emergence holes (7-10mm in diameter) in four types of overstory situations:

- young-growth riparian stands of cottonwoods and willows on the lower terrace;
- stands of mature and senescent cottonwoods on the lower terrace;
mature riparian stands of mixed tree species, including cottonwood, box elder, northern California walnut (*Juglans hindsii*), and valley oak on the higher terrace; and

sites without an overstory in both higher and lower terrace areas.

In a study along the lower American River (Jones & Stokes Associates 1995), elderberries were found with VELB emergence holes in vegetation types characterized as montane riparian, south-slope oak woodland, grassland, and rocky ruderal. Where there is a source of water, elderberry shrubs grow in nonriparian habitats, as at the project site; however, most VELB occurrences are known from elderberries within or adjacent to riparian habitats.

### Habitat Use

VELB’s life history is assumed to follow a sequence of events similar to those of related taxa. Female beetles deposit eggs in crevices in the bark of living elderberry plants. Presumably, the eggs hatch shortly after they are laid and the larvae bore into the pith of the trunk or stem. When larvae are ready to pupate, they move through the pith of the plant, open an emergence hole through the bark, and return to the pith for pupation. Adults exit through the emergence holes and can sometimes be found on elderberry foliage, flowers, or stems or on adjacent vegetation. The entire life cycle of VELB is thought to encompass 2 years from the time eggs are laid and hatch until adults emerge and die (U.S. Fish and Wildlife Service 1984, Barr 1991).

The presence of exit holes in elderberry stems indicates previous use by VELBs. Exit holes are cylindrical and approximately 0.25 inch in diameter. Exit holes can be found on stems that are 1–8 inches in diameter. The holes may be located on the stems from a few inches to about 9–10 feet above the ground (Barr 1991).

Although adult VELBs can fly, they are considered poor fliers, which suggests that they are not migratory; however, there is no information about seasonal movements of this beetle. The movements of VELB are not well understood, but they probably follow drainage courses where elderberry shrubs are most common (Collinge et al. 2001).

### Occurrence in the Project Area and Project Sites

Potentially occupied VELB habitat nearest to the project sites is along the historic North Fork of Putah Creek (including the University Arboretum). The nearest VELB record (potential old emergence hole) is about 2 miles to the east, south of I-80 along the North Fork of Putah Creek in south Davis (Jones &
Stokes data files). Another cluster of observations occurs about 11 miles to the west of the project site along Putah Creek (EIP Associates 1995). Both the North and South Forks of Putah Creek are considered high-quality VELB habitat. USFWS has designated portions of Putah Creek west of Winters as essential habitat by (U.S. Fish and Wildlife Service 1984).

Elderberry shrubs occur on or within 100-feet of each of the proposed project sites. Table 1 shows the number of shrubs on each site that would be affected and the number of stems greater than 1 inch for each shrub. (Shrubs associated with the NEES Centrifuge Support Facility and the Phase 2B Electrical Improvement projects will not be affected and are thus not included on Table 1.) None of these shrubs have emergence holes or indicate any sign of VELB presence. All of the shrubs are in locations that suggest they are not naturally occurring, but rather that they grew subsequent to development of the sites by UC Davis or to land clearing activities conducted before UC Davis acquired the property. This observation has been confirmed through examination of historical aerial photographs. All of the shrubs occur along fencelines, along the edges of buildings, or below utility lines where songbirds probably dropped elderberry seeds. There is no natural riparian, oak savanna, or oak woodland habitat that would be considered natural VELB habitat in any of the project sites. Each site is highly disturbed and fragmented by development, agricultural activity, and roads. In addition, no adult VELB or larval galleries were found in 14 elderberry shrubs that were relocated for the nearby La Rue Student Housing Project and Bowley Center Project (Jones & Stokes 1999). Accordingly, it is unlikely that VELB occurs in any of the shrubs in the project areas.
**Table 1.** Number of Shrubs/Shrub Clusters Affected by Project Activities on Each Project Site and Number of Stems Greater than 1 Inch for Each Shrub

<table>
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<td>No</td>
<td>No</td>
<td>5</td>
</tr>
<tr>
<td>Subtotal</td>
<td>4</td>
<td>None</td>
<td>None</td>
<td>15</td>
</tr>
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<td>Center for Companion Animal</td>
<td>A</td>
<td>No</td>
<td>No</td>
<td>1</td>
</tr>
<tr>
<td>Health</td>
<td>B</td>
<td>No</td>
<td>No</td>
<td>2</td>
</tr>
<tr>
<td>Subtotal</td>
<td>2</td>
<td>None</td>
<td>None</td>
<td>3</td>
</tr>
<tr>
<td>TOTAL</td>
<td>12</td>
<td>None</td>
<td>None</td>
<td>136</td>
</tr>
</tbody>
</table>

**Genome Launch Facility**

Six elderberry shrubs/clusters that could potentially be affected by the Genome Launch Facility occur on or adjacent to the project site (Figure 3). All occur in upland habitats and are associated with fence lines or utility lines. All occur in disturbed areas along or near roadsides or vehicle parking areas. All have stems with diameters 1 inch or more at ground level and none have emergence holes or evidence of VELB presence (Table 1).

**Cole Facility Stormwater Improvements**

Four elderberry shrubs or clusters of shrubs that could be affected by the Cole Facility Stormwater Improvements occur on or adjacent to the project site (Figure 4). An additional two elderberry shrubs occur within the project area; however, they will not be affected by this project. All occur in upland habitats. These shrubs are either immediately adjacent to buildings or are along fencelines.
Figure 3
Location of Elderberry Shrubs on the Genome Launch Facility Project Site
Figure 4
Location of Elderberry Shrubs on the Cole Facility Project Site

Legend

- Elderberry Bushes to be Relocated
All occur in disturbed areas associated with horse corrals and associated barns and outbuildings. All have stems with diameters 1 inch or more at ground level and none have emergence holes or evidence of VELB presence (Table 1).

**Center for Companion Animal Health**

Two elderberry shrubs occur on the CCAH facility site (Figure 5). Both occur in upland habitats. One is adjacent to a fenceline separating two grass pastures; the other is on a fenceline adjacent to the southeast corner of the existing radiology Barn structure. The latter is located on graveled, disturbed ground and is adjacent to two ornamental trees. Both shrubs have stems more than 1 inch in diameter at ground level. No VELB emergence holes were identified in either of the shrubs (Table 1).

**NEES Centrifuge Support Facility**

Two elderberry shrubs occur on the NEES facility project site (Appendix 1). Both occur in upland habitats, located in a small open site adjacent to the parking area. The site consists mainly of ruderal, nonnative vegetation. Both shrubs had stem diameters 1 inch or greater at ground level. No VELB emergence holes were identified in either of the shrubs.

**Phase 2b Electrical Improvement Project**

Twenty-four elderberry shrubs occur near the Phase 2b Electrical Improvement project site (Appendix 2). All occur in upland habitats. All are associated with fence lines or utility lines and are along roadsides. While none would be directly affected by the project, all are within 100 feet of electrical poles that would be replaced or upgraded. All have stems diameters 1 inch or greater at ground level and none have emergence holes or evidence of VELB presence.
Figure 5

Location of Elderberry Shrubs on the Center for Companion Animal Health Facility Project Site
Section 4
Conservation Strategy

Effects of the Proposed Projects on VELB

The proposed projects will relocate or remove a total of 12 elderberry shrubs or clusters of shrubs; the exact number of shrubs is difficult to determine due to the multi-stemmed aspect of several shrub clusters. Ten shrubs/clusters will be relocated to the Russell Ranch mitigation site. Two shrubs/clusters cannot be relocated without damaging the plant and facility that the plant has either grown under or around support footings. All of these shrubs or clusters have stems more than 1 inch in diameter and therefore potentially support VELB. The shrubs that will be relocated or removed have 157 stems 1 inch or more at ground level (Table 1). No shrubs had evidence of VELB occurrence (i.e., emergence holes or adult beetles). For the two shrubs that cannot be relocated, cuttings will be taken from the shrubs. The salvageable stem base and root ball will be removed from the project site and placed in the mitigation site.

The only known VELB occurrences in the area are along Putah Creek, a drainage that supports a relatively dense riparian forest, including numerous mature elderberry shrubs, along much of its length. On the UC Davis campus, Putah Creek is a protected riparian preserve, which protects existing elderberry shrubs and any extant VELB populations and allows the natural establishment of new elderberry shrubs along its length.

Historically, the proposed project sites were in active agricultural production, which discouraged the establishment of elderberry shrubs until the development of university facilities on or adjacent to the sites. None of the 12 affected shrubs/shrub clusters occur on the Putah Creek stream channel, with the exception of two shrubs in the Cole facility project area that are along a fenceline adjacent to the University Arboretum. Thus, the 12 shrubs on the project sites appear to have become established recently as a result of songbirds perching and depositing seeds along fencelines or other perching structures; this observation has been confirmed through examination of historical aerial photographs. Surveys of the sites indicate that these shrubs have not been colonized by VELB; this absence of VELB is likely due to the shrubs’ relatively recent establishment, isolation, and distance from a source population. Therefore, these 12 shrubs do
not represent essential or critical habitat for VELB and the potential effect of any take that will result from moving them is considered minor to negligible.

Because VELBs occur within elderberry shrubs and are rarely encountered, it is not possible to quantify the exact number of individual animals that could be taken as a result of the removal of the 12 shrubs. Consequently, the level of take of VELB is expressed as the number (12) of shrubs/clusters being transplanted or removed. Accordingly, the incidental take permit associated with this HCP will authorize all such take of VELB as will occur as a result of transplantation or removal of the 12 shrubs.

**Avoidance, Minimization, and Compensation**

**Avoidance**

Through informal consultation with the USFWS, the two shrubs associated with the NEES Centrifuge Support Building project and the 24 shrubs associated with the Phase 2B Electrical Improvement project will be avoided (Letters from UC Davis attached as Appendix 3). Two additional shrubs associated with the Cole Facility will also be avoided. All of these shrubs occur in areas currently receiving substantial disturbance from traffic, livestock, maintenance activities, and other human disturbances.

In addition, the 6 shrubs/clusters associated with the Genome Launch Facility project were also initially avoided (Letter from USFWS attached as Appendix 4). However, UC Davis and the USFWS agreed that, although not affected by the project, relocating these shrubs to the mitigation site would benefit VELB by increasing the longterm survival of the shrubs and increase the opportunity for occupancy by VELB.

The following avoidance measures will be implemented to ensure that project activities will not adversely affect avoided shrubs.

**Establishment and Maintenance of a Buffer Zone**

According to USFWS VELB Compensation Guidelines (USFWS 1999), complete avoidance (i.e., no adverse effects) may be assumed when a 100-foot (or wider) buffer is established and maintained around elderberry plants containing stems measuring 1.0 inch or greater in diameter at ground level. Firebreaks may not be included in the buffer zone. In buffer areas, construction-related disturbance should be minimized, and any damaged area should be promptly restored following construction. The FWS must be consulted before any disturbances within the buffer area are considered. In addition, the FWS
must be provided with a map identifying the avoidance area and written details describing avoidance measures.

**Protective Measures**

1. Fence and flag all areas to be avoided during construction activities. In areas where encroachment on the 100-foot buffer has been approved, provide a minimum setback of at least 20 feet from the dripline of each elderberry plant.

2. Brief contractors on the need to avoid damaging the elderberry plants and the possible penalties for not complying with these requirements.

3. Erect signs every 50 feet along the edge of the avoidance area with the following information: "This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment." The signs should be clearly readable from a distance of 20 feet, and must be maintained for the duration of construction.

4. Instruct work crews about the status of VELB and the need to protect its elderberry host plant.

### Restoration and Maintenance of Buffer Areas

**Protective Measures**

1. Restore any damage done to the buffer area (area within 100 feet of elderberry plants) during construction. Provide erosion control and re-vegetate with appropriate native plants.

2. Buffer areas must continue to be protected after construction from adverse effects of the project. Measures such as fencing, signs, weeding, and trash removal are usually appropriate.

3. No insecticides, herbicides, fertilizers, or other chemicals that might harm VELB or its host plant should be used in the buffer areas, or within 100 feet of any elderberry plant with one or more stems measuring 1.0 inch or greater in diameter at ground level.

4. The applicant must provide a written description of how the buffer areas are to be restored, protected, and maintained after construction is completed.

5. Mowing of grasses/ground cover may occur from July through April to reduce fire hazard. No mowing should occur within five (5) feet of elderberry plant stems. Mowing must be done in a manner that avoids
damaging plants (e.g., stripping away bark through careless use of mowing/trimming equipment.

Minimization and Compensation

The Genome Launch Facility, Cole Facility, and the CCAH facility projects will result in relocation or removal of 10 elderberry shrubs/clusters (See Table 1); removal of 2 shrubs/clusters that cannot be transplanted (requiring extra compensation – see below)(See Table 1); and the additional compensation for unauthorized pruning of 2 stems from a single elderberry shrub. Compensation will be in accordance with standard USFWS compensation guidelines (See below).

USFWS Compensation Formula

In accordance with USFWS guidelines (U.S. Fish and Wildlife Service 1999), compensation for impacts on VELB consists of transplanting potentially affected shrubs to a mitigation site (only shrubs with stems more than 1 inch in diameter at ground level are considered habitat for VELB and therefore require mitigation) and planting seedling elderberry shrubs to compensate for project impacts on mature elderberry shrubs.

The number of seedling elderberry shrubs planted at a mitigation site will be based primarily on the number of stems 1 inch or more in diameter on shrubs that would be affected by the project. Each elderberry stem measuring 1 inch or more in diameter at ground level that is adversely affected (i.e., transplanted or destroyed) will be replaced at the mitigation site with elderberry seedlings or cuttings at a ratio ranging from 1:1 to 8:1 (new plantings to affected stems). The USFWS guidelines specify compensation ratios based on habitat (i.e., riparian or nonriparian), stem sizes, and the presence of emergence holes, as illustrated in Table 2.

Table 2. Compensation Ratios Based on USFWS Conservation Guidelines for VELB, July 9, 1999

<table>
<thead>
<tr>
<th>Location</th>
<th>Stems (maximum diameter at ground level)</th>
<th>Exit Holes Y/N</th>
<th>Elderberry Seedling Ratio</th>
<th>Associated Native Plant Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonriparian</td>
<td>Stems 1–3&quot;</td>
<td>No:</td>
<td>1:1</td>
<td>1:1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yes:</td>
<td>2:1</td>
<td>2:1</td>
</tr>
<tr>
<td>Nonriparian</td>
<td>Stems 3–5&quot;</td>
<td>No:</td>
<td>2:1</td>
<td>1:1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yes:</td>
<td>4:1</td>
<td>2:1</td>
</tr>
<tr>
<td>Nonriparian</td>
<td>Stems &gt;5&quot;</td>
<td>No:</td>
<td>3:1</td>
<td>1:1</td>
</tr>
</tbody>
</table>
Using this formula, 12 elderberry shrubs will be relocated or removed, and a total of 157 elderberry stems greater than one inch diameter will be affected. (Table 1).

Through coordination with the USFWS (Newman pers comm), additional compensation will be added to the standard compensation described above to address:

- timing of transplantation;
- shrubs that cannot be successfully transplanted due to their current location (e.g., root system growing beneath buildings); and
- unauthorized pruning of shrub B at the CCAH project.

**Timing of Transplantation**

To accommodate construction schedules, UC Davis proposed to USFWS that shrub B and possibly shrub A at the CCAH project be transplanted outside the standard transplanting period as described in the VELB Compensation Guidelines. USFWS accepted this proposal as long as additional mitigation were provided. USFWS provided the following multipliers for additional replacement planting based on the date of transplantation (Newman pers. comm.).
<table>
<thead>
<tr>
<th>Date</th>
<th>Multiplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>2/16–3/15</td>
<td>2 times standard ratios</td>
</tr>
<tr>
<td>3/16–6/15</td>
<td>No transplanting permitted</td>
</tr>
<tr>
<td>6/16–8/31</td>
<td>2.5 times standard ratios</td>
</tr>
<tr>
<td>9/1–10/30</td>
<td>standard ratios with additional watering</td>
</tr>
<tr>
<td>11/1–2/15</td>
<td>standard ratios</td>
</tr>
</tbody>
</table>

Shrub B at the CCAH project will be transplanted during the 6/16–8/31 time period using a replacement multiplier of 2.5 times the standard ratio for that shrub. If shrub A at the CCAH is transplanted prior to 11/1, the appropriate multiplier will be added. The remaining 10 shrubs/clusters will be either relocated or removed from 9/1 to 2/15 at the standard ratios. Thus, the total number of plantings required to compensate for out-of-season transplanting is:

1 stem >5 inches at standard replacement ratio of 3:1 = 3

Additional compensation = 2.5 times 3 = 8 elderberry seedlings and 8 native seedlings.

**Shrubs That Cannot Be Transplanted**

USFWS has agreed that Shrub A and shrubcluster C on the Cole facility will not be transplanted to the Russell Ranch mitigation site because the shrubs cannot be successfully removed without damaging them and/or the adjacent structure (Newman pers. comm.). USFWS has agreed to an additional replacement multiplier of 2.5 to compensate for the loss of these shrubs. Thus, the total number of additional plantings required to compensate for loss of shrubs that cannot be transplanted are:

12 stems (10 at 1–3 inches, 1 at 3–5 inches, and 1 at >5 inches)

Standard ratios: 10 at 1:1, 1 at 2:1, and 1 at 3:1 = 15

Additional compensation = 15 times 2.5 = 38 elderberry seedlings and 38 native seedlings

In addition, as many cuttings as possible (up to 38 cuttings) will be collected from these shrubs and planted in the Russell Ranch mitigation site (See below).
Unauthorized Pruning

During a field review on May 10, 2002, USFWS observed 2 stems on Shrub B at the CCAH facility that had been previously pruned. Both were 1–3 inches in diameter. USFWS agreed to an additional replacement multiplier of 6 to mitigate this loss. Thus, the total number of additional plantings required to compensate for this loss are:

2 stems, both at 1–3 inches

Standard ratios: 2 at 1:1 = 2

Additional compensation = 2 times 6 = 12 elderberry seedlings and 12 native seedlings.

Total Compensation

Standard compensation derived from information presented in Table 1 and using the replacement ratios presented in Table 2 entails:

136 stems at 1:1 = 136 + 14 stems at 2:1 = 28 + 7 stems at 3:1 = 21 for a total standard compensation of 185 elderberry seedlings and 185 native seedlings (Table 3).

Additional compensation as described above = 58 elderberry seedlings and 58 native seedlings for a total compensation of 243 elderberry seedlings and 243 native seedlings (Table 3).

Table 3. Total Compensation Required for 2001-2002 Campus Projects.

<table>
<thead>
<tr>
<th>Project</th>
<th>Shrubs relocated or removed</th>
<th>Standard Compensation</th>
<th>Additional Compensation</th>
<th>Total Compensation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Elderberry Seedlings planted</td>
<td>Native seedlings planted</td>
<td>Elderberry Seedlings planted</td>
</tr>
<tr>
<td>Genome Launch Facility</td>
<td>6</td>
<td>142</td>
<td>142</td>
<td>0</td>
</tr>
<tr>
<td>Cole Facility Stormwater Improvements</td>
<td>4</td>
<td>32</td>
<td>32</td>
<td>38</td>
</tr>
<tr>
<td>Center for Companion Animal Health</td>
<td>2</td>
<td>11</td>
<td>11</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>12</td>
<td>185</td>
<td>185</td>
<td>58</td>
</tr>
</tbody>
</table>
Native Seedlings

The 243 native seedlings will be planted using the following list of native species:

- Quercus lobata (valley oak)
- Acer negundo (box elder)
- Salix lasiolepis (arroyo willow)
- Baccharis viminea (mulefat)
- Rosa californica (California wild rose)
- Fraxinus latifolia (Oregon ash)
- Alnus rhombifolia (white alder)
- Vitis californica (wild grape)
- Populus fremontii (fremont’s cottonwood)
- Artemisia douglasiana (mugwort)

From this list, valley oak, box elder, arroyo willow, and mulefat will initially be planted in equal numbers up to a total of 243 seedlings. If monitoring indicates that a particular species is consistently not meeting the 60% survivability goal, another species will be selected from this list as a replacement until the goal is met.

Biological Goals and Objectives

The goals of this HCP are to conserve and enhance VELB habitat and increase population viability of VELB within and adjacent to the UC Davis campus boundary. To accomplish these goals, UC Davis will:

- remove sink VELB habitat from non-riparian areas from within the UC Davis campus boundary; and
- conserve and enhance VELB habitat at the Russell Ranch mitigation site.

Mitigation Area

Mitigation for the impacts of the 2001–2002 campus projects will occur on University-owned lands at the Russell Ranch. The Russell Ranch (Figure 6) is approximately 1,590 acres of agricultural lands with a narrow band of riparian vegetation along Putah Creek. In 1994, the Regents adopted the 1994 UC Davis
Figure 6
Location of Russell Ranch Mitigation Sites

Source: UC Davis Planning and Budget Office 1989.
Long Range Development Plan (LRDP), which identified land use designations on the Russell Ranch. In the 1994 LRDP, approximately 158 acres\(^1\) of existing agricultural lands at the Russell Ranch were designated for open space teaching/research uses. The 1994 LRDP Environmental Impact Report (EIR) adopted mitigation measures that designated these 158 acres as the site where mitigation will occur to offset cumulative impacts on burrowing owls, Swainson’s hawk, and VELB that result from implementation of the 1994 LRDP. A mitigation development plan for the 158-acre Russell Ranch mitigation site is currently being developed.

The proposed VELB mitigation site for the 2001–2002 campus projects is on the 158-acre Russell Ranch mitigation site. In 1998, two mitigation sites at the Russell Ranch were evaluated in terms of their suitability as VELB habitat (Figure 6) by Jones & Stokes biologists and restoration ecologists and by Brian Twedt of USFWS. This evaluation was conducted during preparation of UC Davis’ Low-Effect Habitat Conservation Plan for the Valley Elderberry Longhorn Beetle at the La Rue Student Housing Project and Bowley Center Project (Jones & Stokes Associates 1999). Criteria applied in the evaluation included adequate space, proximity to the creek and inundation potential, adjacent and overstory riparian vegetation, public access, water availability, long-term maintenance, and cost. Both VELB mitigation sites were considered suitable sites for elderberry shrub survival and were near existing elderberry shrubs along the creek.

The VELB mitigation sites at the Russell Ranch where the 10 elderberry shrubs/clusters will be relocated from the 2001–2002 campus project sites are owned and managed by UC Davis and will be protected as habitat for VELB. To ensure that the VELB mitigation sites are managed for VELB habitat, and in anticipation of developing mitigation for burrowing owl, Swainson’s hawk, and VELB habitat on the 158-acre Russell Ranch mitigation site identified in the 1994 LRDP EIR, the University has established deed restrictions acceptable to USFWS on the entire 158-acre Russell Ranch mitigation site. USFWS approved the language of these deed restrictions in mid-November 2001, and it was recorded by UC Davis in March 2002 (Appendix 5).

VELB Mitigation Site 1 (Figure 6), along the north bank of Putah Creek at Russell Ranch, was selected as the primary shrub relocation area for the La Rue Student Housing Project and Bowley Center Project HCP, and is proposed as the primary mitigation site for the 2001-2002 campus projects. The site is a riparian forest community immediately adjacent to the creek. For the La Rue Student Housing Project and Bowley Center Project HCP, transplanted shrubs were placed along an approximately 400-foot-long section of the creek, consisting of an approximately 40-foot-wide upper terrace and a 40-foot-wide lower terrace.

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\(^1\) In the 1994 LRDP, the size of the mitigation area was estimated at 140 acres. A subsequent survey of the parcels for the deed restriction revealed that the parcels actually comprised approximately 158 acres.
VELB mitigation Site 1 (excluding sloped areas that are also suitable as transplant or seedling sites) is approximately 32,000 square feet (0.75 acre). The site previously supported a small orchard interspersed with native trees. The orchard trees were removed to make room for transplanted elderberry shrubs and seedlings. Additional areas currently occupied by orchards and non-native trees will be removed to expand the mitigation site to accommodate transplanted shrubs and seedlings for this HCP.

VELB Mitigation Site 2 (Figure 6) is proposed as a mitigation site for the 2001–2002 campus projects that cannot be accommodated at Mitigation Site 1. It is an unnamed seasonal drainage approximately 2,000 feet north of Putah Creek. The approximately 200-foot-wide drainage supports a sparse cottonwood, willow, and valley oak overstory and a tule/cattail emergent marsh along much of its length. The relatively wide and shallow slopes of the drainage support mostly annual grasslands. This drainage has been identified as a riparian habitat restoration site by UC Davis, and is considered an ideal location for establishment of elderberry shrubs. Accordingly, the site is considered a suitable mitigation site for transplanted shrubs and elderberry seedlings.

The 10 transplanted elderberry shrubs/clusters will be relocated either to an expanded area of Mitigation Site 1 or to VELB Mitigation Site 2. Each shrub will be uniquely identified with a tag or post. A total of 87,480 square feet (2.01 acres) will be required for relocated elderberry shrubs, elderberry seedling planting sites, and associated native species based on USFWS VELB compensation guidelines (see below). Sufficient area is available within the transplant sites to meet USFWS area requirements for seedlings. In conjunction with riparian restoration efforts planned for the site, 243 associated native plants will be planted on Mitigation Site 2 based on the ratios shown in Table 2. Overstory native trees may include valley oak, black walnut, Fremont’s cottonwood, and willows. Locations of overstory tree plantings will consider soils and hydrology of the site to mimic natural conditions, and maximize growth and success.

Fences currently border the seasonal drainage area at Mitigation Site 2, but these may be removed to facilitate connectivity with future grassland restoration sites. The entire area, including adjacent agricultural lands, has existing fences that will be maintained.

To minimize the possibility that UC Davis staff or other people could inadvertently disturb the elderberry plantings, the VELB mitigation site will be posted with signs that alert any land users to the presence of the mitigation site and any applicable restrictions. Such signs shall be posted within 60 days of transplantation of the shrubs or cuttings, and specific wording for the signs shall be the same as previously developed by UC Davis in consultation with USFWS for the Habitat Conservation Plan for the Valley Elderberry Longhorn Beetle at
the La Rue Student Housing project and Bowley Center project (Jones & Stokes 1999).

Relocation

Pursuant to USFWS VELB compensation guidelines and agreements with the Sacramento Field Office (Newman pers. comm.), transplanting seven or eight of the nine shrubs will be conducted during the late fall or winter months while the shrubs are dormant to increase the likelihood of plant survival. Shrub B and possibly shrub A from the CCAH facility will be relocated during the June 16–August 31 time period. The planting area will be at least 1,800 square feet for each elderberry transplant. The elderberry shrubs to be transplanted will be cut back to 3–6 feet from the ground or to 50% of their height (whichever is taller). The remaining trunk will be removed using a Vermeer spade, backhoe, front-end loader, or other suitable equipment. The trunk and all stems measuring 1.0 inch or more in diameter at ground level will be replanted at the mitigation site as soon as possible. Because the shrubs will be moved offsite, the rootball will be secured with wire and wrapped with burlap. The burlap will be dampened with water as necessary to keep the rootball wet. Care will be taken to ensure that the soil is not dislodged from around the roots of the transplant. The shrub will be planted in an excavated hole approximately 3–4 feet deep, and the rootball will be planted so that it is level with the ground surface.

Locally obtained sandy loam soil will be used as backfill if the excavated material is excessively cobbly. The soil will be compacted sufficiently so that settlement, which could dry out the roots, does not occur. The transplants will be provided with their own watering basins measuring at least 3 feet in diameter. The watering basins are needed to retain irrigation water and rainfall, especially during the first year. The watering basins should have a continuous berm measuring approximately 8 inches wide at the base and 6 inches high. If a site receiving a transplant does not have adequate soil moisture, it may be necessary to pre-wet the soil a day or two before transplanting.

After a shrub is transplanted, the soil will be saturated with water. Fertilizers or other supplements will not be used in the mitigation area and pruning substances will not be used on the shrubs because the effects of these compounds on VELB are not known.

Elderberry Cuttings

Cuttings will be collected from the two shrubs/clusters on the Cole Facility that cannot be transplanted as source material for mitigation plantings. These cuttings will count towards the total number of seedlings required. Cuttings are defined
as branches and stems cut from the source plant that are between 12 and 18 inches, have two to four leaves, four to six buds, and the base cut at a diagonal. Propagation of cuttings will occur as follows:

In the fall, after the elderberry shrub has gone dormant, and prior to transplanting, the cuttings will be collected. Cuttings will be grown in either Treepot-4 (4 by 4 by 14 inches) containers or by planting directly in the ground. Cuttings planted in the ground will be surrounded by protection cages to guard against herbivory.

Each cutting will vary in length, as the length between buds can vary from shrub to shrub depending on growth conditions each year. However, there will be a minimum of two nodes of buds on each cutting. (Buds are opposite on the stem; each node has two buds). Rooting buds will be potted a minimum of 4 inches below the soil surface. When cut, the cuttings will retain a length of stem below the rooting buds equal to one-half the distance to the next adjacent bud set.

Container-grown cuttings will be planted as soon as they root and display top growth. Container-grown stock will be planted in the fall after the first year’s growth. Container-grown rooted cuttings planted sooner than the fall will need to be irrigated during the remainder of their growth season.

After removing material for cutting propagation, shrubs that can not be transplanted for live planting will be excavated to include their base and connected portions of the rootball. The sections of rootball removed will only be those portions of the rootball which can be excavated without damaging the adjacent structure. The excavated shrub and attached rootball will then be placed at the mitigation site, within 10 feet of other live transplanted shrubs from the Cole Facility. This will allow any potential VELB larvae, contained within the shrubs, immediate access to live transplanted shrubs at the mitigation site.

Replacement Planting

Replacement planting of seedling elderberry shrubs and native species will be incorporated into the overall planning design of the Russell Ranch mitigation area, which is currently being developed by a planning team of agricultural and resource professionals from UC Davis. The UC Davis Putah Creek Riparian Reserve manager will oversee habitat restoration and enhancement at the 158-acre Russell Ranch mitigation area. Accordingly, planting will occur in the fall/winter months of 2002-2003 and 2003-2004 after the 10 shrubs have been transplanted.

Pursuant to USFWS VELB conservation guidelines, because the affected elderberry shrubs on the project site show no evidence of VELB use and are not in riparian habitat, a 1:1 replacement ratio will be used for stems 1–3 inches in
diameter, 2:1 for stems 3–5 inches in diameter and 3:1 for stems more than 5 inches in diameter. A total of 243 replacement seedlings will be grown from seed or cuttings collected locally (See above).

The total area required for the elderberry seedlings is 1,800 square feet for every five elderberry seedlings or cuttings. As many as five seedlings or cuttings may be planted within each of the thirteen 1,800-square-foot transplant areas. The remaining seedlings will also be planted in clusters of five. The transplanted shrub and replacement seedlings will be planted in clusters approximately 24 inches apart. Planting will be conducted during the late fall or winter months (November through the first 2 weeks of February) to increase the likelihood of plant survival.

Seedlings will be grown in 8- to 10-inch bullet tubes or Dee-Pots and should be a minimum of 8 inches tall when planted. Planting holes for replacement plant seedlings will be augured 2–3 feet deep and then backfilled. Locally obtained sandy loam soil will be used as backfill if the excavated material is excessively cobbly.

If the site receiving the seedlings does not have adequate soil moisture, it may be necessary to pre-wet the soil a day or two before planting. After planting the seedlings, the soil will be saturated with water. Fertilizers or other supplements will not be used in the mitigation area because the effects of these compounds on VELB are not known.

A watering basin 3–10 feet in diameter and approximately 6 inches high will be created around the groups of seedlings. Decomposed organic mulch will be used to reduce soil moisture losses, reduce weed growth, and insulate the soils from large temperature changes.

**Irrigation Specifications**

UC Davis will install an irrigation system or truck watering program for watering the transplanted VELB shrubs and seedlings or cuttings. The transplants and seedlings or cuttings will be monitored to determine the appropriate irrigation rates. Irrigation will be continued for 3 years from the date of transplantation, after which the root masses of elderberry shrubs should be large enough to support the plants without artificial water sources. Irrigation water will be gradually reduced over the 3-year period and the effects will be monitored to ensure successful weaning of the plants from the artificial water source. Any decision to discontinue irrigation prior to 3 years must be approved by USFWS.
Maintenance of VELB Mitigation Site

UC Davis accepts full responsibility for necessary maintenance work, including adjustments to irrigation and weeding plans, and any replacement planting required to meet the performance standards specified in Section 5.

Weeds and other plants that are not native to the VELB mitigation site will be removed at least once a year or at the discretion of USFWS. Within 5 feet of stems only hand removal will be used to remove this vegetation. Beyond 5 feet of stems, mechanical means, such as mowers and weedeaters, will be used. UC Davis will ensure that no pesticides, herbicides, fertilizers, or other chemical agents enter the mitigation area by ensuring that no spraying of these agents will be allowed within 100 feet of the mitigation area or in other areas designated by USFWS or DFG where such agents have the potential to drift, flow, or be washed into the area (other than by high flows of Putah Creek).

No dumping of trash or other materials will be allowed in the VELB mitigation site. Any trash or other foreign materials found in the area will be removed within 10 working days of discovery.

Because VELB mitigation site 2 is currently fenced, no additional fencing is required by this HCP at this time, but if the mitigation monitoring program determines that additional fencing is needed for protection of the mitigation area, UC Davis will confer with USFWS to discuss the need for fencing. If USFWS determines that fencing is needed, UC Davis will install the fencing in accordance with the VELB guidelines or other USFWS recommendations.

A minimum of two prominent signs will be placed and maintained in perpetuity at the VELB mitigation site or until such time as the USFWS agrees signage is no longer necessary or appropriate. The wording of the signs will be the same as those approved for the Habitat Conservation Plan for the Valley Elderberry Longhorn Beetle at the La Rue Student Housing project and Bowley Center project (Jones & Stokes 1999). They will be repaired or replaced by UC Davis or replaced within 10 working days if they are found to be damaged or destroyed.
Responsibilities

As specified in the HCP Handbook (USFWS and NMFS 1996), an Implementing Agreement (IA) is not required for low-effect HCPs unless requested by the permit applicant. UC Davis understands that it is responsible for implementing this HCP in accordance with the specifications for mitigation, monitoring, reporting, and funding described herein and will perform all obligations assigned to it in the Section 10 permit and the HCP.

Scope

The project area is located on the UC Davis campus as described in Section 1 of this HCP. This HCP covers activities only within the 2001–2002 campus project sites and the VELB mitigation site (Mitigation Site 2) as illustrated in Figure 6.

Permit Duration

UC Davis seeks a 10-year permit from USFWS to cover those activities associated with avoiding 30 elderberry shrubs and relocating or removing 12 elderberry shrubs/clusters from the 2001–2002 campus project sites to the VELB mitigation site and any necessary mitigation and monitoring activities at the VELB mitigation site.

Permit Holder/Permit Boundary

UC Davis will be the permit holder. Dr. A. Sidney England in the UC Davis, Office of Resource Management and Planning, is the contact person at UC Davis for this HCP; he may be contacted at 530/752-2432. Additional or other contact persons will be reported to USFWS, as necessary. The permit boundary is defined as the boundaries of the 2001–2002 campus project sites as depicted in
Figures 2–5, and the VELB mitigation sites (Mitigation Site 2) as depicted in Figure 6.

Monitoring

To meet USFWS required performance standards described below, evidence of VELB occurrence in the VELB mitigation site, the condition of the elderberry shrubs in the mitigation area, and the general condition of the VELB mitigation site itself shall be monitored for 10 consecutive years, beginning after the first elderberry shrub has been relocated and ending 10 years after the last elderberry shrub has been relocated. Results of the monitoring program will be furnished to USFWS annually in written reports (See Reporting, below). As specified by the VELB conservation guidelines (USFWS 1999), the annual report will include information on timing and rate of irrigation, growth rates, and survival rates and mortality.

Because elderberry shrubs are deciduous plants, it may be difficult to judge the health of the plants in fall. For this reason, annual reports will be based on surveys in spring (February 14–June 30), when the plants normally leaf out.

A minimum of two surveys will be conducted each spring by a qualified monitor designated by UC Davis to evaluate the condition of the plants and the mitigation site. The surveys will obtain the monitoring data described below.

- A census of any adult beetles present, including the number of beetles observed and their condition, behavior, and precise locations. Visual counts will be used. No methods involving harassment will be used.
- A census of beetle emergence holes in all elderberry stems >1-inch diameter, including their precise locations and estimated ages.
- An evaluation of the elderberry shrubs (transplants and seedlings) and native overstory plantings on the mitigation site, including the number, size, and condition of plants.
- An evaluation of the adequacy of signs, weed control measures, and irrigation at the mitigation site.
- A general assessment of the habitat, including any actual or potential threats to VELB and its host species, such as erosion, fire, vandalism, or excessive weed growth, and invasion of non-native plant and animal species.
Performance and Success Criteria

Pursuant to the USFWS conservation guidelines (USFWS 1999), a minimum survival rate of 60% of the replacement plantings and native overstory plantings must be maintained through the 10-year maintenance period. In other words, a minimum of 146 elderberry plants (seedlings) must be alive at the end of the 10-year period. In addition, a minimum of 146 native plants (seedlings) must be alive at the end of the 10-year period. Within 1 year of discovering that the survival rate has dropped below 60%, for either or both elderberry seedlings and native seedlings, the applicant must replace failed plantings and bring the survival rate above this level.

Access

Biologists from DFG and USFWS shall be notified no less than 14 days prior to transplanting activities and given complete access to the project site to monitor transplanting activities. In addition, personnel from these agencies will have complete access to the VELB mitigation site to monitor VELB and its habitat in perpetuity.

Reporting

UC Davis will submit an annual monitoring report describing activities under the HCP through the term of the permit. Copies of the annual monitoring report will be submitted by February 15 of the year following the year to which the report applies. Copies of the report shall be submitted to USFWS (Assistant Field Supervisor for Endangered Species, Sacramento Field Office, 2800 Cottage Way, Room W-2605, Sacramento, CA 95825; and ARD/Ecological Services, Regional Directors Office, Eastside Federal Complex, 911 NE 11th Ave. Portland, OR 97232-4181), and DFG (Supervisor, Environmental Services, California Department of Fish and Game, 1416 Ninth Street, Sacramento, CA 95814; and Staff Zoologist, California Natural Diversity Database, California Department of Fish and Game, 1220 S Street, Sacramento, CA 95814).

The report will explicitly describe the status and progress of the transplanted and planted elderberry shrubs, elderberry seedlings, and native seedlings, as well as any failings of the mitigation plan and the steps taken to correct them. Any observations of beetles or fresh emergence holes will be noted. Copies of the original field notes, raw data, and photographs of the mitigation site will be included in the report. Also included will be a map of the site vicinity and maps showing where individual adult beetles, if any, and emergence holes were observed. Actual and likely future threats will be addressed along with suggested
remedies (e.g., limiting access, more frequent removal of invasive nonnative vegetation, etc.).

A copy of the annual monitoring report, along with the original field notes, photographs, correspondence, and all other pertinent material, should be deposited at the California Academy of Sciences (Librarian, California Academy of Sciences, Golden Gate Park, San Francisco, CA 94118) by December 31 of the year that monitoring is performed with a copy of the receipt from the Academy library acknowledging receipt of the material or the library catalog number assigned to it.

Unforeseen/Changed Circumstances/No Surprises

Section 10 regulations [50 CFR 17.22 (b)(2)(iii)] require that an HCP specify the procedures to be used for dealing with unforeseen circumstances that may arise during the implementation of the HCP. In addition, the Habitat Conservation Plan Assurances (“No Surprises”) Rule [50 CFR 17.21(b)(5)-(6) and 17.22(b)(5)-(6); 63 F.R. 8859] defines “unforeseen circumstances” and “changed circumstances” and describes the obligations of the permittee and USFWS.

The purpose of the No Surprises Rule is to provide assurances to nonfederal landowners participating in habitat conservation planning under ESA that no additional land restrictions or financial compensation will be required for species adequately covered by a properly implemented HCP, in light of unforeseen circumstances, without the consent of the permittee. Changed circumstances means changes in circumstances affecting a species or geographic area covered by the HCP that can reasonably be anticipated by plan developers and USFWS and that can be planned for (e.g., the listing of a new species, or fire or other natural catastrophic events in areas prone to such events). The policy defines unforeseen circumstances as changes in circumstances that affect a species or geographic area covered by the HCP that could not reasonably be anticipated by plan developers and USFWS at the time of the plan’s negotiation and development and that result in a substantial and adverse change in status of the covered species.

In determining whether any event constitutes an unforeseen circumstance, USFWS will consider, but not be limited to, the following factors: size of the current range of the affected species; percentage of range adversely affected by the HCP; percentage of range conserved by the HCP; ecological significance of that portion of the range affected by the HCP; level of knowledge about the affected species and the degree of specificity of the species’ conservation program under the HCP; and whether failure to adopt additional conservation measures would appreciably reduce the likelihood of survival and recovery of the affected species in the wild.
If USFWS determines that the unforeseen circumstance will affect the outcome of the HCP, additional conservation and mitigation measures may be necessary. Where the HCP is being properly implemented and an unforeseen circumstance has occurred, the additional measures required of the permittee must be as close as possible to the terms of the original HCP and must be limited to modifications within any conserved habitat area or to adjustments within lands or waters that are already set aside in the HCP’s operating conservation program. Additional conservation and mitigation measures shall not involve the commitment of additional land or financial compensation or restrictions on the use of land or other natural resources otherwise available for development or use under the original terms of the HCP without the consent of the permittee. Resolution of the situation shall be documented by letters between USFWS and UC Davis.

In other words, in the event that unforeseen circumstances adversely affecting VELB occur during the term of the permit, UC Davis would not be required to provide additional financial mitigation or additional land use restrictions above those measures specified in the HCP, provided that the HCP is being properly implemented. This HCP expressly incorporates by reference the permit assurances set forth in the Habitat Conservation Plan Assurances (“No Surprises”) Rule adopted by USFWS and published in the Federal Register on February 23, 1998 (50 CFR Part 17). Except as otherwise required by law or provided for under the HCP, including those provisions regarding Changed Circumstances, no further mitigation for the effects of the proposed project on VELB may be required from a permittee who is properly implementing the terms of the HCP and the permit. The HCP will be properly implemented if the commitments and provisions of the HCP and the permit have been or are being fully implemented by the permittee (UC Davis).

As to potential changed circumstances (e.g., fire, flood, insect infestation, earthquake, or other natural disaster), the very short duration of the permit (i.e., 10 years) makes the occurrence of any such circumstance within the permit period unlikely. However, the following addresses several circumstances that may be regarded as changed or unforeseen.

**Summary of Circumstances**

Circumstances including the following:

- Newly listed species
- Decreases in Water Availability
- Flood
- Invasion of Nonnative Species
- Vandalism
- Fire

### Listing of New Species

**Changed Circumstance.** If a new species that is not covered by the HCP but that may be affected by activities covered by the HCP is listed under ESA during the term of the section 10 permit, USFWS may consider this to be a changed circumstance. In such case, the Section 10 permit will be reevaluated by USFWS and the HCP-covered activities may be modified, as necessary, to ensure that the activities covered under the HCP are not likely to jeopardize or result in take or adverse modification of any designated critical habitat of the newly listed species. UC Davis will implement the modifications to the HCP-covered activities identified by USFWS as necessary to avoid the likelihood of jeopardy to or take or adverse modification of the designated critical habitat of the newly listed species. UC Davis shall continue to implement such modifications until such time as UC Davis has applied for and USFWS has approved an amendment of the section 10 permit, in accordance with applicable statutory and regulatory requirements, to cover the newly listed species, or until USFWS notifies UC Davis in writing that the modifications to the HCP-covered activities are no longer required to avoid the likelihood of jeopardy or adverse modification of designated critical habitat of the newly listed species.

**Unforeseen Circumstance.** There are no unforeseen circumstances associated with the listing of new species.

### Decreases in Water Availability

**Changed Circumstance.** An extended period of drought that results in failure of existing groundwater wells and cancelled water deliveries via the Willow Canal could result in a possible change in circumstance that may affect water availability at the mitigation site.

Should a compromise of water availability at the mitigation site result in adverse effects on VELB and its habitat, UC Davis agrees to notify USFWS and prepare a plan describing alternative water sources. The report will also address implementation and funding needed to implement alternative measures. The most likely means of addressing decreases in water availability on the mitigation site will be to truck water onto the site until such time that water availability is restored. Estimated cost of trucking water to the site is $1,150 per delivery, including cost of water, truck use, and labor.
Unforeseen Circumstance. There are no unforeseen circumstances associated with the possible decrease in water availability.

Flood

Changed Circumstance. Mitigation Site 1 is on a bench below the top of bank along Putah Creek. This site is above the level normally flooded by typical uncontrolled spills at Monticello Dam. Therefore, the potential for flood damage to Mitigation Site 1 is low. Mitigation Site 2 is at the upstream end of a local watercourse that receives only local stormwater runoff and is not prone to flooding. There are no changed circumstances associated with flooding.

Unforeseen Circumstance. A prolonged wet spell could lead to unusually large spills at Monticello Dam including spills over the top of the dam. This type of spill has not occurred in the history of the dam. Such extraordinary and prolonged flooding along Putah Creek could conceivably damage the mitigation site during early establishment of the seedlings and could cause damage to the irrigation system.

Estimated cost for preparation and replanting of the mitigation site is $50,000.

Invasion of Nonnative Species

Changed Circumstance. If a new nonnative plant or animal infestation results in effects on VELB or its habitat in the mitigation area, UC Davis will develop a plan and implement standard (non-pesticide) measures to control and eradicate (if possible) the infestation. The plan will be presented to USFWS for approval. The plan will include a detailed implementation plan and describe any additional funding required to implement the plan. This changed circumstance does not include nonnative plant and animal species that currently exist in riparian and upland habitats in the vicinity of the mitigation sites because these constitute circumstances typical of the area. However, UC Davis will allow for present and new research projects to be conducted within the Russell Ranch mitigation site to determine new methods and the effectiveness of current and new methods for controlling currently existing nonnative species (i.e., Argentine ants).

Estimated cost for controlling or eradicating the mitigation site of non-native infestations is $500 per acre.

Unforeseen Circumstance. There are no unforeseen circumstances associated with nonnative species infestations.
Vandalism

**Changed circumstance.** If vandalism occurs on the mitigation site, UC Davis will notify the USFWS, replant damaged shrubs, and repair or replace any damaged infrastructure associated with the mitigation site.

**Unforeseen circumstance.** There are no unforeseen circumstances associated with vandalism.

Fire

**Changed circumstance.** If fire occurs on the mitigation site, UC Davis will notify the USFWS, replant damaged shrubs, and repair or replace any damaged infrastructure associated with the mitigation site.

Estimated cost for preparation and replanting of the mitigation site is $50,000.

**Unforseen circumstance.** There are no unforeseen circumstances associated with fire.

Adaptive Management

There are no identified significant data gaps associated with the implementation of this HCP. The principals of restoration of riparian systems and the establishment of successful establishment of elderberry shrubs at mitigation sites are well documented. The UC Davis staff that will be responsible for implementing the HCP and monitoring the mitigation site are well versed in these principals and have substantial practical experience. If the required goals of the HCP are not met with respect to survivorship of transplants and seedlings, remedial measures as described in this HCP will be implemented. These measures include additional plantings until the survivorship goal is met.

If the 60% survivorship goal is not met during any year of the permit period for elderberry plantings or any specific native species planting, UC Davis will replant elderberry seedlings or the same native species until the goal is met. If monitoring indicates that a particular native species is consistently not meeting the success criteria, a new native species will be selected from the list provided above (refer to USFS Compensation Formula) and replanted until the goal is met.
Funding

The VELB mitigation site is owned by UC Davis. Its land use designation is open space/research, and it has been identified as a mitigation site in the UC Davis LRDP EIR. A deed restriction (Appendix 5) was placed on the site in March 2002 to ensure that it will continue to be used as a mitigation site. This deed restriction cannot be altered without the written permission of USFWS.

The Regents have sufficient financial assets (2000-2001 operating budget for UC Davis was $1.1 billion plus funds for capitol projects) to implement the terms of this HCP, will be responsible for funding the HCP, and understand that failure to provide adequate funding and a consequent failure to implement the terms of this HCP in full could result in temporary permit suspension or permit revocation. Funding for mitigation activities described in the HCP will be provided by UC Davis primarily from funding for individual capitol projects. If these funds are not adequate, additional funding will be provided from the Russell Ranch Management Funds from the Office of Administration (approximately $300,000 currently available) and/or from planning and mitigation funds in the Office of Resource Management and Planning (approximately $300,000 per year). These two sources of funds are part of the UC Davis operating budget. Consistent with the terms of this HCP, these funds will be used to cover the costs of relocating the shrubs, planting the replacement plantings, maintaining the mitigation site, and fulfilling monitoring requirements. UC Davis will ensure that funding will be available to meet the 60 percent success criteria for elderberry and native plant success. UC Davis will ensure that funds are available to cover all changed circumstances above the estimated costs displayed for each changed circumstance.

To help achieve the performance standards required by this HCP, UC Davis has hired a full-time Putah Creek Riparian Reserve Manager, whose duties include carrying out the mitigation implementation, maintenance of the mitigation site, and fulfulling project monitoring requirements. Part of the annual budget of the Reserve Manager will be used to performing the above tasks to meet the performance standards specified in this HCP. If a future reduction of the annual Reserve management budget would lead to a reduction in level of service that would affect the mitigation areas, UC Davis will notify USFWS within 30 days of receipt of the revised budget.

Estimated mitigation costs include the following:

- Relocating/Removing 12 shrubs: $40,000
- Site Preparation and Layout: $10,000
- Planting elderberry and native seedlings: $40,000
- Irrigation System: $40,000
Revisions and Amendments

There are two types of changes which may be made to the HCP and/or the HCP Permits and/or its associated documents:

- Revisions
- Amendments

Revisions and amendments shall be processed in accordance with all applicable legal requirements, including but not limited to the ESA, NEPA, and any applicable federal regulations.

Revisions (Changes to the HCP Not Requiring Amendment of the Plan or Incidental Take Permits)

Revisions to the HCP are changes to the Plan provided for under the Operating Conservation Program (i.e., Sections 4 and 5 of the HCP), including Adaptive Management changes, and responses to Changed Circumstances. Revisions do not modify the scope or nature of activities or actions covered by the Section 10(a)(1)(B) or result in operations under the HCP that are significantly different from those contemplated or analyzed in connection with the Plan as approved, adverse impacts on the environment that are new or significantly different from those analyzed in connection with the Plan as approved or additional take not analyzed in connection with the HCP as approved.

Revisions to the HCP may include, but are not limited to the following:

1. Updating Construction Windows for the HCP Covered Species. In the event that standard construction windows established for species covered by the HCP are revised by USFWS, then such revised construction windows within the HCP shall be automatically revised.
2. Correction of any maps or exhibits to correct errors in mapping or to reflect previously approved changes in the Section 10(a)(1)(B) Permit or HCP;
3. Modifying existing or establishing new Incidental Take Avoidance Measures.
4. Modifying reporting protocols for Annual Reports.
5. Minor changes to monitoring or reporting protocols;

6. Revising mitigation area enhancement and management techniques.

7. Any other modifications to the HCP that are consistent with the biological goals and objectives of the HCP that the USFWS have analyzed and agreed to, and that will not result in operations under the HCP that are significantly different from those analyzed in connection with the HCP as approved, adverse impacts on the environment that are new or significantly different from those analyzed in connection with the HCP as approved or take not analyzed in connection with the HCP as approved including but not limited to: the approval or execution of agreements to facilitate execution and implementation of the HCP; and action by the UC Davis to delegate any of its duties specified by the HCP to a third party under its direct control.

Minor Revisions may be proposed by the Wildlife Agencies or the HCP Permittee (UC Davis). The Party proposing a revision to the HCP shall circulate the proposed revision along with an explanation of why the revision is necessary or desirable, and a description of why the party believes the effects of the proposed revision are more beneficial than and are not significantly different from those described or anticipated under the HCP as originally adopted. If UC Davis and the USFWS agree to the proposed revision, UC Davis shall process the revision to the HCP.

UC Davis may submit the proposed revision to USFWS for review. The USFWS shall each respond in writing to a proposed revision within sixty (60) calendar days of receipt of the request. The responses shall 1) concur in the proposed revision; 2) identify additional information necessary to enable the USFWS to approve or disapprove the revision, or 3) disapprove the revision. If the USFWS disapproves the revision, it must be processed as an amendment to the Plan and Section 10(a)(1)(B) Permit. If USFWS disapproves the revision it shall include in its written response an explanation of its determination.

Amendments to the HCP

Amendments to the HCP will require amendment of the Section 10(a)(1)(B) Permit. The following summarizes the types of changes which may require a Plan Amendment and the procedures for approval.

Major Amendments may include any of the following types of changes to the HCP:

1. The listing under the ESA of a new species within the Plan Area which is not an HCP Covered Species but which may be affected by HCP Covered
Activities and for which the Permittee seeks coverage under the HCP and Section 10(a)(1)(B) Permit.

2. Significant changes to the HCP which were not addressed in the HCP including, but not limited to the following:

   a. Changes to the method for calculating compensation for Incidental Take, which would increase the levels of Incidental Take permitted for the HCP.

   b. Changes to funding except as otherwise provided for in the HCP to count for all adjustments for inflation, adaptive management (including recovery plan), and changed circumstances changes.

   c. Changes to the Covered Activities which were not addressed in the HCP as originally adopted, and which otherwise do not meet the revision provisions above.

   d. Extending the term of the HCP Permits past the 10-year term.

Specific procedures for requesting Amendments to Section 10(a)(1)(B) Permit are described below.

Amendments to the Section 10(a)(1)(B) Permits

Following receipt of a complete application package for a proposed Amendment to a Section 10(a)(1)(B) Permit, the Service shall publish a notice of the proposed amendment to the Section 10 (a) Permit in the Federal Register as required by FESA. The Service shall use its reasonable efforts to process the proposed amendment within one hundred eighty (180) calendar days of publication, except where longer periods are required by law. The amendment of a Section 10(a) Permit shall be treated as an original permit application. Such applications typically will require submittal of a revised habitat conservation plan, a completed permit application form with appropriate fees, and preparation of an environmental review document prepared in accordance with the National Environmental Policy Act. However, the Parties acknowledge that specific document requirements may vary based on the nature of the amendment.

Suspension/Revocation

The USFWS may suspend or revoke their respective permits if UC Davis fails to implement the HCP in accordance with the terms and conditions of the permits or if suspension or revocation is otherwise required by law.
Alternatives Considered

To comply with the requirements for an HCP under ESA Section 10(a), three alternative strategies to the HCP that would avoid take of listed species are discussed below.

Alternative 1: No-Action Alternative

Under the No-Action Alternative, the proposed projects would not be constructed and UC Davis would not implement an HCP for VELB or receive a Section 10(a) incidental take permit from USFWS. The project sites would remain in their existing conditions and the shrubs would not be disturbed, but they would continue to be subjected to incidental disturbances from traffic, livestock, maintenance activities, irrigation, roadway maintenance, and other existing activities.

While this alternative would avoid impacts on elderberry shrubs, it is inconsistent with campus development goals and maintenance activities. The proposed projects are designed to enhance educational and research opportunities at UC Davis, provide upgraded facilities for campus operations and maintenance, and accommodate future increases in enrollment. Consequently, although this alternative would ensure that the 12 shrubs would not be disturbed, it was rejected because of its incompatibility with campus development and maintenance activities. Moreover, because of the current locations of the shrubs, their distance from known occupied VELB habitat, and the existing levels and types of disturbances on the project sites, relocating the shrubs to the Russell Ranch mitigation area would increase the likelihood of VELB occupancy.

Alternative 2: Alternative Sites Alternative

Because each of the projects are site specific, there are no alternative sites available. The Genome Launch Facility and the CCAH facility are proposed for construction adjacent to existing related facilities, and each represents an expansion of services at each site. Relocating the new project facilities to alternative sites is functionally impractical and could result in new disturbances and habitat effects in otherwise undeveloped portions of the campus. The Cole Facility project includes only improvements to existing stormwater structures; accordingly, alternative sites are not an option. This alternative is not feasible as
expanding facilities anywhere but adjacent to their existing facilities would be inadequate to meet needs of research. In addition, this alternative does not meet the goals and objectives of the conservation strategy for VELB.

**Alternative 3: Reduced Project Alternative**

The reduced project alternative would reduce the size of the proposed Genome Launch facility and the CCAH facility; and would reduce the extent of stormwater improvements at the Cole facility. In general, biological impacts (including loss of VELB habitat) associated with this alternative would still result, but would be reduced in magnitude. While some elderberry shrubs might remain on site under this alternative, the likelihood of VELB occupancy in the remaining shrubs would be increasingly reduced as the project areas become more urbanized. Under this alternative, some shrubs would be relocated, and the value of the remaining shrubs as VELB habitat would be reduced. This alternative is not feasible as a reduced facility size would be inadequate to meet needs of research. In addition, this alternative does not meet the goals and objectives of the conservation strategy for VELB.
Section 6
Citations

Printed References


________. 1999. Habitat conservation plan for the elderberry longhorn beetle at the La Rue Student Housing project and Bowley Center project, University of California, Davis. January 15. (JSA 98-275.) Sacramento, CA. Prepared for the University of California, Davis, Planning and Budget Office, Davis, CA.


Personal Communications