



## United States Department of the Interior



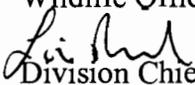
### FISH AND WILDLIFE SERVICE

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In reply refer to:  
1-1-07-F-0117

### Memorandum

**To:** Assistant Field Supervisor, Endangered Species Program, Sacramento Fish and Wildlife Office, Sacramento, California

**From:**  Division Chief, Conservation Planning and Recovery, Endangered Species Program, Sacramento Fish and Wildlife Office, Sacramento, California

**Subject:** Intra-Service Biological Opinion on Issuance of a Section 10(a)(1)(B) Incidental Take Permit on the Low-Effect Habitat Conservation Plan for the Offices at Parkshore, Folsom, Sacramento County, California

This document transmits the biological opinion of the U.S. Fish and Wildlife Service (Service), Sacramento Fish and Wildlife Office (SFWO), regarding the issuance of an incidental take permit (Permit) to Mark III Engineering Contractors (Mark III, or Applicant) for the Habitat Conservation Plan (HCP) on the construction of the Offices at Parkshore, pursuant to section 10(a)(1)(B) and section 10(a)(2) of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) (Act), and in accordance with section 7 of the Act and their implementing regulations (50 CFR §402). The covered actions are described in the HCP for the subject action (Mark III 2005). The Service proposes to issue this Permit to Mark III for a period of five years.

The Applicant is requesting coverage under the Permit for one species (Covered Species). The Permit would cover incidental take for the federally-threatened valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) (beetle).

This biological opinion is based on information provided in the following documents: (1) the Mark III permit application; (2) the November 2005 *Low-effect Habitat Conservation Plan for the Valley Elderberry Longhorn Beetle for the Offices at Parkshore* (Mark III 2005); (3) a site visit by Rick Kuyper of the SFWO, John Firchau and Kevin Woodbury of Mark III, and Richard Arnold of Entomological Consulting Services, on August 11, 2005; (3) the September 15, 2006 final Low-Effect Screening Form and Environmental Action Statement (EAS) (USFWS 2006); (4) various other published and unpublished agency and academic literature; and (5) other information available to the Service.

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### CONSULTATION HISTORY

*February 28, 2005.* SFWO receives letter from HELM Biological Consulting, with a subject line: "Parkshore Drive Office Complex, Folsom, California". This letter requests SFWO assistance with ESA compliance on the subject project, and transmits a biological report titled: *Surveys for Valley Elderberry Longhorn Beetle and Habitat at the Parkshore Drive Office Complex, Folsom, Sacramento County, California; October 2004, Revised February 2005.*

*April 13, 2005.* SFWO receives a letter from HELM Biological Consulting with a subject line: "Mark III Engineering Contractors, the Offices of Parkshore Drive, Folsom, California".

*August 10, 2005.* SFWO (Rick Kuyper) receives an aerial-photograph of the project-site via electronic mail from Entomological Consulting Services, Ltd.

*August 11, 2005.* A project-site visit was attended by Rick Kuyper of the Service, John Firchau and Kevin Woodbury of Mark III, and Richard Arnold of Entomological Consulting Services.

*September 30, 2005.* SFWO (Rick Kuyper) receives an administrative-draft HCP via electronic mail from Entomological Consulting Services, Ltd and a hard copy of the CEQA document titled: *Environmental Impact Analysis Initial Study for The Offices At Parkshore PN 04-663.*

*October 5, 2005.* SFWO receives transmittal letter and a compact-disk copy of the September 2005 administrative-draft *Low-effect HCP for Valley Elderberry Longhorn Beetle for the Offices at Parkshore project* from Entomological Consulting Services, Ltd..

*December 13, 2005.* SFWO transmits Service comments to Mark III on the September 2005 administrative-draft *Low-effect HCP for Valley Elderberry Longhorn Beetle for the Offices at Parkshore project.*

*February 1, 2006.* Mark III submits permit application package (consisting of completed Federal Fish and Wildlife Permit Application Form 3-200-56, a \$100.00 application fee, and the November 2005 draft Low-effect HCP) to SFWO.

*May 8, 2006.* SFWO sends letter to City of Folsom specifying effects-avoidance measures for Mark III's initial phase of construction at the Offices at Parkshore.

*September 15, 2006.* SFWO finalizes the Screening Form for Low-Effect HCP Determinations and Environmental Action Statement and establishes that the HCP for the Offices at Parkshore qualifies as a "low-effect" HCP which can be categorically excluded from NEPA.

*September 25, 2006:* Availability of the Low-effect HCP for a 30-day public review was announced in the Federal Register (71 FR 55801).

*October 26, 2006:* 30-day public comment period on the HCP concludes. No comments

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received from the public.

## **BIOLOGICAL OPINION**

### **Description of the Proposed Action**

The Service proposes to issue a section 10(a)(1)(B) permit to Mark III authorizing incidental take of the beetle during construction of nine office commercial buildings within a 6.5-acre undeveloped parcel (APNs 071-0530-17 and 071-0530-18) located on Parkshore Drive, just west of Folsom Boulevard, in Folsom, Sacramento County, California (project site). This project is known as the Offices at Parkshore. The permit will be in effect for five years.

### **Description of the Proposed Project**

Mark III proposes to construct eight one-story office buildings and a single two-story office building, which would collectively provide 74,435 square-feet of new office space. The eight single-story buildings would range in size from 2,991 to 43,300 square-feet, while the single two-story building would be 48,422 square-feet. Two vehicular driveways would serve the project site from Parkshore Drive, and a 377-space asphalt parking lot would be installed on-site. Additional site improvements would include sidewalks, pedestrian walkways, underground utilities, and landscaping. The 6.48-acre project site is the last undeveloped portion of an established office park (Lake Forest Technical Center). All resident elderberry shrubs (*Sambucus* spp.) would be removed from the 6.48-acre project site to accommodate the new office buildings, parking lot, and associated site improvements. The project site was formerly mined and remains covered with dredge tailings, but supports degraded remnants of scrub and oak woodland vegetation, including habitat (e.g., elderberry shrubs) for the beetle. Elderberry plants are present in three locations in the project site. At two of these locations the plants grow as clonal clusters with numerous (more than 100), young, solitary stems. The third location is a mature, multi-stemmed solitary plant. Thirty-nine of these elderberry plants exhibit 47 stems with basal diameters equal to or greater than one inch, which is a sufficient size to be considered habitat for the beetle. An inventory of the 47 stems identified a single beetle exit-hole. The 39 resident elderberry plants supporting stems equal or greater than 1-inch diameter would be adversely affected by the proposed project. No critical habitat for any listed species occurs on the project site.

The project applicant has proposed to begin construction of the proposed project prior to the issuance of an incidental take permit. The project applicant has proposed to avoid the elderberry shrubs onsite by implementing buffer areas of 20 feet from the drip lines of the on-site elderberry shrubs until the shrubs have been transplanted from the site. The Service determined at the August 11, 2005, site visit that this would be acceptable. The Service specified avoidance measures for this initial phase of construction in a May 8, 2006, letter to the City of Folsom (1-1-06-CP-1094).

### **Proposed Conservation Strategy**

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The project applicant has proposed the following conservation measures:

1. Contractors would install protective fencing to maintain a 20-foot buffer from the drip lines of all elderberry shrubs onsite. Signs warning construction personnel about these restricted areas would be placed around the perimeter of the protective fencing.
2. Work crews and contractors would be given environmental awareness training that would emphasize the identification of elderberry shrubs and the need to avoid damaging the elderberry shrubs and the possible penalties of non-compliance prior to the start of construction.
3. Dust control measures will be employed during all construction activities.
4. A qualified biologist will inspect the fencing and condition of the elderberry shrubs at least once a week during all grading and construction activities, until all elderberry shrubs have been transplanted.
5. Under the HCP, compensation and avoidance measures for adverse effects to the beetle will conform to the Service's Conservation Guidelines for Valley Elderberry Longhorn Beetle, dated July 9, 1999 (Conservation Guidelines):
  - each elderberry stem with a basal diameter of 1.0 inch or greater that is directly or indirectly impacted shall be transplanted;
  - each elderberry stem with a basal diameter of 1.0 inch or greater that is impacted will be replaced with seedling elderberry plants using a minimal replacement ratio between 2:1 to 8:1, and this ratio depends upon the type of habitat, basal stem diameters of affected elderberries, and the presence of beetle exit holes in the affected plants;
  - representative native tree and shrub species that grow in association with the elderberries will be planted at a ratio of one or two specimens for every replacement elderberry seedling (1:1 or 2:1 ratios);
  - 1800 square feet should be provided for every five replacement elderberry seedlings and five associated natives;
  - a mitigation site, which will serve as habitat for the beetle in perpetuity, must be secured for the transplants and replacement plantings, and the size of the site is determined by the total planting square footage required for all transplanted and replacement elderberries.
6. The 39 elderberry shrubs (including the 47 stems greater than one-inch basal diameter) would be transplanted to Wildlands, Inc.'s River Ranch Conservation Bank (Conservation Bank),

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which provides for long-term protection of beetle habitat, as well as habitat for other federally listed species. The 39 adversely affected elderberry shrubs will be transplanted to a 0.45-acre site in the Conservation Bank (Table 1). The bank's operator, Wildlands, Inc., will transplant these shrubs. Prior to transplanting, Wildlands, Inc. will advise the USFWS in writing of the transplant methods and duration of transport to the mitigation plant. Additional elderberry seedlings and native riparian plant seedlings (tree/shrub species found in habitat on or adjacent to the Conservation Bank) would be planted along with the transplanted elderberry shrubs on the conservation site. Mark III would also purchase 11 credits at the Conservation Bank. Each credit includes an established ratio of elderberry seedlings and native riparian plant seedlings. The Conservation Guidelines recommend doubling the replacement ratios if the elderberry shrubs are transplanted outside of the dormant period for elderberry shrubs, November 15 to February 15, due to a higher risk of adverse effects to the beetle. Adult beetles and larvae have a greater likelihood of being killed or injured as a result of the elderberry shrubs increased risk of mortality due to transplanting during the active growing season. Therefore, if the elderberry shrubs are transplanted during the active growing season, the applicant would purchase 23 credits, and the number of replacement elderberry seedlings would be 106 and the number of associated natives would be 114.

**Table 1: Proposed Compensation for the Offices at Parkshore Project.**

| Location  | Stems (maximum diameter at ground level) | Exit Hole on Shrub (Yes or No) | Elderberry Seedling Ratio | Associated Native Plant Ratio | Number of Stems Observed | Required Elderberry Plantings | Required Associated Native Plant Plantings |
|---|--|--------------------------------|---------------------------|-------------------------------|--------------------------|-------------------------------|--|
| Non-riparian  | stems $\geq 1"$ & $\leq 3"$              | No                             | 1:1                       | 1:1                           | 42                       | 42                            | 42   |
|   |  | Yes                            | 2:1                       | 2:1                           | 2                        | 4                             | 8  |
| Non-riparian  | stems $> 3"$ & $< 5"$                    | No                             | 2:1                       | 1:1                           | 2                        | 4                             | 4  |
|   |  | Yes                            | 4:1                       | 2:1                           | 0                        | 0                             | 0  |
| Non-riparian  | stems $\geq 5"$                          | No                             | 3:1                       | 1:1                           | 1                        | 3                             | 3  |
|   |  | Yes                            | 6:1                       | 2:1                           | 0                        | 0                             | 0  |
| Riparian  | stems $\geq 1"$ & $\leq 3"$              | No                             | 2:1                       | 1:1                           | 0                        | 0                             | 0  |
|   |  | Yes                            | 4:1                       | 2:1                           | 0                        | 0                             | 0  |
| Riparian  | stems $> 3"$ & $< 5"$                    | No                             | 3:1                       | 1:1                           | 0                        | 0                             | 0  |
|   |  | Yes                            | 6:1                       | 2:1                           | 0                        | 0                             | 0  |
| Riparian  | stems $\geq 5"$                          | No                             | 4:1                       | 1:1                           | 0                        | 0                             | 0  |
|   |  | Yes                            | 8:1                       | 2:1                           | 0                        | 0                             | 0  |
| Total replacement plantings   |  |                                |                           |                               |                          | 53                            | 57   |
| Total Elderberry shrubs to be transplanted  |  |                                |                           |                               |                          | 39                            |  |
| 57/5 = 11.4 = 11 valley elderberry longhorn units (if elderberry shrubs are transplanted November 15 to February 15). |  |                                |                           |                               |                          |                               |  |

### Status of the Species

The beetle was listed as a threatened species under the Act on August 8, 1980 (USFWS 1980). Critical habitat for the species was designated and published at 50 CFR §17.95. Two areas along the American River in the Sacramento metropolitan area have been designated as critical habitat for the beetle. Critical habitat for this species has been designated along the lower American River at Goethe and Ancil Hoffman parks (American River Parkway Zone) and at the Sacramento Zone, an area about a half mile from the American River downstream from the American River Parkway Zone. In addition, an area along Putah Creek, Solano County, and the area west of Nimbus Dam along the American River Parkway, Sacramento County, are considered essential habitat, according to the Valley Elderberry Longhorn Beetle Recovery Plan (USFWS 1984). These critical habitat and essential habitat areas within the American River parkway and Putah Creek support large numbers of mature elderberry shrubs with extensive evidence of use by the beetle.

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

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

When the beetle was listed as threatened in 1980, the species was known from less than ten localities along the American River, the Merced River, and Putah Creek. By the time the Valley Elderberry Longhorn Beetle Recovery Plan was prepared in 1984, additional occupied localities had been found along the American River and Putah Creek. As of 2005, the California Natural Diversity Database (CNDDB 2005) contained 190 occurrences for this species in 44 drainages throughout the Central Valley, from a location along the Sacramento River in Shasta County, southward to an area along Caliente Creek in Kern County (CNDDB 2005). The beetle continues to be threatened by habitat loss and fragmentation, predation by the non-native Argentine ants (*Linepithema humile*) (Holway 1998; Huxel 2000; Huxel and Hastings 1999; Ward 1987), and possibly other factors such as pesticide drift, non-native plant invasion,

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improper burning regimes, off-road vehicle use, rip-rap bank protection projects, wood cutting, and over-grazing by livestock (CNDDDB 2005).

Evidence of the beetle in the form of exit holes have been found within the proposed project area (Mark III 2005). Elderberry shrubs with stems 1.0 inch or greater in diameter that provide suitable habitat are found in and adjacent to the action area. The action area contains components that can be used by the listed animal for feeding, resting, mating, and other essential behaviors. Therefore, the Service believes that the valley elderberry longhorn beetle is reasonably certain to occur within the action area because of the biology and ecology of the animal, the presence of suitable habitat in and adjacent to the action area, as well as recent observations of this listed species.

### **Environmental Baseline**

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

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

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

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al. 1989). Riparian forests in the Central Valley have dwindled to discontinuous strips of widths currently measurable in yards rather than miles.

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

Based on a California Department of Fish and Game riparian vegetation distribution map, by 1979, there were approximately 102,000 acres of riparian vegetation remaining in the Central Valley. This represents a decline in acreage of approximately 89 percent (Katibah 1984). More extreme figures were given by Frayer et al. (1989), who reported that woody riparian forests in the Central Valley had declined to 34,600 acres by the mid-1980s (from 65,400 acres in 1939). Although these studies have differing findings in terms of the number of acres lost (most likely explained by differing methodologies), they attest to a dramatic historic loss of riparian habitat in the Central Valley. As there is no reason to believe that riparian habitat suitable to the beetle (elderberry shrubs) would be destroyed at a different rate than other riparian habitat, we can assume that the rate of loss for beetle habitat in riparian areas has been equally dramatic.

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

Barr (1991) examined 79 sites in the Central Valley supporting valley elderberry longhorn beetle habitat. When 72 of these sites were re-examined by researchers in 1997, seven no longer supported valley elderberry longhorn beetle habitat (Collinge *et al.* 2001). This loss represents a decrease in the number of sites with valley elderberry longhorn beetle habitat by approximately nine percent in six years.

No comparable information exists on the historic loss of non-riparian valley elderberry longhorn beetle habitat such as elderberry savanna and other vegetation communities where elderberry shrubs also occur (oak or mixed chaparral-woodland, or grasslands adjacent to riparian habitat). However, all natural habitats throughout the Central Valley have been heavily adversely affected within the last 200 years (Thompson 1961), and we can therefore assume that non-riparian beetle habitat also has suffered a widespread decline. This analysis focuses on loss of riparian habitat

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because the beetle is primarily dependent upon riparian habitat. Adjacent upland areas are also likely to be important for the species, but this upland habitat typically consists of oak woodland or elderberry savanna bordering willow riparian habitat (Barr 1991). The riparian acreage figures given by Frayer et al. (1989) and Katibah (1984) included oak woodlands concentrated along major drainages in the Central Valley, and therefore probably included lands we would classify as upland habitat for the beetle adjacent to riparian drainages.

Between 1980 and 1995, the human population in the Central Valley grew by 50 percent, while the population in the rest of California grew by 37 percent. The Central Valley's population was 4.7 million by 1999, and it is expected to more than double by 2040. The American Farmland Trust estimates that by 2040, more than 1 million cultivated acres will be lost and 2.5 million more put at risk (Ritter 2000). With this growing population in the Central Valley, increased development pressure is likely to result in continuing loss of riparian habitat.

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

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

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

Small, isolated subpopulations are susceptible to extirpation from random demographic,

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

The beetle is a specialist on elderberry plants, and tends to have small population sizes and occurs in low densities (Barr 1991; Collinge et al. 2001). Collinge et al. (2001) compared resource use and density of exit holes between the beetle and a related subspecies, the California elderberry longhorn beetle (*Desmocerus californicus californicus*). The valley elderberry longhorn beetle tended to occur in areas with higher elderberry densities, but had lower exit hole densities than the California elderberry longhorn beetle. With extensive riparian habitat loss and fragmentation, these naturally-small valley elderberry longhorn beetle populations are broken into even smaller, isolated populations. Once a small valley elderberry longhorn beetle population has been extirpated from an isolated habitat patch, the species may be unable to re-colonize this patch if it is unable to disperse from nearby occupied habitat. Insects with limited dispersal and colonization abilities may persist better in large habitat patches than small patches because small fragments may be insufficient to maintain viable populations and the insects may be unable to disperse to more suitable habitat (Collinge 1996).

Studies suggest that the beetle is unable to re-colonize drainages where the species has been extirpated, because of its limited dispersal ability (Barr 1991; Collinge et al. 2001). Huxel and Hastings (1999) used computer simulations of colonization and extinction patterns based on differing dispersal distances, and found that the short dispersal simulations best matched the 1997 census data in terms of site occupancy. This suggests that dispersal and colonization are limited to nearby sites. At spatial scales greater than 6.2 miles, such as across drainages, valley elderberry longhorn beetle occupancy appears to be strongly influenced by regional extinction and colonization processes, and colonization is constrained by limited dispersal (Collinge et al. 2001; Huxel and Hastings 1999). Except for one occasion, drainages examined by Barr that were occupied in 1991 remained occupied in 1997 (Collinge et al. 2001; Huxel and Hastings 1999). The one exception was Stoney Creek, which was occupied in 1991 but not in 1997. All drainages found by Barr (1991) to be unoccupied in 1991 were also unoccupied in 1997. This data suggests that drainages unoccupied by the valley elderberry longhorn beetle remain so. Habitat fragmentation not only isolates small populations, but also increases the interface between habitat and urban or agricultural land, increasing negative edge effects such as the invasion of non-native species and pesticide contamination (Barr 1991). Several edge effect-related factors may be related to the decline of the valley elderberry longhorn beetle.

### **Effects of the Proposed Action**

The complete project will result in the removal of 39 elderberry shrubs totaling 47 stems greater than 1-inch in diameter (Mark III, 2005). A single larval exit hole was found in one of these shrubs during surveys of the project site in September 2005. The removal of these elderberry

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shrubs may result in the take of beetle larvae that may reside in the stems of these shrubs. Individual beetles within stems and roots of the affected elderberry shrubs may be harassed, harmed and/or killed by the transplantation and potential death from stress of the transplanted shrubs.

Transplantation of elderberry shrubs, that are or could be used by larvae, is expected to adversely affect the beetle. Beetle larvae may be killed or its life cycle interrupted during or after the transplanting process. Mortality, harm, and/or harassment could occur if:

1. Transplanted elderberry shrubs experience stress or become unhealthy due to changes in soil, hydrology, microclimate, or associated vegetation. This may reduce their quality as beetle habitat or impair the shrub's production of habitat-quality stems in the future.
2. Elderberry shrubs may die as a result of transplantation.
3. Branches containing larvae may be cut, broken, or crushed as a result of the transplantation process.

Temporal loss of habitat will temporarily reduce the amount of habitat available to the beetle. Temporal loss of habitat reasonably could occur due to: (1) the potential loss of transplanted, mature elderberry shrubs at the Conservation Bank; and (2) the amount of time for seedlings at the Conservation Bank to grow to a size usable by the beetle (Huxel and Collinge 1999). Although compensation for effects to the beetle involve creation or restoration of habitat, it generally takes five or more years for elderberry plants to become large enough to support beetles, and it generally takes 25 years or longer for riparian habitats to reach their full value (USFWS 1994, Huxel and Collinge 1999).

### **Cumulative Effects**

Cumulative effects include the effects of future State, Tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed project are not considered in this section, because they require separate consultation pursuant to section 7 of the Act.

The Service is not aware of specific projects that might affect the valley elderberry longhorn beetle or its habitat that are currently under review by State, county, or local authorities. Nevertheless, continued human population growth in the Central Valley and other parts of California is expected to drive further development of agriculture, cities, industry, transportation, and water resources in the foreseeable future. Some of these future activities will not be subject to Federal jurisdiction (and thus are considered to enter into cumulative effects), and are likely to result in loss of riparian and other habitats where elderberry shrubs and the valley elderberry longhorn beetle occur.

Many of the activities affecting the valley elderberry longhorn beetle involve impacts to

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elderberry shrubs located within riparian ecosystems adjoining or within jurisdictional wetlands. These projects will be evaluated via formal consultation between the Service and the U. S. Army Corps of Engineers via the Federal nexus provided by section 404 of the Clean Water Act. While recent federally funded bank protection projects are likely to have included adequate compensation for the loss of valley elderberry longhorn beetle habitat, local unpermitted projects are likely to have included no compensation for adverse effects to the valley elderberry longhorn beetle, resulting in a loss of valley elderberry longhorn beetle habitat, and negatively affecting the environmental baseline for this species in a manner and to an extent which is difficult to quantify.

### **Conclusion**

After reviewing the current status of the beetle; the environmental baseline for the action area; the effects of the proposed action, including all measures to minimize and mitigate adverse effects; and the cumulative effects; it is the Service's biological opinion that the issuance of an incidental take permit pursuant to Section 10(a)(1)(B) of the Act is not likely to jeopardize the continued existence of the beetle, and does not destroy or adversely modify designated critical habitat. Critical habitat for this species has been designated along the lower American River at Goethe and Ancil Hoffman parks (American River Parkway Zone) and at the Sacramento Zone, an area about a half mile from the American River downstream from the American River Parkway Zone (USFWS 1984); however, this action does not occur in that area. Therefore, no destruction or adverse modification of critical habitat is anticipated.

### **INCIDENTAL TAKE STATEMENT**

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined under the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct". Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering; harm is defined to include significant habitat modification or degradation that results in death or injury to listed species by impairing behavioral patterns including breeding, feeding, or sheltering (50 CFR 17.3). Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity (50 CFR 402.02). Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with this Incidental Take Statement.

The proposed Offices at Parkshore Low-Effect HCP, and its associated documents clearly identify that anticipated effects to the beetle are likely to result from the proposed taking and the measures that are necessary and appropriate to minimize and compensate for those effects. All compensation measures described in the proposed HCP, together with the terms and conditions

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described in any section 10(a)(1)(B) permit issued with respect to the proposed HCP, are hereby incorporated by reference as reasonable and prudent measures and terms and conditions within this Incidental Take Statement pursuant to 50 CFR §402.14(I). Such terms and conditions are non-discretionary and must be undertaken for the exemptions under section 10(a)(1)(B) and section 7(o)(2) of the Act to apply. If the applicant fails to adhere to these terms and conditions, the protective coverage of the section 10(a)(1)(B) permit and section 7(o)(2) may lapse. The amount or extent of incidental take anticipated under the proposed Low-Effect HCP, and associated reporting requirements are as described in the HCP and its accompanying section 10(a)(1)(B) permit.

### **Amount or Extent of Take**

The Service anticipates incidental take of the valley elderberry longhorn beetle will be difficult to measure because it is difficult to determine the number of valley elderberry longhorn beetle larvae and pupae contained within each elderberry plant or how many adult beetles a single elderberry shrub can support. The cryptic nature of these species and their relatively small body size make the finding of an injured or dead specimen unlikely. The species occurs in habitats that make them difficult to detect. Due to the difficulty in quantifying the number of beetles that will be taken and because it is not known how many larvae or pupae each stem 1.0 inch or greater in diameter at ground level can support, the Service quantifies the amount of incidental take of the valley elderberry longhorn beetle in terms of the number of plants or stems 1.0 inch or greater in diameter at ground level that would be lost.

The Service anticipates that all valley elderberry longhorn beetles inhabiting the 47 elderberry stems measuring 1.0 inch or greater in diameter at ground level, will be harmed, harassed, injured, or killed, as a result of the proposed action.

### **Effect of the Take**

The Service has determined that this level of anticipated take in this opinion is not likely to result in jeopardy to the beetle or result in destruction or adverse modification of its critical habitat.

### **Reasonable and Prudent Measures**

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize the effect of take on the valley elderberry longhorn beetle:

1. Take in the form of harm, harassment, and mortality of valley elderberry longhorn beetle during construction activities and/or activities associated with implementing the project shall be minimized.
2. The effects to valley elderberry longhorn beetle resulting from habitat modification and temporary and/or permanent losses and degradation of habitat shall be minimized and, to the greatest extent practicable, habitat shall be restored to its pre-project condition.

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### **Terms and Conditions**

In order to be exempt from the prohibitions of section 9 of the Act, the applicant must ensure that the proposed project complies with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are nondiscretionary.

The following terms and conditions implement Reasonable and Prudent Measure number one (1) and two (2):

- a. The project applicant shall adhere to the proposed conservation measures as described in the November 2005 *Low-effect Habitat Conservation Plan for the Valley Elderberry Longhorn Beetle for the Offices at Parkshore* (Mark III, 2005), and as summarized in the project description of this biological opinion.
- b. The procedures outlined in the Service's *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* dated July 9, 1999, shall be followed for all actions related to the proposed project unless otherwise approved by the Service.
- c. The project applicant shall adhere to the reporting requirements as described below in this biological opinion.

### **Reporting Requirements**

The Service shall be notified immediately by facsimile or telephone and in writing within one (1) working day of any unanticipated take of beetle, and of the take or suspected take of listed wildlife species not authorized in this opinion. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal, and any other pertinent information. The Service contact persons are the Assistant Field Supervisor for the Endangered Species Program at (916) 414-6600 and the Resident Agent-in-Charge of the Service's Law Enforcement Division at (916) 414-6660.

Any dead or injured beetles must be relinquished to the Service. Any killed species that have been taken shall be properly preserved in accordance with the techniques recommended by the Entomology Department of the California Academy of Sciences. Information concerning how the animal was taken, length of the interval between death and preservation, and any other relevant information should be written on 100% rag content paper with permanent ink and included in the container with the specimen. Preserved specimens shall be delivered to the Service's Division of Law Enforcement at 2800 Cottage Way, Room W-2928, Sacramento, California 95825-1846, phone (916) 414-6660.

### **CONSERVATION RECOMMENDATIONS**

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Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

The Service has no conservation recommendations for the proposed action considered in this biological opinion.

### **REINITIATION - CLOSING STATEMENT**

This concludes formal consultation on the proposed issuance of a section 10(a)(1)(B) permit to implement the Offices at Parkshore Low Effect Habitat Conservation Plan, Sacramento County, California. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals that the action may affect listed species or critical habitat in a manner or to an extent not considered in this biological opinion; (3) the projects are subsequently modified in an manner that causes an effect to the listed species or critical habitat that was not considered in this biological opinion; or (4) a new species is listed or critical habitat designated that was not addressed by the HCP and may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation. A reinitiated consultation shall take into consideration the assurances that the applicants will receive in accordance with "No Surprises" regulations [50 CFR §17.22(b)(5) and §17.32(b)(5)] as these are described in the HCP.

If you have any questions regarding this biological opinion please contact the Chief of the Sacramento Valley Branch at (916) 414-6600.

## LITERATURE CITED

- Barr, C.B. 1991. The Distribution, Habitat, and Status of the Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus* Fisher (Insecta: Coleoptera: Cerambycidae). U.S. Fish and Wildlife Service, Sacramento, California. 134 pp.
- California Department of Water Resources (DWR). 1979. Land Use Changes in the Sacramento River Riparain Zone, Redding to Colusa, 1972-1977. Northern District Report, June 1979, Redding, California.
- California Natural Diversity Database (CNDDDB). 2005. Natural Heritage Division, California Department of Fish and Game. Sacramento, California.
- Collinge, S.K., M. Holyoak, C.B. Barr, and J.T. Marty. 2001. Riparian habitat fragmentation and population persistence of the threatened valley elderberry longhorn beetle in central California. *Biological Conservation* 100:103-113.
- Collinge, S.K. 1996. Ecological Consequences of Habitat Fragmentation: Implications for Landscape Architecture and Planning. *Landscape and Urban Planning* 36:59-77.
- Conrad, S.G., R.L. MacDonald, and R.F. Holland. 1977. Riparian Vegetation and Flora of the Sacramento Valley. Pages 47-56 in A. Sands (ed.) *Riparian Forests in California: their Ecology and Conservation*. University of California, Davis, California.
- Fahrig, L. 1997. Relative Effects of Habitat Loss and Fragmentation on Population Extinction. *Journal of Wildlife Management*. 61:603-610.
- Frayer, W. E., D. D. Peters, and H. R. Pywell. 1989. *Wetlands of the California Central Valley: Status and Trends, 1939 to mid-1980's*. U.S. Fish and Wildlife Service, Region 1. Portland, Oregon.
- Holway, D.A. 1998. Distribution of the Argentine ant (*Linepithema humile*) in Northern California. *Conservation Biology* 9:1634-1637.
- Huxel, Gary .R. 2000. The Effect of the Argentine ant on the threatened valley elderberry longhorn beetle. *Biological Invasions* 2:81-85.
- Huxel, G. R. and A. Hastings. 1999. Habitat loss, fragmentation, and restoration. *Restoration Ecology* 7:1-7.
- Jones & Stokes, Inc. 1988. Final Report: Field Investigation of Life History Characteristics of the Valley Elderberry Longhorn Beetle along the Cosumnes River, Sacramento County, California. Prepared for the U.S. Fish and Wildlife Service. Sacramento, California. 6 pp. with appendix.

Assistant Field Supervisor, Sacramento Fish and Wildlife Office

- Katibah, E. F. 1984. A Brief History of Riparian Forests in the Central Valley of California. Pages 23-29 *in* Warner, R. E. And K. M. Hendrix (eds.). California riparian systems: ecology, conservation, and productive management. University of California Press, Berkeley, California.
- \_\_\_\_\_, K. J. Drummer, and N. Nedeff. 1984. Current Condition of Riparian Resources in the Central Valley of California. Pages 314-321 *in* Warner, R. E. And K. M. Hendrix (eds.). California Riparian Systems: Ecology, Conservation, and Productive Management. University of California Press, Berkeley, California. pp. 314-321.
- Lande, R. 1988. Genetics and demography in biological conservation. *Science* 241:1455-1460.
- Mark III Engineering Contractors (Mark III). 2005. Low-effect Habitat Conservation Plan for the Valley Elderberry Longhorn Beetle for the Offices at Parkshore (APNs 071-0539-17 and 071-0539018) in Folsom, Sacramento County, California; Draft, November 2005. Prepared by Richard A. Arnold, Ph.D., Entomological Consulting Services, Ltd., Pleasant Hill, California.
- McCarten, N.F. and C.A. Patterson. 1987. Vegetation Quality and Rare Plant Study of Riparian Plant Communities along the Middle Sacramento River, California. California Department of Fish and Game Non-game Heritage Program. Sacramento, California.
- McGill, Robert, R., Jr. 1975. Land use Changes in the Sacramento River Riparian Zone, Redding to Colusa. State of California, Resources Agency, Department of Water Resources. April 1975. Sacramento, California. 23 pp.
- Primack, R.B. 1998. Essentials of Conservation Biology. Second Edition. Sinaur Associates. Sunderland, Massachusetts.
- Ritter, John. 2000. Valley of Plenty Fights to Survive the Irrigated Marvel, That Is the World's Richest Farmland Is Losing Ground to Economics and Urban Sprawl. *USA Today*. March 2.
- Roberts, W.G., J.G. Howe, and J. Major. 1977. A Survey of Riparian Forest Flora and Fauna in California. Pages 3-20 *in* A. Sands (ed.) Riparian Forests in California: their Ecology and Conservation. University of California, Davis, California.
- Shaffer, M.L. 1981. Minimum Populations Sizes for Species Conservation. *Bioscience* 31: 131-134.
- Smith, S. 1977. A Short Review of the Status of Riparian Forests in California. Pages 1-2 *in* A. Sands (ed.) Riparian Forests in California: their Ecology and Conservation. University of California, Davis. Davis, California.
- Thompson, K. 1961. Riparian forests of the Sacramento Valley, California. *Annals of the*

Assistant Field Supervisor, Sacramento Fish and Wildlife Office

Association of American Geographers 51: 294-315.

Thompson, K. 1977. Riparian forests of the Sacramento Valley, California. Pages 35-38 in A. Sands (ed.). Riparian Forests in California: their Ecology and Conservation. University of California, Davis, California. May 14.

US Fish and Wildlife Service (USFWS). 1980. Listing the Valley Elderberry Longhorn Beetle as a Threatened Species with Critical Habitat. Federal Register 45(155): 52803-52806. August 8, 1980.

\_\_\_\_\_. 1984. Valley Elderberry Longhorn Beetle Recovery Plan. Portland, Oregon. 62 pp.

\_\_\_\_\_. 1996. Mitigation Guidelines for the Valley Elderberry Longhorn Beetle, 19 September, 1996. Sacramento Fish and Wildlife Office, Sacramento, California. 11pp.

\_\_\_\_\_. 1999. Conservation Guidelines for the Valley Elderberry Longhorn Beetle, 9 July 1999. Sacramento Fish and Wildlife Office, Sacramento, California. 13pp.

\_\_\_\_\_. 2006. Screening From for Low-effect HCP Determinations and Environmental Action Statement (1-1-06-PA-1818), Sacramento Fish and Wildlife Office, Sacramento, California. 6 pp.

Ward, P.S. 1987. Distribution of the introduced Argentine ant (*Iridomyrex humilis*) in natural habitats of the lower Sacramento Valley and its effects on the indigenous ant fauna. Hilgardia 55:1-16.