

CALIFORNIA RED-LEGGED FROG ASSESSMENT

EMPIRE MINE STATE HISTORIC PARK REMEDIATION PROJECT
NEVADA COUNTY, CALIFORNIA



Prepared for

Golder Associates

Prepared by



VESTRA Resources, Inc.
5300 Aviation Drive
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DECEMBER 2008

December 15, 2008

70806

Mr. Jerimiah Karuzas
U.S. Fish and Wildlife Service
2800 Cottage Way
Room W2605
Sacramento, CA 95825

**RE: California Red-Legged Frog Assessment
Empire Mine State Historic Park Remediation Project**

Dear Mr. Karuzas:

A biological characterization including a California Red-Legged Frog (CRLF) Assessment was conducted associated with an Environmental Impact Report for Empire Mine State Historic Park.

To establish criteria of assessing impacts to potentially occurring CRLF (*Rana draytonii*), protocol-level surveys of suitable amphibian habitat were conducted within the proposed project area and any suitable habitat within 1 mile of the proposed project. The report describing the study and its findings is attached.

Please call me at 530-223-2585 if you have any questions.

Sincerely,

VESTRA Resources, Inc.

Shawn Fresz
Senior Biologist

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JANUARY 2009

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Section 1 INTRODUCTION

To support various planning, compliance and remediation activities, VESTRA Resources, Inc., conducted a habitat characterization and protocol-level survey for the California red-legged frog (*Rana draytonii*; CRLF). The CRLF survey area encompassed the Empire Mine State Historic Park remediation area and areas containing suitable frog habitat within 1 mile of the proposed project (U.S. Fish and Wildlife Service, 2005). The purposes of this investigation are (1) to describe current aquatic and terrestrial habitat conditions, including a classification of general vegetation communities present and identification of potentially suitable habitat for CRLF breeding, dispersal, and foraging activities; and (2) to assess the presence or absence of the California red-legged frog within the survey area.

SITE LOCATION

The Empire Mine State Historic Park is located in Nevada County on the western slope of California's Sierra Nevada Mountains, within Section 26, 34, and 35, Township 16 North, Range 8 East, MDBM, in the USGS Grass Valley Quadrangle. The park is bordered by the city of Grass Valley on the east, East Bennett Road to the north, Osborne Hill Road to the southeast, and private property on the remaining borders. Relatively undisturbed Bureau of Land Management land borders the park to the southeast. The park is divided by Colfax State Scenic Highway 174 which extends east to west, splitting the park into two segments, a northern and a southern parcel. Both parcels are owned and operated by the California Department of Parks and Recreation (CDPR), Gold Mine District. The general site location is shown on Figure 1. The park layout is shown on Figure 2.

SITE HISTORY

The Empire Mine State Historic Park is one of the largest tourist attractions in the area. The primary historic and recreational attraction is located south of Highway 174 and East Empire Street. The area to the north of Highway 174 is less used. Mining operations within the present boundaries of the park began in 1851 and were active until 1956. The Empire Mine was purchased in 1975 by CDPR and designated a historic district in 1976. This designation listing was due to the historic buildings, machinery, and mine shafts present at the time of purchase.

Historic mine areas in the park have been found to contain elevated levels of metals in soils and surface water. The Central Valley Regional Water Quality and Control Board (RWQCB) issued a Time Schedule order for Clean Water Act Compliance at the Magenta Drain in June 2006. The RWQCB issued a Cleanup and Abatement Order, and the Department of Toxic Substances Control (DTSC) issued an Imminent and/or Substantial Endangerment Determination in October 2006. In November 2006, the CDPR and Newmont USA, Ltd. (the previous mine owner), signed the DTSC Consent Order. DTSC advised CDPR to conduct a Preliminary Endangerment Assessment (PEA). The PEA addressed the area roughly bounded by the emergent wetland area to the west, Little Wolf Creek to the south, the former cyanide plant to the north, and the stamp mill to the east (approximately 340 of the park's 856 acres). The PEA was finished in 1993 and determined that arsenic, lead, mercury, and cadmium were present in soils at elevated levels. The recommendation of the PEA was to conduct a full remedial

investigation and to close all trails south of the former cyanide plant. CDPR and Newmont have completed investigations in numerous areas of the park, and remedial actions to reduce environmental and human health risks are planned. The trails are currently closed with fencing and signage.

Section 2 SPECIES BACKGROUND

LEGAL STATUS AND HISTORIC RANGE

The CRLF was listed as threatened on May 24, 1996, under the federal Endangered Species Act, and is also a California state species of special concern (Jennings and Hayes, 1994). The frog was historically found in scattered populations throughout much of California west of the Sierra Nevada below 4000 feet (Stebbins, 1972), but it has disappeared from much of its former range (Moyle, 1973; Hayes and Jennings, 1986). The U.S. Fish and Wildlife Service (USFWS) determined that the listing was necessary because the frog was largely absent from more than 70 percent of its original range and threatened within its remaining range by a wide variety of human activities including urban encroachment, construction of reservoirs and water diversion, contaminants, agriculture, and livestock grazing (USFWS, 2002).

In contrast to its numbers in other locations in the state, significant numbers of CRLF still occur in the relatively small coastal drainages between Point Reyes (Marin County) and Santa Barbara (Santa Barbara County). The drainages in this region are characterized by more suitable habitat and a less frequent occurrence of exotic aquatic predators than elsewhere (Jennings and Hayes, 1994).

HABITAT REQUIREMENTS

CRLF are reported to require coldwater pond habitats (including stream pools and ponds) with emergent and submergent vegetation (Storer, 1925; Stebbins, 1972). Habitats with the highest densities of frog populations are deep-water pools (at least 2.5 feet deep) with dense stands of overhanging willows and a fringe of tules or cattails (Jennings, 1988; Jennings and Hayes, 1994). Although CRLF can occur in ephemeral or permanent streams or ponds, populations probably cannot be maintained in ephemeral streams in which all surface water disappears (Jennings and Hayes, 1994).

SPECIES DESCRIPTION

As adults, CRLF are primarily aquatic when active, but rely less on permanent water bodies than do other frog species (Brode and Bury, 1984). Adults have been found to take refuge during dry periods in abandoned holes or leaf litter in riparian habitats. Although typically staying active near streams or ponds, marked and radio-tagged frogs have been observed to move more than 2 miles through upland habitat. These movements are typically made during wet weather and at night (USFWS, 2000).

From December to early April, CRLF lay their eggs in clusters around aquatic vegetation. The eggs hatch in 6 to 14 days (Jennings, 1988). Increased siltation of water bodies, which may occur during the breeding season, can cause asphyxiation of eggs and small larvae. Larvae undergo metamorphosis 3.5 to 7 months after hatching (Storer, 1925; Wright and Wright, 1949; Jennings and Hayes, 1990). Recent studies, however, indicate that larvae can take more than a year to complete metamorphosis (Fellers et al., 2000). Of all the life stages, larvae are thought to have

the highest mortality rates, and usually less than 1 percent of the eggs laid reach metamorphosis (Jennings et al., 1992). Sexual maturity is reached at 3 to 4 years (Storer, 1925; Jennings and Hayes, 1985), and life expectancy is 8 to 10 years (Jennings et al., 1992).

The CRLF diet is highly diverse. Larval frogs most likely eat algae (Jennings et al., 1992). Hayes and Tennant (1985) found that invertebrates are the most common food choice for juveniles and adults. Vertebrates such as Pacific chorus frogs (*Pseudacris regilla*) and California deer mice (*Peromyscus californicus*) represent over half of the food sources for the larger frogs. Juvenile frogs are active diurnally and nocturnally, whereas adult frogs are primarily nocturnal. Feeding activity most commonly occurs along the shoreline and on the surface of the water (Hayes and Tennant, 1985).

CRLF are highly aquatic and can reach 5 inches in snout-to-vent length. They can appear brown, gray, olive, or reddish from above, with coloring that includes many small black flecks and larger random dark blotches. The dorsal surface of the frog is bordered on each side by a prominent dorsolateral fold of skin between the eye and the hip. Their ventral sides are yellowish, with red on the lower abdomen and underside of the hind legs (Stebbins 1954, 1972).

Section 3 SITE ASSESSMENT

A query of the California Natural Diversity Database (CNDDDB) was conducted for CRLF locality records on May 1, 2008. The search revealed the nearest record of a CRLF occurrence to be approximately 8.4 miles northeast of the project site on June 16, 2003. Sixteen CRLF adults and 19 tadpoles were observed. The occurrence was in a drainage pond that is part of a larger pond complex located on the east side of Sailor Flat, between the south Yuba River and Harmony Ridge. This location is shown on Figure 3. The land is privately owned.

During initial project consultations with CDPR and the USFWS, it was concluded that protocol-level CRLF surveys were necessary to provide updated habitat categorization and investigative efforts for the protected frog. Aquatic features and vegetation communities within the proposed remediation project were evaluated for suitability as CRLF habitat as well as potential suitable habitat within 1 mile of the project. To evaluate habitat suitability, the biologists assessed the potential of each site to provide refuge and support breeding and dispersal movements

Survey Forms were completed for areas of potential habitat and are attached as Appendix A. Pertinent site photographs are included following their respective assessment forms.

SURVEY METHODOLOGY

Surveys were conducted using the *Revised Guidance on Site Assessments and Field Surveys for the California Red-Legged Frog* (USFWS, 2005).

In an effort to minimize the spread of pathogens, such as chytrid fungus and other microbes that may be transferred as a result of investigation activities, surveyors followed the guidelines recommended by the USFWS for disinfecting equipment and clothing after entering a pond and before entering a new pond, unless the wetlands were hydrologically connected to one another:

- All organic matter was removed from dip nets (used only to capture and identify fish and amphibian species other than red-legged frog), pond turtle traps, boots, vehicle tires, and all other surfaces that had come into contact with water or potentially contaminated sediments. Cleaned items were rinsed with clean water before leaving each study site.
- Boots, nets, traps, hands, etc., were scrubbed with either a 75 percent ethanol solution, a bleach solution (0.5 to 1.0 cup per 1.0 gallon of water), or Quat-128™ (1:60) and water between study sites. Cleaning equipment in the immediate vicinity of a pond or wetland was avoided (e.g., cleaned in an area at least 100 feet from aquatic features). Care was taken to remove all traces of the disinfectant before entering the next aquatic habitat.
- Used cleaning materials (liquids, etc.) were disposed of safely, and if necessary, taken back to the laboratory for proper disposal. Used disposable gloves were retained for safe disposal in sealed bags.
- Surveyors implemented the following when they worked sites with known or suspected disease problems: disposable gloves were worn and changed between handling each animal; gloves were wetted with water from the site or distilled water prior to handling

any amphibians; gloves were removed by turning them inside out to minimize cross-contamination. (Note: No CRLF were observed or handled.)

Biologists conducting the CRLF surveys are qualified field ecologists with experience with the species in the local regional habitats. Surveyor qualifications are included as Appendix B. Visual encounter surveys were conducted to investigate for the presence of CRLF. Biologists visited aquatic features within the project boundary and those occurring within 1 mile of the project area. Surveys of streams, near the headwaters and the lower reaches of the associated subdrainage, were also conducted. Surveys were conducted during the breeding and non-breeding season of the CRLF, both at night and during daylight hours at each survey location. A total of eight survey events were executed at each site location, excluding Wolf Creek and the upper reaches of Little Wolf Creek, which were surveyed once to assess overall CRLF suitability. Survey locations are shown on Figure 4.

DIURNAL SURVEYS

Diurnal surveys were conducted by systematically searching sites for CRLF, egg masses, and/or larvae (Fellers and Freel, 1995). This entailed walking slowly through the site while visually scanning banks, rocks, logs, pond or stream bottoms (water clarity permitting), and the surface of floating vegetation. Surveys included stopping intermittently to look ahead with binoculars, increasing the likelihood of detecting frogs that might otherwise have been startled before detection. Most sites were surveyed at least once before the onset of breeding. Data on the presence and abundance of other amphibians was recorded, along with information on reptiles, fish, and potential predators. Daylight surveys were not performed in rainy conditions, as disturbance of the surface of the water by raindrops greatly reduces visibility in the water column, thereby increasing the chance that eggs and frogs could be overlooked. Amphibians observed were identified by species, life stage, and location.

NOCTURNAL SURVEYS

Nocturnal surveys of each site were conducted by walking through the site, stopping approximately every 5 meters. At each stop, a 30-watt sealed-beam light (358 lux at 5 meters) and binoculars were used to look for the eye shine of the CRLF (Corben and Fellers, 2001). The binoculars were focused on the area illuminated by the flashlight, and the light and binoculars were moved in tandem to scan nearby habitat (up to about 30 meters away). Unidentified eye shines were investigated by slowly approaching the animal until a positive identification could be made. Data on the presence and abundance of other amphibians were recorded along with information on reptiles, fish, and potential amphibian predators.

Section 4 HABITAT TYPES

A diversity of vegetation communities and wetland areas occur within the project boundary that could be associated with amphibian habitat and/or migratory corridors.

UPLAND HABITAT TYPES

Current CDP standards utilize a vegetation classification system presented in *A Manual of California Vegetation* (Sawyer and Keeler-Wolf, 1995), but previous biological characterization work completed in the park (URS, 2004) identified the vegetation types through a former standard of vegetation classification written by Holland (1986). Six Sawyer/Keeler-Wolf vegetation series were identified within the action area: ponderosa pine (*Pinus ponderosa*) series, mixed conifer series, black oak (*Quercus kelloggii*) series (these three collectively Holland-type westside ponderosa pine), whiteleaf manzanita (*Arctostaphylos viscida*) series (Holland-type montane manzanita chaparral), arroyo willow (*Salix lasiolepis*) series, and white alder (*Alnus rhombifolia*) series (these two collectively Holland-type montane riparian scrub). These vegetation types are described below and are outlined on Figure 5.

Ponderosa Pine/Mixed Conifer/Black Oak Series

These three vegetation types make up the majority of the project area (~251 acres). They occupy large, continuous stands throughout Empire Mine State Historic Park. These series tend to be relatively open forests with sparse understories consisting of scattered shrubs and young trees. Most growth occurs within a few months of the wet season in late spring and early summer (Holland, 1986). Vegetation series that include ponderosa pine as a dominant species were historically subject to frequent understory burning; however, in the absence of a regular fire regime, as has become common with modern fire suppression tactics, fires tend to burn more intensely when ignited and effect on overstory vegetation is often catastrophic (Pollet and Omi, 2002). These vegetation types are abundant on the west side of the Cascade Range and Sierra Nevada from the Siskiyou Mountains to northern Kern County. They range in elevation from 2000 to 5000 feet (Holland, 1986).

In the project area, the understory consists of large patches of whiteleaf manzanita and ponderosa pine saplings. Douglas-fir (*Pseudotsuga menziesii*), black oak, and incense cedar (*Calocedrus decurrens*) are other significant overstory species. The large trees in the area are approximately 100 feet tall, and the manzanita understory reaches over 12 feet in height in several areas. Other, less significant species observed in the overstory include Pacific madrone (*Arbutus menziesii*), big-leaf maple (*Acer macrophyllum*), and California buckeye (*Aesculus californica*). Common species that occur in the shrublayer include: poison-oak (*Toxicodendron diversilobum*) and the non-native Himalayan blackberry (*Rubus armeniacus*, formerly *discolor*). Small patches of the native California blackberry (*R. ursinus*) are scattered throughout the forest as well. Other minor shrub species include buckbrush (*Ceanothus cuneatus*), deer brush (*Ceanothus integerrimus*), California coffeeberry (*Rhamnus californica*), and wood rose (*Rosa gymnocarpa*). The herbaceous layer is dominated by everlasting pea (*Lathyrus latifolius*), which often forms extensive patches, Sierran mountain misery (*Chamaebatia foliolosa*), and sky lupine (*Lupinus nanus*). Other, less common herbaceous species found include rainbow iris (*Iris hartwegii*), honeysuckle (*Lonicera* sp.), Davy's

gumplant (*Grindelia hirsutula* var. *davyi*), soap plant (*Chlorogalum pomeridianum*), California Indian pink (*Silene californica*), miner's lettuce (*Claytonia parviflora*), and creeping honeysuckle (*Lonicera hispidula*).

The historic mining operations in the park area impacted some of the above vegetation types. In these areas, the vegetation is regenerating and currently consists of early successional stages of ponderosa pine, mixed conifer, and black oak series. These vegetation types occur primarily in areas that were subject to vegetation clearing and topsoil removal during mining operations.

Whiteleaf Manzanita Series

Typically, the whiteleaf manzanita series is a dense chaparral, with shrub heights reaching approximately 6 to 16 feet tall (Sawyer and Keeler-Wolf, 1995). Manzanita chaparrals often occur as early successional stages in ponderosa pine-dominated forest types after burning has occurred. Manzanita also burns readily once ignited, so fire regimes can be altered when areas are colonized by manzanita (Holland, 1986).

This vegetation community is scattered throughout California including in the montane and foothill areas of the Cascade, Klamath, and Sierra Nevada Ranges and in the North Coast area (Sawyer and Keeler-Wolf, 1995). The elevational range of this series is 500 to 6000 feet (Sawyer and Keeler-Wolf, 1995).

Whiteleaf manzanita is the dominant species in chaparral areas throughout the park. Toyon (*Heteromeles arbutifolia*) and occasionally Indian manzanita (*Arctostaphylos mewukka* var. *mewukka*) also occur in these chaparral areas. The whiteleaf manzanita series accounts for approximately 26 acres of the project area.

Arroyo Willow/White Alder Series

These two riparian habitats occur in the project area, amounting to approximately 12 acres. Typically, arroyo willow and white alder series occur in riparian corridors along streams (Sawyer and Keeler-Wolf, 1995). This riparian habitat tends to be densely shrubby with sparse herbaceous layers and some willow and tree species (Holland, 1986). This vegetation type is widely scattered throughout California including the foothill and montane areas of the Klamath, Sierra Nevada, and Cascade ranges, all along the California coast, and the central valley.

The patches of the arroyo willow and white alder series in Empire State Historic Park are dominated by a mix of riparian trees: primarily arroyo willow and white alder, with some Fremont cottonwood (*Populus fremontii*), shining willow (*Salix lucida*), big-leaf maple, and mountain dogwood (*Cornus nuttallii*). The understory is dominated by dense Himalayan blackberry, but in areas where the Himalayan blackberry is less dominant, other shrubs occur including Pacific ninebark (*Physocarpus capitatus*), western azalea (*Rhododendron occidentale*), and California blackberry. The herbaceous layer consists of soft rush (*Juncus effusus*), cattail (*Typha* sp.), seep spring monkey-flower (*Mimulus guttatus*), water cress (*Nasturtium officinale*), giant horsetail (*Equisetum telmateia*), yellow flag iris (*Iris pseudacorus*), creeping buttercup (*Ranunculus repens*), tall flatsedge/nut sedge (*Cyperus eragrostis*), American brooklime (*Veronica americana*), small-fruited sedge (*Scirpus microcarpus*), and iris-leaved rush (*Juncus xiphioides*).

WETLAND HABITATS

There are five wetland types in the project area: perennial stream, ephemeral pond, emergent wetland, drainage ditches (ephemeral stream), and concrete pools. These wetland types are described below and are outlined on Figure 6.

Perennial Stream

There are three perennial streams within the Empire Mine State Historic Park: South Fork Wolf Creek, Little Wolf Creek and Magenta Drain. These streams provide potential habitat for many species of amphibians, fish, and other aquatic animals. South Fork Wolf Creek and Little Wolf Creek flow into Wolf Creek, a tributary of the Bear River. South Fork Wolf Creek and Little Wolf Creek are approximately equal in size, averaging 1 foot deep and 4 feet wide, and contain many deep pools (up to 4 feet deep). These pools are slower moving and provide preferable habitat for most aquatic life. Magenta Drain originates from the historic Magenta Mine. It is one of the focal points of remedial action due to contamination caused by historical mining activities. It is a shallow feature (6 to 9 inches deep on average) and it flows only a short distance (less than 1/3 of a mile) from the mine to its confluence with South Fork Wolf Creek.

Ephemeral Pond

Stacy Lane Pond is the only ephemeral pond on the site. This pond was dry during the first visit in May 2008, but has an area of approximately 0.39 acres and potential to hold up to 8 feet of water. The surrounding vegetation consists of ponderosa pine, Himalayan blackberry, and numerous grass species. Within the pond there are also well established willow (*Salix* spp.) and cottonwood trees. The substrate and bank soils are sandy, allowing for rapid infiltration of water.

Emergent Wetland

An emergent wetland occurs within the project area. This wetland is fed by rainfall and Little Wolf Creek. Upon arrival to the site in May 2008, the wetland surface was 90 percent water. When surveys were completed in July 2008, surface water coverage had reduced to 20 percent. The deepest point within the wetland was approximately 5 feet deep in May. Upland islands within the wetland area were inhabited by ponderosa pine, Himalayan blackberry, and manzanita. The lower, more saturated areas provided habitat for rushes (*Juncus* sp.), sedges, willows, and cottonwoods. Throughout the study period, available water was teeming with amphibious life, predominantly Pacific chorus frogs. As the wetland dried, there were thousands of dead tadpoles where the water had been, indicating that survival probability is low during the early life stages.

Drainage Ditches

There are numerous drainage ditches throughout the area, especially in the area of the red dirt pile, although none were flowing while surveys were being conducted. These ditches likely only flow during times of high rainfall in the late winter or early spring. There was no notable difference in wildlife activity from these ephemeral stream corridors and adjacent upland sites, although the drainage ditches do have some wetland characteristics. However, because many of

the drainages do contain some wetland plant species, they are categorized as an additional habitat type.

Concrete Pool

Most of the concrete pools are found in the cottage area. Two of these pools are round with fountains in the center. Below these two pools, a network of stair-stepping pools feed into a large pool. The pools have a maximum depth of approximately 2.5 feet. The pools provide reproductive habitat for amphibians (primarily Pacific chorus frogs) with still, calm water and few predators. There is one additional concrete pool (2 feet by 4 feet) near the cyanide plant, which holds rainfall and provides a similar function for Pacific chorus frog reproduction.

SURVEY LOCATIONS

Seven sites were surveyed using the *Revised Guidance on Site Assessments and Field Surveys for the California Red-Legged Frog* (USFWS, 2005). Given the diverse layout of the historic park and associated mines, the survey sites were unique and sometimes difficult to access. Four of the seven survey locations were within active creek systems. The remaining three sites ranged from marshy wetlands to the artificial pools and fountains. Survey sites included: Magenta Drain, Cottage/Mansion pools, South Fork Wolf Creek, Little Wolf Creek, Upper Little Wolf Creek, an emergent wetland, and Wolf Creek. The survey locations are shown on Figure 4 and are delineated below. An additional pond onsite was not surveyed because it is located in the backyard of a park employee's private residence. It has been previously stocked with fish and is manually filled by park residents using a hose, so it likely does not provide CRLF habitat.

Magenta Drain

Magenta Drain is a small drainage that runs on a westerly course at the northern border of the park. The Magenta Drain is a constructed water conveyance corridor that drains groundwater from nearby mine shafts. Measurable amounts of arsenic and manganese are contained in the effluent water. Vegetation consists of a dense regime of Himalayan blackberry and other thick vegetation including cattails, ponderosa pine, arroyo willow, red alder (*Alnus rubra*), and buttercup (*Ranunculus* spp.). The water flow is slow and very shallow. The average depth of this water feature is 6 to 9 inches with a slight gradient of 2 to 3 percent. The littoral substrate of this feature is silt with small amounts of cobble and wood debris associated with the dense surrounding vegetation. The Magenta Drain runs approximately 1,500 feet before it transitions into underground culverts.

Cottage/Mansion

This survey location is in the heart of the historic area of Empire Mine State Historic Park. The mansion is the one-time residence of the mine owner and has since been converted into a tour location. The aquatic habitat investigated for the presence of CRLF at this location is comprised of a series of manmade fountains, cascades, and pools in the garden area of the mansion. Flows are constant in these fountains and pools. The depths reach a maximum of 2.5 feet. The littoral substrate is comprised of manmade concrete and plaster. The shoreline substrate is mostly brick and other landscape stone. Aside from dense algae growth, aquatic vegetation is completely

lacking. Surrounding associated vegetation includes ponderosa pine and lawn (Kentucky bluegrass; *Poa pratensis*). The area is extensively landscaped.

South Fork Wolf Creek

This biologically productive creek flows on a westerly course traversing the northern border of the park. It terminates into Wolf Creek, the primary watershed feature in the Grass Valley area. South Fork Wolf Creek is a highly channelized, narrow feature. It has numerous small riffles and pools and small diversion braids. The deepest pools on this creek are up to 4 feet in depth. The littoral substrate is comprised of silt, wood, cobble, and large root masses associated with the shoreline tree stratum. The vegetation consists primarily of overhanging vegetation with small amounts of emergent vegetation. Species include big-leaf maple, Douglas-fir, ponderosa pine, red alder, incense cedar, poison oak, California black oak, Himalayan blackberry, and cottonwood. The length of this survey location is approximately 0.75 miles and it is fragmented by private land ownership.

Little Wolf Creek

For the purposes of this study, Little Wolf Creek was divided into three survey sections. All sections are similar in habitat characterization concerning vegetation and observed fauna. This biologically productive creek flows on a westerly course traversing the southern section of the park. This creek is similarly channelized as South Fork Wolf Creek but lacks the deeper, isolated pools. There are many riffles and log jams throughout its upper channel that support brown trout (*Salmo trutta*) and amphibian species. The depth of this creek ranges from 6 inches to 2 feet and will vary drastically from run to riffle. The littoral substrate is comprised of cobble, wood debris, and silt, and the shoreline supports an array of vegetation including ponderosa pine, red alder, Himalayan blackberry, cattails, arroyo willow, horsetail and *Juncus* spp. The combined length of the three survey reaches is approximately 1.2 miles. This creek eventually flows underground beneath parts of the city of Grass Valley to confluence with Wolf Creek, the primary watershed feature in the Grass Valley area.

Upper Little Wolf Creek

Little Wolf Creek was investigated due to its location within 1 mile of the proposed remediation project boundaries. This reach of Little Wolf Creek varies from the other study locations in that the littoral substrate is very thick silt and the creek is, on average, larger. The shoreline supports an array of vegetation including ponderosa pine, red alder, Himalayan blackberry, cattails, arroyo willow, horsetail, and *Juncus* sp.

Emergent Wetland

The emergent wetland area is located in the southwest portion of the park. The embankment was built in 1917 to contain mill tailing (mill sands) from the Empire Mine stamp mill and cyanide plant facilities. The emergent wetland area is approximately 16 acres and includes the embankment and the containment area behind the embankment. The area has a varied landscape of vegetated areas, seasonal ponds, and bare ground. When mining operations were active, the emergent wetland area was likely comprised of bare tailing sands. Since the end of mining, vegetation has established in areas where favorable soil and hydrologic conditions exist.

Little Wolf Creek enters the emergent wetland area at its southeastern edge. The two ephemeral features convey stormwater runoff from upgradient areas entering the emergent wetland at its northern edge. Pacific rush (*Juncus effusus pacificus*), sedge (*Carex* sp.), arroyo willow and other willows, Fremont cottonwood, white alder, *Agrostis* sp., and Himalayan blackberry are common species of this area. Other species noted in the area include horsetail, narrow-leaf cattail (*Typha angustifolia*), ponderosa pine, Humboldt lily (*Lilium humboldtii*, a CNPS List 4 species), and leopard lily (*Lilium pardalinum*). The estimated cover of this plant community was greater than 100 percent with heavy litter.

The transitional plant community is located to the south of the hydrophytic community and is a transition between the hydrophytic type and the upland type. Much of this community was inaccessible and may contain pockets of both the upland plant community type and the hydrophytic plant community type. This area is dominated by Himalayan blackberry, ponderosa pine, Fremont cottonwood, *Agrostis* sp., white alder, willows, manzanita, and cattail. The cover is estimated at greater than 100 percent with heavy litter.

The manzanita steppe plant community occurs to the north and west of the hydrophytic plant community. This community is dominated by greenleaf manzanita (*Arctostaphylos patula*), whiteleaf manzanita, ponderosa pine, Fremont cottonwood, dotseed plantain (*Plantago erecta*), small fescue (*Vulpia microstachys*), ripgut brome (*Bromus diandrus*), Columbia brome (*Bromus vulgaris*) and other grasses. Some small incense cedar are also noted in the area. The estimated cover for this community was 0 to 30 percent.

The upland plant community is located upgradient from the other three community types. The dominant plant species in this area are ponderosa pine, sugar pine (*Pinus lambertiana*), incense cedar, Pacific madrone, oaks, Himalayan blackberry, and poison oak. The estimated cover for this plant community is 65 percent overstory and 0 to 30 percent understory with heavy litter (pine needles). A subset of this plant community is located north of the rock dam on the north side of the emergent wetland area, where additional tailings are located. This area has very little groundcover, and the trees (predominantly ponderosa pine) are farther spaced. The cover in this area is estimated to be approximately 0 to 20 percent overstory and 0 to 5 percent understory with little to no litter.

Wolf Creek

This hydrologic feature is the primary water conveyance corridor in the watershed associated with this project. It runs north to south and is located within 1 mile of the remediation project area. This water feature has an average width of 30 feet and an average depth of 4 to 5 feet. During the time of the survey, flows were at bank full. Wolf Creek lacks pools, and water is turbulent in most areas. The presence of fish was confirmed. Species likely to occur include California hardhead (*Mylopharodon conocephalus*), brown trout, and other salmonids. The dominant plant species in this area are ponderosa pine, sugar pine, incense cedar, Pacific madrone, oaks, Himalayan blackberry, and poison oak. Wolf Creek lacks emergent or other forms of aquatic vegetation.

Section 5 RESULTS

Forty-seven survey events were completed at the site. No CRLF were observed in any life stage at any of the survey locations. Three other amphibian species were observed during surveys: bullfrog (*Rana catesbeiana*), Pacific chorus frog, and California newt (*Taricha torosa*).

For each of the seven sites evaluated, site characteristics, the amphibian species observed, and an assessment of the ability of the habitat at the site to support CRLF are summarized in Table 1 and are described below.

Magenta Drain

The Magenta Drain was surveyed a total of eight times throughout this study. No aquatic fauna were observed during these surveys. Due to poor water quality (low PH, metals), absence of benthic macroinvertebrates (due to poor water quality) and other CRLF prey, shallowness, adjacency to public recreation facilities (tennis courts, trails), and presence of predators (such as raccoons and house cats from the nearby residential area), this habitat has low suitability for CRLF dispersal and no suitability for foraging or breeding habitat.

Cottage Mansion

The Cottage Mansion area was surveyed a total of eight times throughout this study. Pacific chorus frogs were observed in large numbers during surveys. Although suitable aquatic amphibian habitat exists at this location, the lack of overhanging vegetation and low density of emergent vegetation decreases the suitability of CRLF. This, in combination with the extensively landscaped and highly used garden area (disturbance factor) and shallow depths of the existing water features (2.5 feet), causes this habitat to be marginally suitable for CRLF dispersal, foraging, and breeding activities.

South Fork Wolf Creek

This creek borders the northern edge of the park. The hydrology of deep pools (4 feet) to riffles and runs is very conducive for CRLF breeding; however, large brown trout were observed throughout this creek system and would prove to be formidable predators to CRLF larva and juveniles. Multiple culverts fragment this creek as it nears the city of Grass Valley. The creek also flows completely underground before its confluence with the larger Wolf Creek to the west. This combination makes suitability for CRLF dispersal and foraging habitat poor.

Little Wolf Creek

This small creek was surveyed 14 times in its three separate reaches. The ability of this aquatic system to support amphibians is evident as bullfrogs, Pacific chorus frogs, and California newt were all observed throughout the surveys. The hydrology, consisting of shallow pools transitioning into riffles and runs, would be marginally suitable for CRLF breeding. In addition, the fragmented emergent and overhanging thick vegetation regime would be suitable for CRLF

Table 1 CRLF SURVEY SUMMARY									
Survey Location	No. of Surveys		Habitat Summary	Species Present	Habitat Suitability			Notes	
	Night	Day			Breeding	Refuge	Dispersal		
Magenta Drain	3	5	Silt bottom, blackberry, shallow, low flows	None	No	No	Yes	Toxic	
Cottage/Mansion	4	4	Manmade pools, continuous flow	Pacific chorus frogs	No	Yes	Yes	High traffic, prey species present (tree frogs)	
Little Wolf Creek	6	8	Cobble/silt/wood debris, dense vegetation, small pools	CA newt, Pacific chorus frogs, large brown trout, bullfrogs	No	Yes	Yes	Predators (trout, bullfrogs), toxic	
South Fork Wolf Creek	5	3	Deep pools, silt/cobble, dense vegetation, riffle, run, pool	CA newt, large brown trout	Yes	Yes	Yes	Predators (trout)	
Emergent Wetland	4	4	Wetland, deep pools, dense vegetation, ephemeral	Bullfrogs, raccoons, GB Herons	No	Yes	Yes	Predators (bullfrogs, raccoons, herons), toxic	
Wolf Creek	0	1	Deep pools, high flows, boulder/cobble	Large fish populations	No	Yes	Yes	High flows, toxic, predators (fish)	
Upper Little Wolf Creek	0	2	Silt/wood debris, deep pools	Bullfrogs	No	Yes	Yes	Predators (bullfrogs)	

foraging and dispersal. However, large brown trout up to 13 inches were observed throughout the creek. The presence of these predatory fish and bull frogs, in addition to the occurrence of other potential predators in the area (coyotes, feral cats, raptors), make the occurrence of CRLF in Little Wolf Creek unlikely.

Emergent Wetland

The emergent wetland area was surveyed eight times for the presence of CRLF. The vegetation communities comprising the emergent wetland are very conducive for CRLF dispersal and foraging. Although the area dries up by mid-July in a normal year, it supports a large population of Pacific chorus frogs and a few individual bullfrog adults. The presence of bullfrogs, other amphibian predators, and potentially toxic soils make occurrence of CRLF in the emergent wetland area highly unlikely.

Wolf Creek

Wolf Creek is the primary watershed component in the Grass Valley area. This large creek is composed of deep pools up to 6 feet deep with aggressive rapids and smooth, calm runs. Wolf Creek supports a diverse coniferous forest vegetation community and has steep cliff walls. Some microhabitats found on Wolf Creek would be conducive for CRLF breeding, dispersal, and foraging; however, a diverse presence of predators exist in this water feature and the surrounding area including large trout species, raptors, coyotes, and feral cats that combine to produce strong predation pressures on amphibian species. CRLF occurrence in this water feature is highly unlikely. No amphibians of any kind were observed during field surveys.

Section 6 DISCUSSION AND CONCLUSION

CNDDDB records show a CRLF occurrence approximately 8.4 miles from the project area. Although marginally suitable habitat is present within the project area, no CRLF were identified during site surveys. The lack of CRLF occurrence within the Empire Mine State Historic Park proposed remediation project area may be in part due to the degraded water quality and contaminants present in the water and soils of the Magenta Drain and the emergent wetland resulting from the previous mining activities. The suitability of the other potential habitats is negatively affected by factors such as human disturbance, the presence of native and non-native predators, fragmented riparian corridors (by roads and trails), the relative openness of the terrain, and long distances between water environments (dispersal capabilities are limited).

Based on the findings of surveys using the *Revised Guidelines on Site Assessments and Field Surveys for the California Red-Legged Frog* (USFWS, 2005), it is indicated that the likelihood is very low for the occurrence of CRLF in the area encompassing the proposed remediation project. The absence of CRLF is most likely due to a cumulative combination of factors including the fragmentation of riparian corridors, presence of native and non-native predators, large public use areas, and poor dispersal capabilities of the frog.

Section 7 REFERENCES

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California Red-legged Frog Survey Data Sheet

Survey results (year, month, day) _____
(mm/dd/yyyy) _____ (date) _____ (month/year)

Date of Survey: 5/20/2008
(mm/dd/yyyy)

Survey Biologist: Fresz Shawn
(Last name) (first name)

Survey Biologist: Stackhouse Jeff
(Last name) (first name)

Site Location: Nevada, Empire Mine State Park, Little Wolf Creek 1
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Empire State Mine Remediation Project
Brief description of proposed action:
Hazardous site remediation.

Type of Survey (circle one): DAY NIGHT

BREEDING NON-BREEDING

Survey number (circle one): 1 2 3 4 5 6 7 8

Begin Time: 1000

End Time: 1150

Cloud cover: 95%

Precipitation: None

Air Temperature: 21.7 C

Water Temperature: 15 C

Wind Speed: 5 mph

Visibility Conditions: 100%

Moon phase: Full

Humidity: _____

Description of weather conditions: Light cloud coverage, light breeze, comfortable temperature.

Brand name and model of light used to conduct surveys: G2 SureFire

Were binoculars used for the surveys (circle one)? YES NO

Brand, model, and power of binoculars: Leupold, Yosemite, 6 x 30

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification
Sierra Newt (<i>Taricha sierrae</i>)	17	O	Egg Masses	2" Diameter	95%
Pacific Tree Frog (<i>Pseudacris regilla</i>)	2	O	Adults	.5-1.5"	100%

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: Brown Trout (*Salmo trutta*) and Crayfish (*Procambarus* sp.)

Other notes, observations, comments, etc.

2 wood rat mounds
 1 Alligator Lizard (*Elgaria coerulea*)
 2 Western Fence Lizards (*Sceloporus occidentalis*)
 2 Raptor nests (pics: 0332, 0333) (Alder and Douglas Fir)
 90% canopy cover
 Flora: Big Leaf Maple (*Acer macrophyllum*), Douglas Fir (*Pseudotsuga menziesii*), Ponderosa (*Pinus ponderosa*), Red Alder (*Alnus rubra*), Incense Cedar (*Calocedrus becurrens*), Poison Oak (*Toxicodendron diversilobum*), California Black Oak (*Quercus kelloggii*), Himalayan Blackberries (*Rubus discolor*)
 Stream Substrate: Littoral (Small Cobble), Shorline (Shrub/Tree stratum), Depth (10-45cm), Pics (0334,0335)

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

California Red-legged Frog Survey Data Sheet

Survey results reviewed by _____
(Name of reviewer) _____ (date)

Date of Survey: 5/20/2008
(mm/dd/yyyy)

Survey Biologist: Fresz Shawn
(Last name) (first name)

Survey Biologist: Stackhouse Jeff
(Last name) (first name)

Site Location: Nevada, Empire Mine State Park, Little Wolf Creek 1
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Empire State Mine Remediation Project
Brief description of proposed action:
Hazardous site remediation.

Type of Survey (circle one): DAY NIGHT

BREEDING NON-BREEDING

Survey number (circle one): 1 2 3 4 5 6 7 8

Begin Time: 2130

End Time: 2220

Cloud cover: 40%

Precipitation: None

Air Temperature: 20 C

Water Temperature: 16 C

Wind Speed: >5 mph

Visibility Conditions: 100%

Moon phase: Full

Humidity: _____

Description of weather conditions: Very light cloud coverage, cool and comfortable temperature.

Brand name and model of light used to conduct surveys: G2 SureFire

Were binoculars used for the surveys (circle one)? YES NO

Brand, model, and power of binoculars: Leopold, Yosemite, 6 x 30

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification
Sierra Newt (<i>Taricha sierrae</i>)	17	O	Egg Masses	2" Diameter	100%

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: Brown Trout (*Salmo trutta*) and Crayfish (*Procambarus* sp.)

Other notes, observations, comments, *etc.*

2 wood rat mounds
 2 Raptor nests (pics: 0332, 0333) (Alder and Douglas Fir)
 90% canopy cover
 Flora: Big Leaf Maple (*Acer macrophyllum*), Douglas Fir (*Pseudotsuga menziesii*), Ponderosa (*Pinus ponderosa*), Red Alder (*Alnus rubra*), Incense Cedar (*Calocedrus decurrens*), Poison Oak (*Toxicodendron diversilobum*), California Black Oak (*Quercus kelloggii*), Himalayan Blackberries (*Rubus discolor*)
 Stream Substrate: Littoral (Small Cobble), Shorline (Shrub/Tree stratum), Depth (10-45cm), Pics (0334,0335)

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

California Red-legged Frog Survey Data Sheet



Date of Survey: 5/28/2008
(mm/dd/yyyy)

Survey Biologist: Fresz Shawn
(Last name) (first name)

Survey Biologist: Stackhouse Jeff
(Last name) (first name)

Site Location: Nevada, Empire Mine State Park, Little Wolf Creek 1
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Empire State Mine Remediation Project
Brief description of proposed action:
Hazardous site remediation.

Type of Survey (circle one): DAY NIGHT

Survey number (circle one): 1 2 3 4 5 6 7 8

Begin Time: 1444 End Time: 1323

Cloud cover: 40% Precipitation: None

Air Temperature: 24.3 C Water Temperature: 14.7 C

Wind Speed: 10 mph Visibility Conditions: 100%

Moon phase: None Humidity: _____

Description of weather conditions: Little cloud coverage, light breeze, comfortable temperature.

Brand name and model of light used to conduct surveys: G2 SureFire

Were binoculars used for the surveys (circle one)? YES NO
Brand, model, and power of binoculars: Leupold, Yosemite, 6 x 30

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification
Sierra Newt (<i>Taricha sierrae</i>)	17	O	Egg Masses	2" Diameter	100%

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: Brown Trout (*Salmo trutta*)

Other notes, observations, comments, *etc.*

2 wood rat mounds

Egg Mass (pics: 3113 - 3116)

2 Raptor nests (pics: 0332, 0333) (Alder and Douglas Fir)

90% canopy cover

Flora: Big Leaf Maple (*Acer macrophyllum*), Douglas Fir (*Pseudotsuga menziesii*), Ponderosa (*Pinus ponderosa*), Incense Cedar (*Calocedrus decurrens*), Poison Oak (*Toxicodendron diversilobum*), California Black Oak (*Quercus kelloggii*), Himalayan Blackberries (*Rubus discolor*)

Stream Substrate: Littoral (Small Cobble), Shorline (Shrub/Tree stratum), Depth (10-45cm), Pics (0334,0335)

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

California Red-legged Frog Survey Data Sheet

Site of results reviewed by _____
(Last name) (first name)

Date of Survey: 5/28/2008
(mm/dd/yyyy)

Survey Biologist: Fresz Shawn
(Last name) (first name)

Survey Biologist: Stackhouse Jeff
(Last name) (first name)

Site Location: Nevada, Empire Mine State Park, Little Wolf Creek 1
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Empire State Mine Remediation Project
Brief description of proposed action:
Hazardous site remediation.

Type of Survey (circle one): DAY NIGHT

Survey number (circle one): 1 2 3 4 5 6 7 8

Begin Time: 2130 End Time: 2210

Cloud cover: 50% Precipitation: None

Air Temperature: 12.0 C Water Temperature: 11.8 C

Wind Speed: >5 mph Visibility Conditions: 100%

Moon phase: Full Humidity: _____

Description of weather conditions: Very light cloud coverage, cool and comfortable temperature.

Brand name and model of light used to conduct surveys: G2 SureFire

Were binoculars used for the surveys (circle one)? YES NO

Brand, model, and power of binoculars: Leupold, Yosemite, 6 x 30

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification
Sierra Newt (<i>Taricha sierrae</i>)	17	O	Egg Masses	2" Diameter	95%

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: Brown Trout (*Salmo trutta*) (Pic 0354, 0355)

Other notes, observations, comments, *etc.*

2 wood rat mounds

90% canopy cover

1 Greathorned Owl (*Bubo virginianus*)

Flora: Big Leaf Maple (*Acer macrophyllum*), Douglas Fir (*Pseudotsuga menziesii*), Ponderosa (*Pinus ponderosa*), Red Alder (*Alnus rubra*), Incense Cedar (*Calocedrus becurrens*), Poison Oak (*Toxicodendron diversilobum*), California Black Oak (*Quercus kelloggii*), Himalayan Blackberries (*Rubus discolor*)

Stream Substrate: Littoral (Small Cobble), Shorline (Shrub/Tree stratum), Depth (10-45cm)

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

California Red-legged Frog Survey Data Sheet

Site of results reviewed by _____
Field Office _____ (date) _____

Date of Survey: 6/10/2008
(mm/dd/yyyy)

Survey Biologist: Fresz Shawn
(Last name) (first name)

Survey Biologist: Stackhouse Jeff
(Last name) (first name)

Site Location: Nevada, Empire Mine State Park, Little Wolf Creek 1
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Empire State Mine Remediation Project
Brief description of proposed action:
Hazardous site remediation.

Type of Survey (circle one): DAY NIGHT BREEDING NON-BREEDING

Survey number (circle one): 1 2 3 4 5 6 7 8

Begin Time: 0920 End Time: 1103

Cloud cover: 0% Precipitation: None

Air Temperature: 21.0 C Water Temperature: 14.8 C

Wind Speed: 5 mph Visibility Conditions: 100%

Moon phase: Full Humidity: _____

Description of weather conditions: Clear and mild temperature.

Brand name and model of light used to conduct surveys: G2 SureFire

Were binoculars used for the surveys (circle one)? YES NO
Brand, model, and power of binoculars: Leopold, Yosemite, 6 x 30

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification
Sierra Newt (<i>Taricha sierrae</i>)	17	O	Egg Masses	2" Diameter	95%

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: Brown Trout (*Salmo trutta*) (Pic 0354, 0355)

Other notes, observations, comments, *etc.*

2 wood rat mounds
 90% canopy cover
 Flora: Big Leaf Maple (*Acer macrophyllum*), Douglas Fir (*Pseudotsuga menziesii*), Ponderosa (*Pinus ponderosa*), Red Alder (*Alnus rubra*), Incense Cedar (*Calocedrus becurrens*), Poison Oak (*Toxicodendron diversilobum*), California Black Oak (*Quercus kelloggii*), Himalayan Blackberries (*Rubus discolor*)
 Stream Substrate: Littoral (Small Cobble), Shorline (Shrub/Tree stratum), Depth (10-45cm)

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

California Red-legged Frog Survey Data Sheet

Survey results reviewed by _____
(Last name) (date) (signature)

Date of Survey: 06/10/2008 Survey Biologist: Fresz Shawn
(mm/dd/yyyy) (Last name) (first name)
Survey Biologist: Stackhouse Jeff
(Last name) (first name)

Site Location: Nevada, Empire Mine State Park, Little Wolf Creek 1
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Empire State Mine Remediation Project
Brief description of proposed action:
Hazardous site remediation.

Type of Survey (circle one): DAY NIGHT BREEDING NON-BREEDING
Survey number (circle one): 1 2 3 4 5 6 7 8
Begin Time: 2104 End Time: 2200
Cloud cover: 0% Precipitation: None
Air Temperature: 21.4 C Water Temperature: 16.2 C
Wind Speed: >5 mph Visibility Conditions: 100%
Moon phase: Full Humidity: _____

Description of weather conditions: Cool and comfortable
temperature.

Brand name and model of light used to conduct surveys: G2 SureFire

Were binoculars used for the surveys (circle one)? YES NO
Brand, model, and power of binoculars: Leopold, Yosemite, 6 x 30

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification
Sierra Newt (<i>Taricha sierrae</i>)	17	O	Egg Masses	2" Diameter	95%

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: Brown Trout (*Salmo trutta*)

Other notes, observations, comments, etc.

2 wood rat mounds

90% canopy cover

Flora: Big Leaf Maple (*Acer macrophyllum*), Douglas Fir (*Pseudotsuga menziesii*), Ponderosa (*Pinus ponderosa*), Red Alder (*Alnus rubra*), Incense Cedar (*Calocedrus decurrens*), Poison Oak (*Toxicodendron diversilobum*), California Black Oak (*Quercus kelloggii*), Himalayan Blackberries (*Rubus discolor*)

Stream Substrate: Littoral (Small Cobble), Shorline (Shrub/Tree stratum), Depth (10-45cm)

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

California Red-legged Frog Survey Data Sheet

Survey results reviewed by _____
(PI/Surveys/Office) _____ (date) _____

Date of Survey: 6/24/2008
(mm/dd/yyyy)

Survey Biologist: Fresz Shawn
(Last name) (first name)

Survey Biologist: Stackhouse Jeff
(Last name) (first name)

Site Location: Nevada, Empire Mine State Park, Little Wolf Creek 1
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Empire State Mine Remediation Project
Brief description of proposed action:
Hazardous site remediation.

Type of Survey (circle one): DAY NIGHT BREEDING NON-BREEDING

Survey number (circle one): 1 2 3 4 5 6 7 8

Begin Time: 1300 End Time: 1445

Cloud cover: 0% Precipitation: None

Air Temperature: 33.0 C Water Temperature: 19.4 C

Wind Speed: 5 mph Visibility Conditions: 100%

Moon phase: _____ Humidity: _____

Description of weather conditions: Smokey, warm, and humid.

Brand name and model of light used to conduct surveys: G2 SureFire

Were binoculars used for the surveys (circle one)? YES NO
Brand, model, and power of binoculars: Leopold, Yosemite, 6 x 30

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification
Sierra Newt (<i>Taricha sierrae</i>)	21	O	Egg Masses	2" Diameter	100%

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: Brown Trout (*Salmo trutta*) and Crayfish (*Procambrus spp.*)

Other notes, observations, comments, *etc.*

2 wood rat mounds

Egg Mass (pics: 3113 - 3116)

2 Raptor nests (pics: 0332, 0333) (Alder and Douglas Fir)

90% canopy cover

Flora: Big Leaf Maple (*Acer macrophyllum*), Douglas Fir (*Pseudotsuga menziesii*), Ponderosa (*Pinus ponderosa*), Incense Cedar (*Calocedrus becurrens*), Poison Oak (*Toxicodendron diversilobum*), California Black Oak (*Quercus kelloggii*), Himalayan Blackberries (*Rubus discolor*)

Stream Substrate: Littoral (Small Cobble), Shorline (Shrub/Tree stratum), Depth (10-45cm), Pics (0334,0335)

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

California Red-legged Frog Survey Data Sheet

Survey results reviewed by _____
(Last name) (first name)

Date of Survey: 06/24/2008
(mm/dd/yyyy)

Survey Biologist: Fresz Shawn
(Last name) (first name)
Survey Biologist: Stackhouse Jeff
(Last name) (first name)

Site Location: Nevada, Empire Mine State Park, Little Wolf Creek 1
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Empire State Mine Remediation Project
Brief description of proposed action:
Hazardous site remediation.

Type of Survey (circle one): DAY NIGHT
Survey number (circle one): 1 2 3 4 5 6 7 8
Begin Time: 2130 End Time: 2250
Cloud cover: 0% Precipitation: None
Air Temperature: _____ Water Temperature: _____
Wind Speed: >5 mph Visibility Conditions: 90%
Moon phase: Full Humidity: _____

Description of weather conditions: Smokey due to fires.

Brand name and model of light used to conduct surveys: G2 SureFire

Were binoculars used for the surveys (circle one)? YES NO
Brand, model, and power of binoculars: Leopold, Yosemite, 6 x 30

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification
Sierra Newt (<i>Taricha sierrae</i>)	21	O	Egg Masses	2" Diameter	95%

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: Brown Trout (*Salmo trutta*)

Other notes, observations, comments, etc.

2 wood rat mounds

90% canopy cover

Flora: Big Leaf Maple (*Acer macrophyllum*), Douglas Fir (*Pseudotsuga menziesii*), Ponderosa (*Pinus ponderosa*), Red Alder (*Alnus rubra*), Incense Cedar (*Calocedrus decurrens*), Poison Oak (*Toxicodendron diversilobum*), California Black Oak (*Quercus kelloggii*), Himalayan Blackberries (*Rubus discolor*)

Stream Substrate: Littoral (Small Cobble), Shoreline (Shrub/Tree stratum), Depth (10-45cm)

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

California Red-legged Frog Survey Data Sheet

Survey conducted on: _____
(Date)

Date of Survey: 5/20/2008
(mm/dd/yyyy)

Survey Biologist: Fresz Shawn
(Last name) (first name)

Survey Biologist: Stackhouse Jeff
(Last name) (first name)

Site Location: Nevada, Empire Mine State Park, Little Wolf Creek 2
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Empire State Mine Remediation Project
Brief description of proposed action:
Hazardous site remediation.

Type of Survey (circle one): DAY NIGHT

BREEDING NON-BREEDING

Survey number (circle one): ① 2 3 4 5 6 7 8

Begin Time: 2235 End Time: 2255

Cloud cover: 25% Precipitation: None

Air Temperature: 15 C Water Temperature: 19 C

Wind Speed: >5 mph Visibility Conditions: 100%

Moon phase: Full Humidity: _____

Description of weather conditions: Comfortable cool night temperature.

Brand name and model of light used to conduct surveys: G2 SureFire

Were binoculars used for the surveys (circle one)? YES NO

Brand, model, and power of binoculars: Leupold, Yosemite, 6 x 30

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: _____

Other notes, observations, comments, *etc.*
 90% canopy cover
 Flora: Ponderosa (*Pinus ponderosa*), Red Alder (*Alnus rubra*), Himalayan Blackberries (*Rubus discolor*), Cattails (*Typha* spp.), Arrowwo Willows (*Salix lasiolepis*), Horsetail (*Equisetum arvense*)
 Stream Substrate: Littoral (Small Cobble), Shoreline (Shrub/Tree stratum), Depth (10-45cm)

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

California Red-legged Frog Survey Data Sheet

Survey results approved by _____
(Name of the person who approved the survey)

Date of Survey: 5/20/2008
(mm/dd/yyyy)

Survey Biologist: Fresz Shawn
(Last name) (first name)

Survey Biologist: Stackhouse Jeff
(Last name) (first name)

Site Location: Nevada, Empire Mine State Park, Little Wolf Creek 2
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Empire State Mine Remediation Project
Brief description of proposed action:
Hazardous site remediation.

Type of Survey (circle one): DAY NIGHT

BREEDING NON-BREEDING

Survey number (circle one): 1 2 3 4 5 6 7 8

Begin Time: 2235

End Time: 2255

Cloud cover: 25%

Precipitation: None

Air Temperature: 15 C

Water Temperature: 19 C

Wind Speed: >5 mph

Visibility Conditions: 100%

Moon phase: Full

Humidity: _____

Description of weather conditions: Comfortable cool night temperature.

Brand name and model of light used to conduct surveys: G2 SureFire

Were binoculars used for the surveys (circle one)? YES NO

Brand, model, and power of binoculars: Leupold, Yosemite, 6 x 30

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: _____

Other notes, observations, comments, *etc.*

90% canopy cover

Flora: Ponderosa (*Pinus ponderosa*), Red Aldar (*Alnus rubra*), Himalayan Blackberries (*Rubus discolor*), Cattails (*Typha* spp.), Arrowyo Willows (*Salix lasiolepis*), Horsetail (*Equisetum arvense*)

Stream Substrate: Littoral (Small Cobble), Shorline (Shrub/Tree stratum), Depth (10-45cm)

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

California Red-legged Frog Survey Data Sheet

Survey results prepared by: _____
Date: _____

Date of Survey: 5/28/2008
(mm/dd/yyyy)

Survey Biologist: Fresz Shawn
(Last name) (first name)

Survey Biologist: Stackhouse Jeff
(Last name) (first name)

Site Location: Nevada, Empire Mine State Park, Little Wolf Creek 2
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Empire State Mine Remediation Project
Brief description of proposed action:
Hazardous site remediation.

Type of Survey (circle one): DAY NIGHT

Survey number (circle one): 1 2 3 4 5 6 7 8

Begin Time: 1200 End Time: 1220

Cloud cover: 40% Precipitation: None

Air Temperature: 20.1 C Water Temperature: 14.0 C

Wind Speed: >5 mph Visibility Conditions: 100%

Moon phase: Full Humidity: _____

Description of weather conditions: Comfortable warm day.

Brand name and model of light used to conduct surveys: G2 SureFire

Were binoculars used for the surveys (circle one)? YES NO

Brand, model, and power of binoculars: Leupold, Yosemite, 6 x 30

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: _____

Other notes, observations, comments, *etc.*

90% canopy cover

Fauna: Western Fence Lizard (*Sceloporus occidentalis*)

Flora: Ponderosa (*Pinus ponderosa*), Red Aldar (*Alnus rubra*), Himalayan Blackberries (*Rubus discolor*), Cattails (*Typha* spp.), Arrowyo Willows (*Salix lasiolepis*), Horsetail (*Equisetum arvense*)

Stream Substrate: Littoral (Small Cobble), Shorline (Shrub/Tree stratum), Depth (10-45cm)

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

California Red-legged Frog Survey Data Sheet

Survey results reviewed by _____
(Last name, first name, middle initial)

Date of Survey: 5/28/2008
(mm/dd/yyyy)

Survey Biologist: Fresz Shawn
(Last name) (first name)

Survey Biologist: Stackhouse Jeff
(Last name) (first name)

Site Location: Nevada, Empire Mine State Park, Little Wolf Creek 2
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Empire State Mine Remediation Project
Brief description of proposed action:
Hazardous site remediation.

Type of Survey (circle one): DAY NIGHT

BREEDING NON-BREEDING

Survey number (circle one): 1 2 3 4 5 6 7 8

Begin Time: 2330

End Time: 2345

Cloud cover: 0%

Precipitation: None

Air Temperature: 10.4 C

Water Temperature: 11.2 C

Wind Speed: None

Visibility Conditions: 100%

Moon phase: None

Humidity: _____

Description of weather conditions: Comfortable calm cool night temperature.

Brand name and model of light used to conduct surveys: G2 SureFire

Were binoculars used for the surveys (circle one)? YES NO

Brand, model, and power of binoculars: Leopold, Yosemite, 6 x 30

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: _____

Other notes, observations, comments, etc.

90% canopy cover

Flora: Ponderosa (*Pinus ponderosa*), Red Aldar (*Alnus rubra*), Himalayan Blackberries (*Rubus discolor*), Cattails (*Typha* spp.), Arrowwo Willows (*Salix lasiolepis*), Horsetail (*Equisetum arvense*)

Stream Substrate: Littoral (Small Cobble), Shorline (Shrub/Tree stratum), Depth (10-45cm)

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

California Red-legged Frog Survey Data Sheet

Survey results reviewed by _____
(Last name) (date) (initials)

Date of Survey: 6/10/2008
(mm/dd/yyyy)

Survey Biologist: Fresz Shawn
(Last name) (first name)

Survey Biologist: Stackhouse Jeff
(Last name) (first name)

Site Location: Nevada, Empire Mine State Park, Little Wolf Creek 2
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Empire State Mine Remediation Project
Brief description of proposed action:
Hazardous site remediation.

Type of Survey (circle one): DAY NIGHT

BREEDING NON-BREEDING

Survey number (circle one): 1 2 3 4 5 6 7 8

Begin Time: 1450

End Time: 1545

Cloud cover: 0%

Precipitation: None

Air Temperature: 23.7 C

Water Temperature: 18.5 C

Wind Speed: >5 mph

Visibility Conditions: 100%

Moon phase: Full

Humidity: _____

Description of weather conditions: Comfortable warm day.

Brand name and model of light used to conduct surveys: G2 SureFire

Were binoculars used for the surveys (circle one)? YES NO

Brand, model, and power of binoculars: Leopold, Yosemite, 6 x 30

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: _____

Other notes, observations, comments, *etc.*

90% canopy cover

Flora: Ponderosa (*Pinus ponderosa*), Red Alder (*Alnus rubra*), Himalayan Blackberries (*Rubus discolor*), Cattails (*Typha* spp.), Arrowyo Willows (*Salix lasiolepis*), Horsetail (*Equisetum arvense*)

Stream Substrate: Littoral (Small Cobble), Shorline (Shrub/Tree stratum), Depth (10-45cm)

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

California Red-legged Frog Survey Data Sheet

Survey results reviewed by _____
(Date) _____

Date of Survey: 05/29/2008 Survey Biologist: Fresz Shawn
(mm/dd/yyyy) (Last name) (first name)
Survey Biologist: Stackhouse Jeff
(Last name) (first name)

Site Location: Nevada, Empire Mine State Park, Little Wolf Creek 3
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Empire State Mine Remediation Project
Brief description of proposed action:
Hazardous site remediation.

Type of Survey (circle one): DAY NIGHT BREEDING NON-BREEDING
Survey number (circle one): 1 2 3 4 5 6 7 8
Begin Time: 1230 End Time: 1320
Cloud cover: 50% Precipitation: None
Air Temperature: 22.2 C Water Temperature: 13.5 C
Wind Speed: >5 mph Visibility Conditions: 100%
Moon phase: None Humidity: _____

Description of weather conditions: Little cloud coverage, very light breeze, comfortable temperature.

Brand name and model of light used to conduct surveys: G2 SureFire

Were binoculars used for the surveys (circle one)? YES NO
Brand, model, and power of binoculars: Leopold, Yosemite, 6 x 30

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: Crayfish (Procambarus sp.)

Other notes, observations, comments, *etc.*

90% canopy cover

Flora: Big Leaf Maple (*Acer macrophyllum*), Douglas Fir (*Pseudotsuga menziesii*), Ponderosa (*Pinus ponderosa*), Red Alder (*Alnus rubra*), Incense Cedar (*Calocedrus becurrens*), Poison Oak (*Toxicodendron diversilobum*), California Black Oak (*Quercus kelloggii*), Himalayan Blackberries (*Rubus discolor*)

Stream Substrate: Littoral (Small Cobble), Shorline (Shrub/Tree stratum), Depth (10-70cm)

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

California Red-legged Frog Survey Data Sheet

Survey site: _____
County: _____ Date: _____

Date of Survey: 05/29/2008
(mm/dd/yyyy)

Survey Biologist: Fresz Shawn
(Last name) (first name)
Survey Biologist: Stackhouse Jeff
(Last name) (first name)

Site Location: Nevada, Empire Mine State Park, Wolf Creek (Off Site)
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Empire State Mine Remediation Project
Brief description of proposed action:
Hazardous site remediation.

Type of Survey (circle one): DAY NIGHT BREEDING NON-BREEDING
Survey number (circle one): 1 2 3 4 5 6 7 8
Begin Time: 1445 End Time: 1700
Cloud cover: 25% Precipitation: None
Air Temperature: 22.0 C Water Temperature: 12.3 C
Wind Speed: 15 mph Visibility Conditions: 100%
Moon phase: None Humidity: _____

Description of weather conditions: Little cloud coverage, light breeze, comfortable temperature.

Brand name and model of light used to conduct surveys: G2 SureFire

Were binoculars used for the surveys (circle one)? YES NO
Brand, model, and power of binoculars: Leupold, Yosemite, 6 x 30

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: Assumed Brown Trout (Salmo Trutta), however, silty water inhibited visuals.

Other notes, observations, comments, *etc.*

90% canopy cover

Flora: Big Leaf Maple (*Acer macrophyllum*), Douglas Fir (*Pseudotsuga menziesii*), Ponderosa (*Pinus ponderosa*), Red Alder (*Alnus rubra*), Incense Cedar (*Calocedrus becurrens*), Poison Oak (*Toxicodendron diversilobum*), California Black Oak (*Quercus kelloggii*), Himalayan Blackberries (*Rubus discolor*)

Stream Substrate: Littoral (Small Cobble), Shorline (Shrub/Tree stratum), Depth (10-150 cm)

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

California Red-legged Frog Survey Data Sheet

Survey results reviewed by _____
Date of review _____

Date of Survey: 5/20/2008
(mm/dd/yyyy)

Survey Biologist: Fresz Shawn
(Last name) (first name)

Survey Biologist: Stackhouse Jeff
(Last name) (first name)

Site Location: Nevada, Empire Mine State Park, Cottage Pools
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Empire State Mine Remediation Project
Brief description of proposed action:
Hazardous site remediation.

Type of Survey (circle one): DAY NIGHT BREEDING NON-BREEDING

Survey number (circle one): 1 2 3 4 5 6 7 8

Begin Time: 1520 End Time: 1535

Cloud cover: 70% Precipitation: None

Air Temperature: 29 C Water Temperature: 24 C

Wind Speed: 5 mph Visibility Conditions: 100%

Moon phase: Full Humidity: _____

Description of weather conditions: Light cloud coverage, light breeze, comfortable temperature.

Brand name and model of light used to conduct surveys: G2 SureFire

Were binoculars used for the surveys (circle one)? YES NO
Brand, model, and power of binoculars: Leupold, Yosemite, 6 x 30

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification
Pacific Tree Frog(Pseudacris regilla)	8000	O	Larva	>1.5"	100%
Pacific Tree Frog(Pseudacris regilla)	6	O	Adults	.5-1.5"	100%

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: _____

Other notes, observations, comments, *etc.*

2 Western Fence Lizards (Sceloporus occidentalis)
 5% canopy cover
 Flora: Ponderosa (Pinus ponderosa), Kentucky Bluegrass (Poa pratensis)
 Stream Substrate: Concrete Pools, Depth (45cm), Pics (0349, 0350, 0351, 0352, 0353)

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

California Red-legged Frog Survey Data Sheet

Survey results reviewed by _____
Date: _____

Date of Survey: 5/20/2008
(mm/dd/yyyy)

Survey Biologist: Fresz Shawn
(Last name) (first name)

Survey Biologist: Stackhouse Jeff
(Last name) (first name)

Site Location: Nevada, Empire Mine State Park, Cottage Pools
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Empire State Mine Remediation Project
Brief description of proposed action:
Hazardous site remediation.

Type of Survey (circle one): DAY NIGHT

BREEDING NON-BREEDING

Survey number (circle one): ① 2 3 4 5 6 7 8

Begin Time: 2355 End Time: 0020

Cloud cover: 15% Precipitation: None

Air Temperature: 15 C Water Temperature: 22 C

Wind Speed: 5 mph Visibility Conditions: 100%

Moon phase: Full Humidity: _____

Description of weather conditions: Comfortable cool night temperature.

Brand name and model of light used to conduct surveys: G2 SureFire

Were binoculars used for the surveys (circle one)? YES NO
Brand, model, and power of binoculars: Leupold, Yosemite, 6 x 30

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification
Pacific Tree Frog(Pseudacris regilla)	5000	O	Larva	>1.5"	100%
Pacific Tree Frog(Pseudacris regilla)	100	O	Adults	.5-1.5"	100%

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: _____

Other notes, observations, comments, *etc.*

5% canopy cover

Flora: Ponderosa (Pinus ponderosa), Kentucky Bluegrass (Poa pratensis)

Stream Substrate: Concrete Pools, Depth (45cm)

Necessary Attachments:

- 4. All field notes and other supporting documents
- 5. Site photographs
- 6. Maps with important habitat features and species locations

California Red-legged Frog Survey Data Sheet

Survey results reviewed by _____
(Last name) (first name)

Date of Survey: 05/28/2008
(mm/dd/yyyy)

Survey Biologist: Fresz Shawn
(Last name) (first name)
Survey Biologist: Stackhouse Jeff
(Last name) (first name)

Site Location: Nevada, Empire Mine State Park, Cottage Pools
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Empire State Mine Remediation Project
Brief description of proposed action:
Hazardous site remediation.

Type of Survey (circle one): DAY NIGHT BREEDING NON-BREEDING
Survey number (circle one): 1 2 3 4 5 6 7 8
Begin Time: 1545 End Time: 1557
Cloud cover: 40% Precipitation: None
Air Temperature: 21.7 C Water Temperature: 19.7 C
Wind Speed: >5 mph Visibility Conditions: 100%
Moon phase: None Humidity: _____

Description of weather conditions: Little cloud coverage, light breeze, comfortable temperature.

Brand name and model of light used to conduct surveys: G2 SureFire

Were binoculars used for the surveys (circle one)? YES NO
Brand, model, and power of binoculars: Leupold, Yosemite, 6 x 30

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification
Pacific Tree Frog(Pseudacris regilla)	8000	O	Larva	>1.5"	100%
Pacific Tree Frog(Pseudacris regilla)	25	O	Adults	.5-1.5"	100%

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: _____

Other notes, observations, comments, *etc.*

2 Western Fence Lizards (*Sceloporus occidentalis*)

1 Turkey Vulture (*Cathartes aura*)

5% canopy cover

Flora: Ponderosa (*Pinus ponderosa*), Kentucky Bluegrass (*Poa pratensis*)

Stream Substrate: Concrete Pools, Depth (45cm), Pics (0349, 0350, 0351, 0352, 0353)

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

California Red-legged Frog Survey Data Sheet

Survey results reviewed by _____
Date: _____

Date of Survey: 5/29/2008
(mm/dd/yyyy)

Survey Biologist: Fresz Shawn
(Last name) (first name)
Survey Biologist: Stackhouse Jeff
(Last name) (first name)

Site Location: Nevada, Empire Mine State Park, Cottage Pools
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Empire State Mine Remediation Project
Brief description of proposed action:
Hazardous site remediation.

Type of Survey (circle one): DAY NIGHT
BREEDING NON-BREEDING
Survey number (circle one): 1 2 3 4 5 6 7 8
Begin Time: 0010 End Time: 0020
Cloud cover: 5% Precipitation: None
Air Temperature: 10.1 C Water Temperature: 17.6 C
Wind Speed: 5 mph Visibility Conditions: 100%
Moon phase: Full Humidity: _____

Description of weather conditions: Comfortable cool night temperature.

Brand name and model of light used to conduct surveys: G2 SureFire

Were binoculars used for the surveys (circle one)? YES NO
Brand, model, and power of binoculars: Leupold, Yosemite, 6 x 30

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification
Pacific Tree Frog (<i>Pseudacris regilla</i>)	3500	O	Larva	>1.5"	100%
Pacific Tree Frog (<i>Pseudacris regilla</i>)	80	O	Adults	.5-1.5"	100%

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: _____

Other notes, observations, comments, *etc.*

5% canopy cover

Flora: Ponderosa (*Pinus ponderosa*), Kentucky Bluegrass (*Poa pratensis*)

Stream Substrate: Concrete Pools, Depth (45cm)

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

California Red-legged Frog Survey Data Sheet

Survey results reviewed by _____
(FWS Field Office) (date) _____

Date of Survey: 06/10/2008
(mm/dd/yyyy)

Survey Biologist: Fresz Shawn
(Last name) (first name)

Survey Biologist: Stackhouse Jeff
(Last name) (first name)

Site Location: Nevada, Empire Mine State Park, Cottage Pools
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Empire State Mine Remediation Project
Brief description of proposed action:
Hazardous site remediation.

Type of Survey (circle one): DAY NIGHT BREEDING NON-BREEDING
Survey number (circle one): 1 2 3 4 5 6 7 8
Begin Time: 1605 End Time: 1625
Cloud cover: 40% Precipitation: None
Air Temperature: 21.7 C Water Temperature: 19.7 C
Wind Speed: >5 mph Visibility Conditions: 100%
Moon phase: Full Humidity: _____

Description of weather conditions: Comfortable temperature.

Brand name and model of light used to conduct surveys: G2 SureFire

Were binoculars used for the surveys (circle one)? YES NO
Brand, model, and power of binoculars: _____

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification
Pacific Tree Frog(Pseudacris regilla)	8000	O	Larva	>1.5"	100%
Pacific Tree Frog(Pseudacris regilla)	15	O	Adults	.5-1.5"	100%

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: _____

Other notes, observations, comments, etc.

5% canopy cover

Flora: Ponderosa (Pinus ponderosa), Kentucky Bluegrass (Poa pratensis)

Stream Substrate: Concrete Pools, Depth (45cm), Pics (0349, 0350, 0351, 0352, 0353)

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

California Red-legged Frog Survey Data Sheet

Survey results (show all) _____
Date of Survey: _____
Survey Biologist: _____
Site Location: _____

Date of Survey: 06/26/2008
(mm/dd/yyyy)

Survey Biologist: Fresz Shawn
(Last name) (first name)

Survey Biologist: Stackhouse Jeff
(Last name) (first name)

Site Location: Nevada, Empire Mine State Park, Cottage Pools
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Empire State Mine Remediation Project
Brief description of proposed action:
Hazardous site remediation.

Type of Survey (circle one): DAY NIGHT

BREEDING NON-BREEDING

Survey number (circle one): 1 2 3 4 5 6 7 8

Begin Time: 1243

End Time: 1305

Cloud cover: 0% (Smokey)

Precipitation: None

Air Temperature: 34.1 C

Water Temperature: 22.1 C

Wind Speed: >5 mph

Visibility Conditions: 100% (Smokey)

Moon phase: Full

Humidity: _____

Description of weather conditions: Comfortable temperature.

Brand name and model of light used to conduct surveys: G2 SureFire

Were binoculars used for the surveys (circle one)? YES NO

Brand, model, and power of binoculars: _____

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification
Pacific Tree Frog(Pseudacris regilla)	7000	O	Larva	>1.5"	100%
Pacific Tree Frog(Pseudacris regilla)	8	O	Adults	.5-1.5"	100%

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: _____

Other notes, observations, comments, etc.

5% canopy cover

Flora: Ponderosa (Pinus ponderosa), Kentucky Bluegrass (Poa pratensis)

Stream Substrate: Concrete Pools, Depth (45cm), Pics (0349, 0350, 0351, 0352, 0353)

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

California Red-legged Frog Survey Data Sheet

Survey results reviewed by _____
(Last name) (date) (initials)

Date of Survey: 5/21/2008
(mm/dd/yyyy)

Survey Biologist: Fresz Shawn
(Last name) (first name)

Survey Biologist: Stackhouse Jeff
(Last name) (first name)

Site Location: Nevada, Empire Mine State Park, South Fork Wolf Creek
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Empire State Mine Remediation Project
Brief description of proposed action:
Hazardous site remediation.

Type of Survey (circle one): DAY NIGHT

Survey number (circle one): ① 2 3 4 5 6 7 8

Begin Time: 1420 End Time: 1710

Cloud cover: 5% Precipitation: None

Air Temperature: 29.1 C Water Temperature: _____

Wind Speed: 15 mph Visibility Conditions: 100%

Moon phase: Full Humidity: _____

Description of weather conditions: No cloud coverage, light breeze, comfortable temperature.

Brand name and model of light used to conduct surveys: G2 SureFire

Were binoculars used for the surveys (circle one)? YES NO
Brand, model, and power of binoculars: Leupold, Yosemite, 6 x 30

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification
Sierra Newt (<i>Taricha sierrae</i>)	9	O	Egg Masses	2" Diameter	95%
Unidentified Frog Plop	1	H	Adult		0%

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: Brown Trout (*Salmo trutta*)

Other notes, observations, comments, *etc.*

1 Raptor Plucking Post

1 Raptor nests

1 Pileated Woodpecker Tree Excavation

97% canopy cover

Fauna: 1 Cooper's Hawk (*Accipiter cooperii*) flight feather, 1 Pileated Woodpecker (*Dryocopus pileatus*), 1 Dead Garter Snake (*Thamnophis sirtalis*), 1 Mole (*Talipidae* spp.)

Flora: Big Leaf Maple (*Acer macrophyllum*), Douglas Fir (*Pseudotsuga menziesii*), Ponderosa (*Pinus ponderosa*), Red Alder (*Alnus rubra*), Incense Cedar (*Calocedrus decurrens*), Poison Oak (*Toxicodendron diversilobum*), California Black Oak (*Quercus kelloggii*), Himalayan Blackberries (*Rubus discolor*), Black Cottonwood (*Populus trichocarpa*)

Stream Substrate: Littoral (Small Cobble/ Bedrock), Shorline (Shrub/Tree stratum), Depth (10-120cm), Pics (0358,0359,0360,0361,0362,0364,0365,0366,0367)

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

California Red-legged Frog Survey Data Sheet

Survey results reviewed by _____
(Field Office) _____ (date) _____ (signature)

Date of Survey: 05/27/2008
(mm/dd/yyyy)

Survey Biologist: Fresz Shawn
(Last name) (first name)

Survey Biologist: Stackhouse Jeff
(Last name) (first name)

Site Location: Nevada, Empire Mine State Park, South Fork Wolf Creek
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Empire State Mine Remediation Project
Brief description of proposed action:
Hazardous site remediation.

Type of Survey (circle one): DAY NIGHT

BREEDING NON-BREEDING

Survey number (circle one): ① 2 3 4 5 6 7 8

Begin Time: 0900

End Time: 0030

Cloud cover: 0%

Precipitation: None

Air Temperature: 17.6 C

Water Temperature: 12.8 C

Wind Speed: <5 mph

Visibility Conditions: 100%

Moon phase: Full

Humidity: _____

Description of weather conditions: Light breeze, comfortable temperature.

Brand name and model of light used to conduct surveys: G2 SureFire

Were binoculars used for the surveys (circle one)? YES NO

Brand, model, and power of binoculars: Leupold, Yosemite, 6 x 30

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: Brown Trout (Salmo trutta)

Other notes, observations, comments, etc.

1 Raptor Plucking Post

1 Pileated Woodpecker Tree Excavation

97% canopy cover

Flora: Big Leaf Maple (*Acer macrophyllum*), Douglas Fir (*Pseudotsuga menziesii*), Ponderosa (*Pinus ponderosa*), Red Aldar (*Alnus rubra*), Incense Cedar (*Calocedrus becurrens*), Poison Oak (*Toxicodendron diversilobum*), California Black Oak (*Quercus kelloggii*), Himalayan Blackberries (*Rubus discolor*), Black Cottonwood (*Populus trichocarpa*)

Stream Substrate: Littoral (Small Cobble/ Bedrock), Shorline (Shrub/Tree stratum), Depth (10-120cm), Pics (0358,0359,0360,0361,0362,0364,0365,0366,0367)

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

California Red-legged Frog Survey Data Sheet

Site name: _____ Date: _____

Date of Survey: 06/11/2008
(mm/dd/yyyy)

Survey Biologist: Fresz Shawn
(Last name) (first name)

Survey Biologist: Stackhouse Jeff
(Last name) (first name)

Site Location: Nevada, Empire Mine State Park, South Fork Wolf Creek
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Empire State Mine Remediation Project
Brief description of proposed action:
Hazardous site remediation.

Type of Survey (circle one): DAY NIGHT BREEDING NON-BREEDING

Survey number (circle one): 1 2 3 4 5 6 7 8

Begin Time: 1115 End Time: 1430

Cloud cover: 0% Precipitation: None

Air Temperature: 20.9 C Water Temperature: 13.9 C

Wind Speed: <5 mph Visibility Conditions: 100%

Moon phase: Full Humidity: _____

Description of weather conditions: Light breeze, comfortable temperature.

Brand name and model of light used to conduct surveys: G2 SureFire

Were binoculars used for the surveys (circle one)? YES NO
Brand, model, and power of binoculars: Leupold, Yosemite, 6 x 30

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: Brown Trout (Salmo trutta)

Other notes, observations, comments, *etc.*

1 Raptor Plucking Post

1 Raptor nests

1 Pileated Woodpecker Tree Excavation

97% canopy cover

Flora: Big Leaf Maple (*Acer macrophyllum*), Douglas Fir (*Pseudotsuga menziesii*), Ponderosa (*Pinus ponderosa*), Red Alder (*Alnus rubra*), Incense Cedar (*Calocedrus becurrens*), Poison Oak (*Toxicodendron diversilobum*), California Black Oak (*Quercus kelloggii*), Himalayan Blackberries (*Rubus discolor*), Black Cottonwood (*Populus trichocarpa*)

Stream Substrate: Littoral (Small Cobble/ Bedrock), Shorline (Shrub/Tree stratum), Depth (10-120cm), Pics (0358,0359,0360,0361,0362,0364,0365,0366,0367)

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

California Red-legged Frog Survey Data Sheet

Survey results reviewed by _____
(Name) (date) (initials)

Date of Survey: 06/18/2008 Survey Biologist: Fresz Shawn
(mm/dd/yyyy) (Last name) (first name)
Survey Biologist: Stackhouse Jeff
(Last name) (first name)

Site Location: Nevada, Empire Mine State Park, South Fork Wolf Creek
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Empire State Mine Remediation Project
Brief description of proposed action:
Hazardous site remediation.

Type of Survey (circle one): DAY NIGHT BREEDING NON-BREEDING
Survey number (circle one): 1 2 3 4 5 6 7 8
Begin Time: 2135 End Time: 2345
Cloud cover: 0% Precipitation: None
Air Temperature: 23.5 C Water Temperature: 16.1 C
Wind Speed: <5 mph Visibility Conditions: 100%
Moon phase: Full Humidity: _____

Description of weather conditions: Light breeze, comfortable temperature.

Brand name and model of light used to conduct surveys: G2 SureFire

Were binoculars used for the surveys (circle one)? YES NO
Brand, model, and power of binoculars: Leupold, Yosemite, 6 x 30

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: Brown Trout (Salmo trutta)

Other notes, observations, comments, *etc.*

1 Raptor Plucking Post

1 Pileated Woodpecker Tree Excavation

97% canopy cover

Flora: Big Leaf Maple (*Acer macrophyllum*), Douglas Fir (*Pseudotsuga menziesii*), Ponderosa (*Pinus ponderosa*), Red Alder (*Alnus rubra*), Incense Cedar (*Calocedrus becurrens*), Poison Oak (*Toxicodendron diversilobum*), California Black Oak (*Quercus kelloggii*), Himalayan Blackberries (*Rubus discolor*), Black Cottonwood (*Populus trichocarpa*)

Stream Substrate: Littoral (Small Cobble/ Bedrock), Shorline (Shrub/Tree stratum), Depth (10-120cm), Pics (0358,0359,0360,0361,0362,0364,0365,0366,0367)

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

California Red-legged Frog Survey Data Sheet

Survey results reviewed by _____
(Last name) (date) (initials)

Date of Survey: 06/26/2008
(mm/dd/yyyy)

Survey Biologist: Fresz Shawn
(Last name) (first name)

Survey Biologist: Stackhouse Jeff
(Last name) (first name)

Site Location: Nevada, Empire Mine State Park, South Fork Wolf Creek
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Empire State Mine Remediation Project
Brief description of proposed action:
Hazardous site remediation.

Type of Survey (circle one): DAY NIGHT BREEDING NON-BREEDING
Survey number (circle one): 1 2 3 4 5 6 7 8
Begin Time: 2123 End Time: 2340
Cloud cover: 0% (Smokey) Precipitation: None
Air Temperature: 26.3 C Water Temperature: 17.9 C
Wind Speed: <5 mph Visibility Conditions: 100%
Moon phase: Full Humidity: _____

Description of weather conditions: Light breeze, comfortable temperature.

Brand name and model of light used to conduct surveys: G2 SureFire

Were binoculars used for the surveys (circle one)? YES NO
Brand, model, and power of binoculars: Leupold, Yosemite, 6 x 30

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: Brown Trout (Salmo trutta), Crayfish (Procambrus spp.)

Other notes, observations, comments, *etc.*

1 Raptor Plucking Post
1 Pileated Woodpecker Tree Excavation
97% canopy cover
Flora: Big Leaf Maple (Acer macrophyllum), Douglas Fir (Pseudotsuga menziesii), Ponderosa (Pinus ponderosa), Red Aldar (Alnus rubra), Incense Cedar (Calocedrus becurrens), Poison Oak (Toxicodendron diversilobum), California Black Oak (Quercus kelloggii), Himalayan Blackberries (Rubus discolor), Black Cottonwood (Populus trichocarpa)
Stream Substrate: Littoral (Small Cobble/ Bedrock), Shorline (Shrub/Tree stratum), Depth (10-120cm), Pics (0358,0359,0360,0361,0362,0364,0365,0366,0367)

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

California Red-legged Frog Survey Data Sheet

Survey results reviewed by _____
(Last name) (date) (initials)

Date of Survey: 06/27/2008 Survey Biologist: Fresz Shawn
(mm/dd/yyyy) (Last name) (first name)
Survey Biologist: Stackhouse Jeff
(Last name) (first name)

Site Location: Nevada, Empire Mine State Park, South Fork Wolf Creek
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Empire State Mine Remediation Project
Brief description of proposed action:
Hazardous site remediation.

Type of Survey (circle one): DAY NIGHT BREEDING NON-BREEDING
Survey number (circle one): 1 2 3 4 5 6 7 8
Begin Time: 0800 End Time: 1045
Cloud cover: 0% (Smokey) Precipitation: None
Air Temperature: 20.9 C Water Temperature: 13.9 C
Wind Speed: <5 mph Visibility Conditions: 100% (Smokey)
Moon phase: _____ Humidity: _____

Description of weather conditions: Light breeze, comfortable temperature.

Brand name and model of light used to conduct surveys: G2 SureFire

Were binoculars used for the surveys (circle one)? YES NO
Brand, model, and power of binoculars: Leupold, Yosemite, 6 x 30

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: Brown Trout (Salmo trutta), Crayfish (Procambrus spp.)

Other notes, observations, comments, etc.

1 Raptor Plucking Post

1 Raptor nests

1 Pileated Woodpecker Tree Excavation

1 Redtailed Hawk

1 Dead California Ringneck Snake (Punctatus spp.) In water.

97% canopy cover

Flora: Big Leaf Maple (*Acer macrophyllum*), Douglas Fir (*Pseudotsuga menziesii*), Ponderosa (*Pinus ponderosa*), Red Aldar (*Alnus rubra*), Incense Cedar (*Calocedrus becurrens*), Poison Oak (*Toxicodendron diversilobum*), California Black Oak (*Quercus kelloggii*), Himalayan Blackberries (*Rubus discolor*), Black Cottonwood (*Populus trichocarpa*)

Stream Substrate: Littoral (Small Cobble/ Bedrock), Shorline (Shrub/Tree stratum), Depth (10-120cm), Pics (0358,0359,0360,0361,0362,0364,0365,0366,0367)

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: None

Other notes, observations, comments, *etc.*

60% canopy cover

Flora: Ponderosa (*Pinus ponderosa*), Red Alder (*Alnus rubra*), Himalayan Blackberries (*Rubus discolor*), Arrowyo Willow (*Salix lasiolepis*), Cattails (*Typha* spp.), Buttercup (*Ranunculus* spp.)

Stream Substrate: Littoral (Silt), Shoreline (Woody Debris, Shrub stratum), Depth (15-75 cm), Pics (0356, 0357)

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: None

Other notes, observations, comments, *etc.*

60% canopy cover
 1 Dead Mole (*Talpidea* spp.)
 Flora: Ponderosa (*Pinus ponderosa*), Red Alder (*Alnus rubra*), Himalayan Blackberries (*Rubus discolor*), Arrowwo Willow (*Salix lasiolepis*), Cattails (*Typha* spp.), Buttercup (*Ranunculus* spp.)
 Stream Substrate: Littoral (Slit), Shorline (Woody Debris, Shrub stratum), Depth (15-75 cm), Pics (0356, 0357)

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

California Red-legged Frog Survey Data Sheet

Survey results approved by _____
Date: _____

Date of Survey: 5/29/2008
(mm/dd/yyyy)

Survey Biologist: Fresz Shawn
(Last name) (first name)

Survey Biologist: Stackhouse Jeff
(Last name) (first name)

Site Location: Nevada, Empire Mine State Park, Magenta Drainage
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Empire State Mine Remediation Project
Brief description of proposed action:
Hazardous site remediation.

Type of Survey (circle one): DAY NIGHT

BREEDING NON-BREEDING

Survey number (circle one): 1 2 3 4 5 6 7 8

Begin Time: 0035

End Time: 0050

Cloud cover: 25%

Precipitation: None

Air Temperature: 10.0 C

Water Temperature: 13.2 C

Wind Speed: >5 mph

Visibility Conditions: 100%

Moon phase: None

Humidity: _____

Description of weather conditions: Slight cloud coverage, very light breeze, comfortable temperature.

Brand name and model of light used to conduct surveys: G2 SureFire

Were binoculars used for the surveys (circle one)? YES NO

Brand, model, and power of binoculars: Leupold, Yosemite, 6 x 30

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: None

Other notes, observations, comments, *etc.*

60% canopy cover
 1 Dead Mole (*Talpidea* spp.)
 Flora: Ponderosa (*Pinus ponderosa*), Red Alder (*Alnus rubra*), Himalayan Blackberries (*Rubus discolor*), Arrowwo Willow (*Salix lasiolepis*), Cattails (*Typha* spp.), Buttercup (*Ranunculus* spp.)
 Stream Substrate: Littoral (Slit), Shorline (Woody Debris, Shrub stratum), Depth (15-75 cm), Pics (0356, 0357)

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

California Red-legged Frog Survey Data Sheet

Survey results reviewed by _____
(Date) _____ (Signature) _____ (Date) _____ (Signature)

Date of Survey: 06/11/2008 Survey Biologist: Fresz Shawn
(mm/dd/yyyy) (Last name) (first name)
Survey Biologist: Stackhouse Jeff
(Last name) (first name)

Site Location: Nevada, Empire Mine State Park, Magenta Drainage
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Empire State Mine Remediation Project
Brief description of proposed action:
Hazardous site remediation.

Type of Survey (circle one): DAY NIGHT BREEDING NON-BREEDING
Survey number (circle one): 1 2 3 4 5 6 7 8
Begin Time: 1032 End Time: 1050
Cloud cover: 0% Precipitation: None
Air Temperature: 18.5 C Water Temperature: 16.5 C
Wind Speed: >5 mph Visibility Conditions: 100%
Moon phase: None Humidity: _____

Description of weather conditions: Comfortable temperature.

Brand name and model of light used to conduct surveys: G2 SureFire

Were binoculars used for the surveys (circle one)? YES NO
Brand, model, and power of binoculars: Leopold, Yosemite, 6 x 30

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: None

Other notes, observations, comments, *etc.*

60% canopy cover

Flora: Ponderosa (*Pinus ponderosa*), Red Alder (*Alnus rubra*), Himalayan Blackberries (*Rubus discolor*), Arrowyo Willow (*Salix lasiolepis*), Cattails (*Typha* spp.), Buttercup (*Ranunculus* spp.)

Stream Substrate: Littoral (Slit), Shoreline (Woody Debris, Shrub stratum), Depth (15-75 cm), Pics (0356, 0357)

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

California Red-legged Frog Survey Data Sheet

Survey conducted by _____
Date: _____

Date of Survey: 06/26/2008
(mm/dd/yyyy)

Survey Biologist: Fresz Shawn
(Last name) (first name)

Survey Biologist: Stackhouse Jeff
(Last name) (first name)

Site Location: Nevada, Empire Mine State Park, Magenta Drainage
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Empire State Mine Remediation Project
Brief description of proposed action:
Hazardous site remediation.

Type of Survey (circle one): DAY NIGHT
BREEDING NON-BREEDING
Survey number (circle one): 1 2 3 4 5 6 7 8
Begin Time: 1210 End Time: 1227
Cloud cover: 0% (Smokey) Precipitation: None
Air Temperature: 33.5 C Water Temperature: 18.5 C
Wind Speed: >5 mph Visibility Conditions: 100% (Smokey)
Moon phase: _____ Humidity: _____

Description of weather conditions: Warm comfortable temperature.

Brand name and model of light used to conduct surveys: G2 SureFire

Were binoculars used for the surveys (circle one)? YES NO
Brand, model, and power of binoculars: _____

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: None

Other notes, observations, comments, *etc.*

60% canopy cover

Flora: Ponderosa (*Pinus ponderosa*), Red Alder (*Ainus rubra*), Himalayan Blackberries (*Rubus discolor*), Arrowyo Willow (*Salix lasiolepis*), Cattails (*Typha spp.*), Buttercup (*Ranunculus spp.*)

Stream Substrate: Littoral (Slit), Shoreline (Woody Debris, Shrub stratum), Depth (15-75 cm), Pics (0356, 0357)

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations



Magenta Drain – Drainage corridor



Magenta Drain – Representative vegetation

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification
Pacific Tree Frog(Pseudacris regilla)	4	O	Egg Masses	1" Diameter	100%
Pacific Tree Frog(Pseudacris regilla)	15000	O	Larvae	1-5cm	100%

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: None

Other notes, observations, comments, etc.

1 Western Fence Lizard (Sceloporus occidentalis)

20% canopy cover

Raptor Nest 18" Diameter in Cottonwood 40' up

Flora: Ponderosa (Pinus ponderosa), Red Aldar (Alnus rubra), Himalayan Blackberries (Rubus discolor), Arrowyo Willow (Salix lasiolepis), Rushes (Juncus sp.), Cattails (Typha spp.),

Northern California Manzanita (Arctostaphylos manzanita)

Stream Substrate: Littoral (Slit), Shorline (Woody Debris, Shrub stratum), Depth (1-35cm), Pics (0340, 0341, 0342, 0343)

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

California Red-legged Frog Survey Data Sheet

Survey results submitted by _____
(Last name) (date) (initials)

Date of Survey: 5/20/2008
(mm/dd/yyyy)

Survey Biologist: Fresz Shawn
(Last name) (first name)

Survey Biologist: Stackhouse Jeff
(Last name) (first name)

Site Location: Nevada, Empire Mine State Park, Sand Dam
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Empire State Mine Remediation Project
Brief description of proposed action:
Hazardous site remediation.

Type of Survey (circle one): DAY NIGHT

BREEDING NON-BREEDING

Survey number (circle one): 1 2 3 4 5 6 7 8

Begin Time: 2305

End Time: 2345

Cloud cover: 30%

Precipitation: None

Air Temperature: 15 C

Water Temperature: 20 C

Wind Speed: >5 mph

Visibility Conditions: 100%

Moon phase: Full

Humidity: _____

Description of weather conditions: Very light cloud coverage, light breeze, comfortable temperature.

Brand name and model of light used to conduct surveys: G2 SureFire

Were binoculars used for the surveys (circle one)? YES NO

Brand, model, and power of binoculars: Leupold, Yosemite, 6 x 30

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification
Pacific Tree Frog(Pseudacris regilla)	4	O	Egg Masses	1" Diameter	100%
Pacific Tree Frog(Pseudacris regilla)	7500	O	Larvae	1-5cm	100%
Pacific Tree Frog(Pseudacris regilla)	1	H	Adult		95%

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: None

Other notes, observations, comments, etc.

20% canopy cover

Flora: Ponderosa (Pinus ponderosa), Red Alder (Alnus rubra), Himalayan Blackberries (Rubus discolor), Arrowyo Willow (Salix lasiolepis), Rushes (Juncus sp.), Cattails (Typha spp.), Northern California Manzanita (Arctostaphylos manzanita)

Stream Substrate: Littoral (Slit), Shorline (Woody Debris, Shrub stratum), Depth (1-35cm),

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

California Red-legged Frog Survey Data Sheet

Site of results reviewed by _____ Date _____
Reviewed by _____ Date _____

Date of Survey: 5/28/2008
(mm/dd/yyyy)

Survey Biologist: Fresz Shawn
(Last name) (first name)

Survey Biologist: Stackhouse Jeff
(Last name) (first name)

Site Location: Nevada, Empire Mine State Park, Sand Dam
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Empire State Mine Remediation Project
Brief description of proposed action:
Hazardous site remediation.

Type of Survey (circle one): DAY NIGHT

Survey number (circle one): 1 2 3 4 5 6 7 8

Begin Time: 1245 End Time: 1425

Cloud cover: 50% Precipitation: None

Air Temperature: 24.3 C Water Temperature: 20.4 C

Wind Speed: 15 mph Visibility Conditions: 100%

Moon phase: Full Humidity: _____

Description of weather conditions: Light cloud coverage, light breeze, comfortable temperature.

Brand name and model of light used to conduct surveys: G2 SureFire

Were binoculars used for the surveys (circle one)? YES NO
Brand, model, and power of binoculars: Leupold, Yosemite, 6 x 30

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification
Pacific Tree Frog (<i>Pseudacris regilla</i>)	18000	O	Larvae	1-5cm	100%

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: None

Other notes, observations, comments, etc.

Fauna: 2 Western Fence Lizards (*Sceloporus occidentalis*), 2 Red-tailed Hawks (*Buteo jamaicensis*), Turkey Vulture (*Cathartes aura*)
 20% canopy cover
 Raptor Nest 18" Diameter in Cottonwood 40' up
 Flora: Ponderosa (*Pinus ponderosa*), Red Alder (*Alnus rubra*), Himalayan Blackberries (*Rubus discolor*), Arrowwo Willow (*Salix lasiolepis*), Rushes (*Juncus sp.*), Cattails (*Typha spp.*), Northern California Manzanita (*Arctostaphylos manzanita*)
 Stream Substrate: Littoral (Slit), Shorline (Woody Debris, Shrub stratum), Depth (1-35cm), Pics (0340, 0341, 0342, 0343)

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

California Red-legged Frog Survey Data Sheet

Survey results reviewed by _____
(Last name/initials) (date) (month)

Date of Survey: 5/29/2008
(mm/dd/yyyy)

Survey Biologist: Fresz Shawn
(Last name) (first name)

Survey Biologist: Stackhouse Jeff
(Last name) (first name)

Site Location: Nevada, Empire Mine State Park, Sand Dam
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Empire State Mine Remediation Project
Brief description of proposed action:
Hazardous site remediation.

Type of Survey (circle one): DAY NIGHT

BREEDING NON-BREEDING

Survey number (circle one): 1 2 3 4 5 6 7 8

Begin Time: 2225 End Time: 2315

Cloud cover: 5% Precipitation: None

Air Temperature: 9.9 C Water Temperature: 12.8 C

Wind Speed: None Visibility Conditions: 100%

Moon phase: None Humidity: _____

Description of weather conditions: Calm, cool, clear night.

Brand name and model of light used to conduct surveys: G2 SureFire

Were binoculars used for the surveys (circle one)? YES NO
Brand, model, and power of binoculars: Leupold, Yosemite, 6 x 30

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification
Pacific Tree Frog (<i>Pseudacris regilla</i>)	7500	O	Larvae	1-5cm	100%

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: None

Other notes, observations, comments, *etc.*

20% canopy cover

Flora: Ponderosa (*Pinus ponderosa*), Red Alder (*Alnus rubra*), Himalayan Blackberries (*Rubus discolor*), Arrowwo Willow (*Salix lasiolepis*), Rushes (*Juncus sp.*), Cattails (*Typha spp.*), Northern California Manzanita (*Arctostaphylos manzanita*)

Stream Substrate: Littoral (Slit), Shorline (Woody Debris, Shrub stratum), Depth (1-35cm),

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

California Red-legged Frog Survey Data Sheet

Survey results (if available) _____
(Site name) _____ (date) _____

Date of Survey: 6/10/2008
(mm/dd/yyyy)

Survey Biologist: Fresz Shawn
(Last name) (first name)

Survey Biologist: Stackhouse Jeff
(Last name) (first name)

Site Location: Nevada, Empire Mine State Park, Sand Dam
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Empire State Mine Remediation Project
Brief description of proposed action:
Hazardous site remediation.

Type of Survey (circle one): DAY NIGHT

BREEDING NON-BREEDING

Survey number (circle one): 1 2 3

4 5 6 7 8

Begin Time: 1140

End Time: 1320

Cloud cover: 0%

Precipitation: None

Air Temperature: 22.0 C

Water Temperature: 23.8 C

Wind Speed: 5 mph

Visibility Conditions: 100%

Moon phase: Full

Humidity: _____

Description of weather conditions: Light breeze, comfortable temperature.

Brand name and model of light used to conduct surveys: G2 SureFire

Were binoculars used for the surveys (circle one)? YES NO

Brand, model, and power of binoculars: Leupold, Yosemite, 6 x 30

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification
Bullfrog (<i>Rana catesbeiana</i>)	1	O	Adult	3"	100%
Pacific Tree Frog (<i>Pseudacris regilla</i>)	20000	O	Larvae	1-5cm	100%

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: Raccoon (*Procyon lotor*) Tracks and Bullfrogs (*Rana catesbeiana*)

Other notes, observations, comments, *etc.*

20% canopy cover

Raptor Nest 18" Diameter in Cottonwood 40' up (pic 3117)

Flora: Ponderosa (*Pinus ponderosa*), Red Aldar (*Alnus rubra*), Himalayan Blackberries (*Rubus discolor*), Arrowwo Willow (*Salix lasiolepis*), Rushes (*Juncus sp.*), Cattails (*Typha spp.*),

Northern California Manzanita (*Arctostaphylos manzanita*)

Stream Substrate: Littoral (Slit), Shorline (Woody Debris, Shrub stratum), Depth (1-35cm), Pics (0340, 0341, 0342, 0343)

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

California Red-legged Frog Survey Data Sheet

Survey results received by _____
Date: _____

Date of Survey: 06/10/2008
(mm/dd/yyyy)

Survey Biologist: Fresz Shawn
(Last name) (first name)

Survey Biologist: Stackhouse Jeff
(Last name) (first name)

Site Location: Nevada, Empire Mine State Park, Sand Dam
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Empire State Mine Remediation Project
Brief description of proposed action:
Hazardous site remediation.

Type of Survey (circle one): DAY NIGHT BREEDING NON-BREEDING
Survey number (circle one): 1 2 3 4 5 6 7 8
Begin Time: 2310 End Time: 0003
Cloud cover: 0% Precipitation: None
Air Temperature: 14.5 C Water Temperature: 16.4 C
Wind Speed: None Visibility Conditions: 100%
Moon phase: Full Humidity: _____

Description of weather conditions: Calm, cool, clear night.

Brand name and model of light used to conduct surveys: G2 SureFire

Were binoculars used for the surveys (circle one)? YES NO
Brand, model, and power of binoculars: Leupold, Yosemite, 6 x 30

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification
Pacific Tree Frog (Pseudacris regilla)	7500	O	Larvae	1-5cm	100%

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: None

Other notes, observations, comments, etc.

20% canopy cover

Flora: Ponderosa (Pinus ponderosa), Red Alder (Alnus rubra), Himalayan Blackberries (Rubus discolor), Arrowwo Willow (Salix lasiolepis), Rushes (Juncus sp.), Cattails (Typha spp.),

Northern California Manzanita (Arctostaphylos manzanita)

Stream Substrate: Littoral (Slit), Shorline (Woody Debris, Shrub stratum), Depth (1-35cm),

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

California Red-legged Frog Survey Data Sheet

Survey conducted by _____
(Last name) (first name)

Date of Survey: 6/24/2008
(mm/dd/yyyy)

Survey Biologist: Fresz Shawn
(Last name) (first name)
Survey Biologist: Stackhouse Jeff
(Last name) (first name)

Site Location: Nevada, Empire Mine State Park, Sand Dam
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Empire State Mine Remediation Project
Brief description of proposed action:
Hazardous site remediation.

Type of Survey (circle one): DAY NIGHT
BREEDING NON-BREEDING
Survey number (circle one): 1 2 3 4 5 6 7 8
Begin Time: 1030 End Time: 1215
Cloud cover: 0% Precipitation: None
Air Temperature: 31.2 C Water Temperature: 24.4 C
Wind Speed: 5 mph Visibility Conditions: 100%
Moon phase: _____ Humidity: _____

Description of weather conditions: Warm day with lots of smoke due to wildfires.

Brand name and model of light used to conduct surveys: G2 SureFire

Were binoculars used for the surveys (circle one)? YES NO
Brand, model, and power of binoculars: Leupold, Yosemite, 6 x 30

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification
Bullfrog (<i>Rana catesbeiana</i>)	1	O	Adult	3"	100%
Pacific Tree Frog (<i>Pseudacris regilla</i>)	4000	O	Larvae	1-5 cm	100%
Pacific Tree Frog (<i>Pseudacris regilla</i>)	200	O	Adult	3 cm	100%

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: Bullfrogs (*Rana catesbeiana*)

Other notes, observations, comments, *etc.*

20% canopy cover

Raptor Nest 18" Diameter in Cottonwood 40' up (pic 3117)

Flora: Ponderosa (*Pinus ponderosa*), Red Aldar (*Alnus rubra*), Himalayan Blackberries (*Rubus discolor*), Arrowwo Willow (*Salix lasiolepis*), Rushes (*Juncus sp.*), Cattails (*Typha spp.*),

Northern California Manzanita (*Arctostaphylos manzanita*)

Stream Substrate: Littoral (Slit), Shorline (Woody Debris, Shrub stratum), Depth (1-15cm)

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

California Red-legged Frog Survey Data Sheet

Survey results reviewed by _____
(Last name) (date) (initials)

Date of Survey: 06/24/2008 Survey Biologist: Fresz Shawn
(mm/dd/yyyy) (Last name) (first name)
Survey Biologist: Stackhouse Jeff
(Last name) (first name)

Site Location: Nevada, Empire Mine State Park, Sand Dam
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Empire State Mine Remediation Project
Brief description of proposed action:
Hazardous site remediation.

Type of Survey (circle one): DAY NIGHT BREEDING NON-BREEDING
Survey number (circle one): 1 2 3 4 5 6 7 8
Begin Time: 2300 End Time: 2350
Cloud cover: 0% Precipitation: None
Air Temperature: _____ Water Temperature: _____
Wind Speed: 0 mph Visibility Conditions: 90%
Moon phase: _____ Humidity: _____

Description of weather conditions: Very smokey due to fires:

Brand name and model of light used to conduct surveys: G2 SureFire

Were binoculars used for the surveys (circle one)? YES NO
Brand, model, and power of binoculars: Leupold, Yosemite, 6 x 30

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification
Pacific Tree Frog (<i>Pseudacris regilla</i>)	200	O	Larvae	1-5cm	100%
Pacific Tree Frog (<i>Pseudacris regilla</i>)	100	O	Adults	3 cm	100%

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: None

Other notes, observations, comments, *etc.*

20% canopy cover

Flora: Ponderosa (*Pinus ponderosa*), Red Alder (*Alnus rubra*), Himalayan Blackberries (*Rubus discolor*), Arrowwo Willow (*Salix lasiolepis*), Rushes (*Juncus sp.*), Cattails (*Typha spp.*),

Northern California Manzanita (*Arctostaphylos manzanita*)

Stream Substrate: Littoral (Slit), Shoreline (Woody Debris, Shrub stratum), Depth (1-35cm),

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations



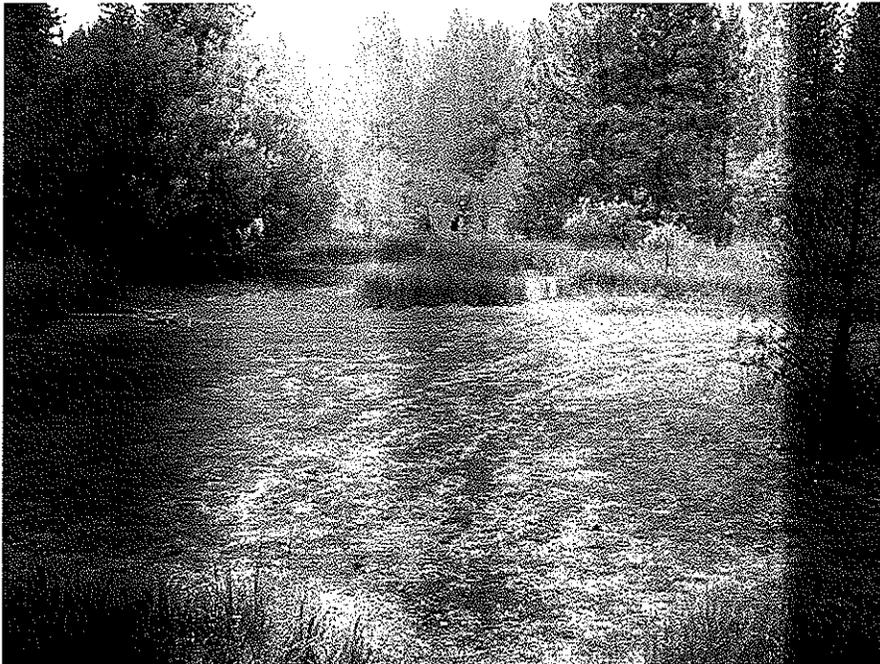
Sand Dam – Adult pacific chorus frog (*Pseudacris regilla*)



Sand Dam – Emergent marsh in June 2008



Sand Dam - Confluence with Little Wolf Creek



Sand Dam – Dry marsh in August 2008



Sand Dam effluent culvert to Lower Little Wolf Creek

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: Crayfish (Procambarus sp.)

Other notes, observations, comments, *etc.*

90% canopy cover

Flora: Big Leaf Maple (*Acer macrophyllum*), Douglas Fir (*Pseudotsuga menziesii*), Ponderosa (*Pinus ponderosa*), Red Alder (*Alnus rubra*), Incense Cedar (*Calocedrus becurrens*), Poison Oak (*Toxicodendron diversilobum*), California Black Oak (*Quercus kelloggii*), Himalayan Blackberries (*Rubus discolor*)

Stream Substrate: Littoral (Small Cobble), Shorline (Shrub/Tree stratum), Depth (10-70cm)

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification
Bullfrog (<i>Rana catesbeiana</i>)	9	O	Larva	3"	100%

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: Brown Trout (*Salmo trutta*)

Other notes, observations, comments, *etc.*

Flora: Big Leaf Maple (*Acer macrophyllum*), Douglas Fir (*Pseudotsuga menziesii*), Ponderosa (*Pinus ponderosa*), Red Alder (*Alnus rubra*), Incense Cedar (*Calocedrus becurrens*), Poison Oak (*Toxicodendron diversilobum*), California Black Oak (*Quercus kelloggii*), Himalayan Blackberries (*Rubus discolor*)

Stream Substrate: Littoral (Small Cobble), Shorline (Shrub/Tree stratum), Depth (10-45cm)

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations



Upper Little Wolf Creek – Bullfrog tadpoles (*Rana catesbeiana*)



Upper Little Wolf Creek – Brown trout (*Salmo trutta*)

SURVEYOR QUALIFICATIONS

All individuals conducting surveys have extensive knowledge concerning locating and identifying CRLF by both sight and sound, including physically identifying characteristics of all life stages of the CRLF and other anurans of California. Surveyors have knowledge of amphibian habitats and CRLF utilizations and behavioral trends, and are familiar with the vocalizations of the CRLF and other anurans of California. In addition, surveyors have extensive experience with capturing and handling other anuran species, including the mountain yellow-legged frog (*Rana muscosa*), foothill yellow-legged frog (*Rana boylei*) and cascade frog (*Rana cascadae*). Surveyors have undergone training on locating, handling, and identifying CRLF adult, larval, and egg stages and other above-mentioned anurans by CDFG biologists.