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### Acronyms

BA	Biological Assessment
BMPs	Best Management Practices
CDPR	California Department of Parks and Recreation
CDF	California Department of Forestry and Fire Protection
CDFG	California Department of Fish and Game
CNDDB	California Natural Diversity Database
ESA	Federal Endangered Species Act
FEMA	Federal Emergency Management Agency
FS	United States Forest Service
OES	Office of Emergency Services
PDM	Pre-disaster Mitigation
RWQCB	Regional Water Quality Control Board
URS	URS Corporation
USFWS	United States Fish and Wildlife Service
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
WPPF	Westside Ponderosa Pine Forest

The State of California Department of Parks and Recreation (CDPR) has applied to the Federal Emergency Management Agency (FEMA) through the State of California Governor's Office of Emergency Services (OES) for assistance with a vegetation management project at the Empire Mine State Historic Park (proposed action).

This Biological Assessment (BA) documents potential adverse effects to species listed as endangered, threatened, proposed for listing as endangered or threatened, or candidates for listing as endangered or threatened under the federal Endangered Species Act (ESA) that are regulated by the U.S. Fish and Wildlife Service (USFWS).

The action area is located in Nevada County, California, at the Empire Mine State Historic Park (Park). The proposed action would involve removal of vegetation to reduce future wildfire risks to the Park and surrounding communities. The action area has five main vegetation types: westside ponderosa pine forest (WPPF), areas with early successional stages of WPPF, montane manzanita chaparral, meadows, and montane riparian scrub (Holland 1986).

As a result of the field reconnaissance and background review, it was determined that the action area provides habitat suitable to support one federally listed species under the USFWS' jurisdiction: the California red-legged frog (*Rana aurora draytonii*), which is listed as threatened.

After a literature review, site reconnaissance, communication with individuals knowledgeable about the species, and consideration of the proposed activities, FEMA has determined that the proposed action is not likely to adversely affect the California red-legged frog.

CDPR has applied to FEMA through OES for assistance with a vegetation management project at the Empire Mine State Historic Park. FEMA intends to fund the proposed action under the Pre-Disaster Mitigation (PDM) program.

This report is organized into seven sections. The remaining portion of Section 1 describes the purpose and need for the proposed action. Section 2 describes the action area and proposed action. Section 3 describes the affected environment, including the study methods, habitat description, and the special status species that are relevant to the proposed action. Section 4 evaluates the habitat suitable to support the California red-legged frog in the action area, the potential effects on this species. Cumulative effects are presented in Section 5. References are listed in Section 6, and the list of preparers for this report is in Section 7.

## 1.1 PURPOSE AND NEED

The PDM program was authorized by Section 203 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), Title 42 of the United States Code Part 5133, as amended by Section 102 of the Disaster Mitigation Act of 2000, Public Law 106-390, 114 Statute 1552, to assist states and communities to implement a sustained, pre-disaster, natural-hazard mitigation program to reduce overall risk to the population and structures, while also reducing reliance on funding from actual disaster declarations. Therefore, the purpose of the action is to provide PDM Program funding to CDPR.

Decades of fire suppression in the Sierra Nevada foothills and the inability to mimic natural fire conditions due to extreme flammability of dense brush and understory vegetation have left the Empire Mine State Historic Park and the surrounding areas susceptible to fire. The action area is within a zone that is designated Very High per the Wildland Fire Hazard Severity Zone Map as mapped by the California Department of Forestry and Fire Protection.

High density residential development is located along 55 percent of Empire Mine State Historic Park boundary, including approximately 1,000 homes immediately surrounding the Park. The city of Grass Valley, all historic structures within Empire Mine State Historic Park and many homes could be at immediate risk if a fire started in or migrated through the Park. Therefore, action is needed to reduce wildfire risks within the Empire Mine State Historic Park.

## 2.1 ACTION AREA

The action area is located southeast of the City of Grass Valley in Nevada County, more specifically in the Empire Mine State Historic Park (Figure 1). Large areas in the Park were clearcut in the second half of the nineteenth century, mining activities have also occurred at the Park, and more recently the area was subject to fire suppression. These activities have resulted in a continuous thick forest with heavy fuels in the understory at the Park. The proposed action is located in the lower foothills of the northern Sierra Nevada and the elevation ranges from 2,500 to 2,900 feet.

## 2.2 PROPOSED ACTION

CDPR proposes to create a shaded wildland fire fuelbreak at the Empire Mine State Historic Park. The action area encompasses eight units of the Park, as shown in Figure 1. CDPR would remove approximately 90 percent of the brush undergrowth, mostly consisting of whiteleaf manzanita (*Arctostaphylos viscida*) and small diameter trees.

The action area would be treated as a Defensible Fuel Profile Zone (DFPZ). Within the DFPZ, the biomass would be reduced by removing 90 percent of the brush and young conifers of less than 6 inches diameter at breast height (dbh; measured at 4.5 feet above the surface of the ground). Priority for the less than 6-inch-dbh conifer removal would be (in decreasing order) (a) dead, standing trees, (b) ponderosa pine (*Pinus ponderosa*) infected with Western Gall Rust disease, and (c) shade intolerant species which are growing in shaded conditions causing deformity and sparse foliage. Conifers of greater than 6 inches dbh and less than 10 inches dbh would be removed to reduce the basal area of conifers to less than 120 square feet per acre. All hardwood tree species, such as black oak (*Quercus kelloggii*), Pacific madrone (*Arbutus menziesii*), and live oak (*Quercus chrysolepis*) of greater than 6 inches dbh would be retained throughout the action area. Dominant and co-dominant trees would be retained, except if a dominant or co-dominant individual tree is a hazard to the roadway, public and CDPR employee safety or a facility. Young hardwood sprouts would be pruned to leave 2 or 3 dominant leaders on the existing bole. When pruning, the live-crown ratio of trees would not be reduced by more than half the height of the tree. Trees would not be removed for commercial harvest.

The basic treatment specifications within the DFPZ are as follows:

- Basal area target: 90 to 120 square feet per acre
- Snag retention/recruitment target: 0.5 to 2 per acre
- Downed logs target: 0.5 to 5 per acre
- Snag/log minimum size: 14 inches dbh by 20 foot height/length
- Retain largest relative diameter and/or snags/logs with evidence of prior animal use
- Stumps cut to within 1 inch of ground level
- Dead limbs pruned up 6 to 8 feet
- Live limbs pruned up 6 to 8 feet on trees of 8 inches dbh and larger
- Thinning of shrubs 5 to 20 feet between plant crowns
- Woody debris of greater than 1 inch diameter and 3 feet length removed
- Fruit trees less than 6 inches dbh will be removed

Hand labor would be utilized to remove vegetation. No heavy equipment would be used to implement the proposed action. Removed vegetation would be chipped and burned in piles onsite periodically during the early fall and late spring seasons.

The objective of the DFPZ is to maintain an excellent fire-safety zone that would not readily carry crown fire with good representation of native forest composition and structure. By leaving the dominant hardwood and conifer overstory trees and forcing a high-intensity fire down to a low-intensity fire, this helps ensure the survival of the trees in the action area. The completed project would break the continuous fuel bed and allow firefighting resources to defend the park, its historical structures, and the City of Grass Valley by direct initial attack. The current situation precludes direct attack by ground wildland firefighting forces because the brush is so dense that the fire intensity would be too great to allow engines, crews, or bulldozers into the area.

The proposed action would treat approximately 653 acres of mixed coniferous forest and black oak forest within the Empire Mine State Historic Park over a 3-year period. Units 1, 2, and 7 would be treated in year one; Units 3 and 5 would be treated in year two; and Units 4, 6, and 8 in year three.

### 3.1 VEGETATION COMMUNITIES

URS Corporation (URS) biologists, as consultants to FEMA, conducted a reconnaissance survey of the action area from June 23-25, 2004. Five terrestrial vegetation types are present in the action area: westside ponderosa pine forest (WPPF), areas with early successional stages of WPPF, montane manzanita chaparral, meadows, and montane riparian scrub (Holland 1986). Aquatic habitats in the action area include perennial streams and perennial ponds. The distribution of these vegetation types and aquatic habitats in the action area is depicted in Figures 2A, 2B, and 2C. Photographs 1 through 9 show characteristic types of vegetation. These five vegetation types are briefly described below.

#### *Westside Ponderosa Pine Forest (84210)*

The WPPF is the dominant vegetation type in the action area (550 acres). This vegetation type occupies large, continuous stands throughout the Empire Mine State Historic Park (Photographs 1 and 2, Appendix B). Photograph 3 shows the trail system within the forest. The westside ponderosa pine forest has an open, park-like forest dominated by ponderosa pine (*Pinus ponderosa*). Holland (1986) describes the understory as sparse, consisting of scattered chaparral shrubs and young trees. In the action area, the understory consists of large patches of whiteleaf manzanita (*Arctostaphylos viscida*) and saplings of ponderosa pine, Douglas fir (*Pseudotsuga menziesii*), black oak (*Quercus kelloggii*), and incense cedar (*Calocedrus decurrens*). The ground tends to accumulate a considerable amount of needle litter and pine cones. Growth occurs primarily from late spring to midsummer and is probably limited by summer and fall drought (Holland 1986). Cones mature in early autumn and all other plants are essentially dormant in winter (Holland 1986). The large trees in the action area are approximately 40 feet tall and the manzanita understory reaches over 12 feet in height in several areas. These areas were historically subject to occasional ground fires; however, in the absence of regular fires, the accumulation of understory vegetation can result in more intense fires that affect the survival of the overstory vegetation.

Other species observed in the overstory cover, but not dominant, include Pacific madrone (*Arbutus menziesii*), bigleaf maple (*Acer glabrum*), and California buckeye (*Aesculus californica*). Poison oak (*Toxicodendron diversilobum*) and Himalayan blackberry (*Rubus discolor*) are abundant in the herbaceous and shrub layers. Small patches of California blackberry (*R. ursinus*) (native species) are scattered throughout the forest. The herbaceous layer is dominated by: Sierran mountain misery (*Chamaebatia foliosa*) and sky lupine (*Lupinus nanus*). Other herbaceous species found onsite are yellow star tulip (*Calochortus monophyllus*), rainbow iris (*Iris hartwegii*), honeysuckle (*Lonicera* sp.), Davy's gumplant (*Grindelia hirsutula* var. *davyi*), soap plant (*Chlorogalum pomeridianum*), California Indian plant (*Silene californica*), leopard lilly (*Lilium pardalinum*), buckbrush (*Ceanothus cuneatus*), Miner's lettuce (*Claytonia parviflora*), and everlasting pea (*Lathyrus latifolius*).

This vegetation type is abundant on the west side of the Cascade Range and Sierra Nevada from the Siskiyou Mountains to northern Kern County (Holland 1986). The elevation ranges from 2,000 to 5,000 feet in northern California. As noted above, the elevation of the action area ranges from 2,500 to 2,900 feet. The WPPF is the lowest-occurring montane forest type over most of its range (Holland 1986).

### *Early Successional Stages of WPPF*

The action area was historically subject to hard rock mining. Extensive tailings piles resulted from crushing and processing rock mined in deep tunnels beneath the park. Certain locations within the action area have been subject to vegetation clearing during mining operations. These areas have lost their topsoil and currently have early successional stages of ponderosa pine, black oak, white fir, and other species found in the WPPF vegetation type. These areas occur in large patches in Units 1, 7, and 8, and total 19 acres.

### *Montane Manzanita Chaparral (37520)*

Typically, montane manzanita chaparral occurs in dense chaparrals, approximately 6 to 16 feet tall, and is dominated by any of several species of manzanita (Holland 1986). It may occur as a post-fire successional stage in burned WPPF among other forest types. The plants are dormant during the winter, and most are active in the late spring and early summer. Large patches of whiteleaf manzanita (*Arctostaphylos viscida*) occur throughout the action area (Photograph 4). Some of these areas were “thinned” a few years ago, for example in Unit 4 (Hively pers. comm.). A total of 74 acres of this vegetation type is found in the action area. Montane manzanita chaparral occurs in large patches in Units 2, 4, 6, 7, and 8. The largest patch occurs in Unit 4 and extends for up to 1,600 feet in length. These patches dominated by manzanita range from 3 to 15 feet high. In most of the action area, manzanita forms thick stands or impenetrable shrubs. Manzanita shrubs have the potential to ignite fires fairly easily.

This vegetation type is scattered in the Klamath and North Coast Ranges south to Lake County. It is commonly found in the western foothills of the Cascade-Sierra south to Yuba and Nevada Counties from 2,000 to 4,000 feet in elevation (Holland 1986).

### *Meadows*

Two meadows occur in the action area. The larger one extends for 200 feet in length and is located in Unit 1. It is dominated by a non-native, invasive vine species and Himalayan blackberry (*Rubus discolor*). Other species found at this meadow include common mullein (*Verbascum thapsus*). The second meadow is smaller and is located at the northwestern section of Unit 8. Both meadows were completely dry during the site assessment. Combined, the meadows account for a total of 0.5 acre.

### *Montane Riparian Scrub (63500)*

Two small patches of montane riparian scrub occur in Units 1 and 8 (Figure 2B). These two patches of montane riparian scrub inside the action area total 1 acre. Outside of the action area but adjacent to it, there is a large (500 feet by 400 feet) patch between Units 7 and 8 with sandy soils (Photograph 5). Typically, montane riparian scrub consists of open to dense, broadleaf, winter-deciduous, shrubby riparian thickets, usually dominated by any willow species (*Salix* sp.), alder (*Alnus* sp.), or dogwood (*Cornus* sp.) (Holland 1986). The patches found in the action area are dominated by arroyo willow (*Salix lasiolepis*), Fremont’s cottonwood (*Populus fremontii*), white alder (*Alnus rhombifolia*), and dogwood (*Cornus nuttallii*). Horsetails (*Equisetum* sp.) were found in the herbaceous layer of this vegetation type.

This vegetation type is widely scattered above 5,000 to 7,000 feet throughout montane parts of the Klamath, Sierra Nevada, and Southern California mountains. However, the action area is located between 2,500 to 2,900 feet in elevation.

### *Perennial Streams*

Little Wolf Creek is the main drainage in the action area and is a tributary to Wolf Creek, which eventually reaches the Bear River and eventually the Sacramento River. It crosses Units 5, 7, and 8. There are two smaller creeks at the northern edge of Unit 1 running behind a tennis court and private residences. Little Wolf Creek has limited riparian habitat along its shallow banks (Photograph 6). Water levels at these two streams are approximately one foot deep and 4 feet wide. These streams have a more discrete riparian zone (Photograph 7).

### *Perennial Pond*

One perennial pond was found in Unit 5 (Figures 2B and 2C). The pond was constructed during the active mining period, receives water from a pipe, and was stocked at one time with bass and mosquito fish. It had standing water approximately 5 feet deep, as shown in Photograph 8. The vegetation around it is WPPF. This pond was covered with algae. This pond covers an area of 0.3 acre.

### *Disturbed Areas*

Disturbed areas are scattered throughout the Empire Mine State Historic Park and occur in small patches in Units 1, 5, 6, and 8. Disturbed areas total 8 acres in the action area. Some of those areas corresponds to old mine tailings, other areas are storage yards, areas covered with gravel, or private residences (Photograph 9).

The action area is generally dominated by large, continuous patches of WPPF. Large patches of montane manzanita chaparral also occur throughout the action area in Units 2, 4, 6, 7, and 8, but are less common than WPPF. Areas characterized as early successional stages of WPPF occur as large, scattered patches. The two meadows identified in the action area are small. Table 1 presents the total acreages for the terrestrial vegetation types and aquatic habitats found in the action area.

**Table 1**  
**Total Acreages for the Terrestrial Vegetation Types**  
**and Aquatic Habitats Found in the Action Area**

<b>Vegetation Types</b>	<b>Acreage</b>
Westside ponderosa pine forest	550
Early successional stages of WPPF	19
Montane manzanita chaparral	74
Meadow	0.5
Montane riparian scrub	1

**Table 1**  
**Total Acreages for the Terrestrial Vegetation Types**  
**and Aquatic Habitats Found in the Action Area**

Vegetation Types	Acreage
Perennial streams	--
Perennial pond	0.3
Disturbed areas	8
Total	653

Note: Acreages for the streams was not calculated because the stream widths vary seasonally and they are represented by a line on the GIS layer.

The Park's current standard for vegetation type classification is the one outlined in *A Manual of California Vegetation* (Sawyer and Keeler-Wolf 1995). Table 2 presents the vegetation types found in the action area as defined by Holland (1986) and Sawyer-Keeler-Wolf (1995).

**Table 2**  
**Vegetation Types for the Action Area**

Holland (1986)	Sawyer and Keeler-Wolf (1995)
Westside ponderosa pine forest	Ponderosa pine series Mixed conifer series Black oak series
Early successional stages of WPPF	Recolonization – Unique setting
Montane manzanita chaparral	Whiteleaf manzanita series
Montane riparian scrub	Willow riparian community

## 3.2 STUDY METHODS

FEMA obtained information concerning species listed as endangered, threatened, proposed for listing as endangered or threatened, or candidates for listing as endangered or threatened under the federal ESA that may occur in the action area. A list of special status plant and wildlife species with potential to occur in the vicinity of the action area were identified from the following sources:

The California Department of Fish and Game (CDFG) Natural Diversity Database (CNDDDB) was searched for known occurrences of special status species within nine U.S. Geologic Survey (USGS) 7.5-minute quadrangles surrounding the action area: Grass Valley, Rough and Ready, French Corral, Nevada City, North Bloomfield, Chicago Park, Colfax, Lake Combie, and Wolf (CDFG 2004b).

FEMA requested a list of endangered and threatened species that may occur in those nine 7.5-minute quadrangles from the Sacramento Field Office of the U.S. Fish and Wildlife Service (USFWS).

### 3.3 SPECIAL STATUS SPECIES

These searches identified 8 special status wildlife and 4 special status plant species (Table 3). FEMA conducted a literature review to identify habitat requirements and distribution of these special status species. Species identified in Table 3 with no potential to occur or unlikely to occur in the action area are not discussed further in this report. As a result of the field reconnaissance and background review, FEMA determined that the action area could provide habitat suitable to support one federally listed species under the USFWS' jurisdiction. The California red-legged frog (*Rana aurora draytonii*) could occur in or in the vicinity of the aquatic and semi-aquatic habitats identified in the action area.

#### *California red-legged frog*

The California red-legged frog is listed as threatened under the ESA. The historical range of the California red-legged frog extended on the coast from the vicinity of Point Reyes National Seashore, and inland from the vicinity of Redding, southward to northwestern Baja California, Mexico (USFWS 2004a). It occurs west of the Sierra-Cascade crest and along the Coast Ranges the entire length of the state, usually below 3,936 feet; only isolated populations have been documented in the Sierra Nevada (USFWS 2004a). This species has sustained a 70 percent reduction in its geographic range in California (USFWS 2004a). Currently, California red-legged frogs are primarily limited to small coastal drainages between Santa Barbara and areas just north of San Francisco (Jennings and Hayes 1994). The largest extent of currently occupied habitat is found in Monterey, San Luis Obispo, and Santa Barbara Counties (USFWS 2004a). Continuing loss of fresh water habitat and the introduction of non-native predatory fish species and bullfrogs are attributed to the continuing population decline of this species. Much evidence indicates that the introduced bullfrog may prey upon and displace California red-legged frogs through competition for resources. Loss of riparian and emergent vegetation results in increased water temperature, which favors bullfrog reproduction (USFWS 2004a).

Red-legged frogs are generally found along marshes, streams, ponds, and other permanent sources of water where dense scrubby vegetation such as willows, cattails, and bullrushes dominate, and water quality is good. Typical habitat for this species is a combination of dense, shrubby or emergent riparian vegetation closely associated with deep water (more than 3 feet deep) and the absence of predatory fish and bullfrogs (USFWS 2001). Upland habitats with dense vegetation may be important sheltering habitat during winter. During the dry season, red-legged frogs occupy small mammal burrows and moist leaf litter. This species is known to disperse via upland habitats for approximately one mile over the course of a wet season (USFWS 2002).

Breeding sites occur along watercourses with pools that remain long enough for breeding and the development of larvae. Breeding time depends on winter rains but is usually between late November and late April (Jennings 1988; Zeiner et al. 1988). Breeding sites require water that remains long enough for breeding purposes and larval development (CDFG 2004a). Egg masses are laid in permanent bodies of water. Eggs hatch in 6 to 14 days, and approximately 3.5 to 7 months later, the tadpoles develop into frogs. California red-legged frogs must have 11 to 20 weeks of permanent water for larval development, as well as appropriate refugia for aestivation periods. Appropriate refuge for California red-legged frogs include small mammal burrows, downed logs or vegetation, or dense vegetation/litter layer. Tadpoles and young frogs depend

mainly on invertebrates as a food source, while the diet of adult frogs consists of Pacific tree frogs (*Hyla regilla*), California mice (*Peromyscus californicus*), and insects. Adult frogs are mainly active at night, and may be active year-round in areas with permanent water. California red-legged frogs may require rains for dispersal. Individuals have been found at considerable distances from breeding sites on rainy nights during the winter and spring.

Critical habitat for California red-legged frog was designated on March 13, 2001 (USFWS 2001), effective April 12, 2001, and revised on April 13, 2004 (USFWS 2004b). The proposed action is not located within or near designated critical habitat for this species. There is no designated critical habitat for the CRLF in Nevada County.

## **SECTION FOUR    Adverse Effects and Avoidance and Minimization Measures**

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This section describes the potential adverse effects to the California red-legged frog, and presents measures to avoid and minimize those effects.

### **4.1    HABITAT SUITABLE TO SUPPORT THE CALIFORNIA RED-LEGGED FROG**

Typically, California red-legged frogs inhabit slow-moving streams with pools and overhanging vegetation, and large emergent marshes. California red-legged frogs are more likely to persist in areas that are seasonally dry because these conditions reduce the survival of bullfrogs.

California red-legged frogs occupy a fairly distinct habitat, combining both specific aquatic and riparian components. Adults often utilize dense, shrubby or emergent vegetation closely associated with deep-water pools (greater than 3 feet deep) with fringes of cattails and dense stands of overhanging vegetation such as willows (USFWS 2004a).

Habitat suitable for breeding, foraging, dispersal, and aestivation of the California red-legged frog is present in the action area and surrounding area. Habitats in the action area that may be used for breeding, foraging, and/or dispersal of the red-legged frog include a series of perennial streams, ponds in the surrounding area, and associated montane riparian scrub (Figures 2A, 2B, and 2C). Upland areas with riparian habitat in the action area may provide dispersal and/or aestivation habitat for this species. Vegetation cover with riparian habitat exist in the action area, but is minimal.

A large seasonal pond located between Units 7 and 8 may provide suitable breeding and foraging habitat for the red-legged frogs. A red-legged frog occurrence within 8.6 miles of the action area is associated with a similar pond (CDFG 2004b). This seasonal pond near the action area has emergent vegetation at its edges and appear to persist long enough to be utilized by breeding red-legged frogs. The perennial streams in the action area have minimal emergent vegetation and have a narrow riparian overstory (Photograph 7). However, these streams could be utilized as dispersal corridors for frogs if they are present in the area.

As mentioned above, California red-legged frogs and tadpoles were observed in 2003 at a pond located approximately 8.6 miles northeast from the action area (CDFG 2004b). This occurrence is the closest and only California red-legged frog observation documented within the nine USGS quadrangles surrounding the action area. The pond is located on the east side of Sailor Flat, between the South Yuba River and Harmony Ridge. The habitat at this occurrence consists of a perennial pond with an overstory of coniferous forest, with willows and blackberries around the pond's edge; water milfoil and cattails dominate the pond vegetation (CDFG 2004b). This description is similar to the pond observed between Units 7 and 8.

### **4.2    POTENTIAL ADVERSE EFFECTS ON THE CALIFORNIA RED-LEGGED FROG**

Although the action area provides habitat suitable to support the California red-legged frog, the proposed action is not likely to adversely affect this species. The action area includes aquatic and semi-aquatic habitats that may provide suitable breeding, foraging, and dispersal habitat for California red-legged frogs, but all vegetation clearing would be done by hand. All vegetation removal related to the proposed action would be done by hand crews. Therefore, injury and/or mortality of frogs is highly unlikely. No heavy machinery, such as a masticator, would be used in the action area and, therefore, implementation of the proposed action is not expected to adversely affect this species. In addition, standard BMPs would be implemented as part of the

## **SECTION FOUR**    **Adverse Effects and Avoidance and Minimization Measures**

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proposed action to avoid and minimize any erosion or sedimentation during vegetation clearing. No avoidance or minimization measures are necessary to implement the proposed action.

### *Summary of Potential Adverse Effects to the California Red-legged Frog*

As discussed above, the proposed action is not likely to adversely affect the California red-legged frog.

Cumulative effects as defined by the ESA are those effects of future state or private activities that are reasonably certain to occur within the proposed action area (ESA, Section 402.14 (g)(4)). Cumulative effects to special status species addressed in this report would likely occur in association with other projects near the Park that could affect the California red-legged frog.

The proposed project in combination with other projects in the region could contribute to cumulative effects on the California red-legged frog in the local area as a result of disturbance of habitat suitable for breeding, foraging, dispersal, and aestivation in the park. The habitat disturbance resulting from development of the proposed action would contribute on a minor but incremental basis to cumulative effects to the California red-legged frog on a regional basis. However, there are no other on-going projects at the Empire Mine State Historic Park with the exception of the planned installation of an underground mine tour. The principal work would take place underground with a small footprint aboveground and within the context of the “grounds” of the park, an area managed principally for its cultural values, not natural resource values. Therefore, the Empire Mine Fuelbreak Project would not have a cumulative effect on federally listed species or their designated critical habitat.

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- Alessandro Amaglio, FEMA Region IX Environmental Officer
- Morgan Griffin, Senior Project Manager
- Steve Leach, URS Senior Biologist
- Lorena Solorzano-Vincent, URS Biologist

**Appendix A**  
**Photographs of the Action Area**

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**Photographs of the Action Area**

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