

# WETLAND DELINEATION REPORT

EMPIRE MINE STATE HISTORIC PARK REMEDIATION PROJECT  
NEVADA COUNTY, CALIFORNIA



*Prepared for*

**Golder Associates**

*Prepared by*



VESTRA Resources Inc.  
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## EXECUTIVE SUMMARY

This report presents the results of a delineation of wetlands and other waters conducted in the Empire Mine State Historic Park located in Nevada County, California. The project area for the delineation is located south of the city of Grass Valley. The park is bordered to the north by East Bennett Road, to the southeast by Osborne Hill Road, and private property on the remaining borders. The delineation area encompasses approximately 600 acres of the total 853 acre park.

Field work for the delineation was conducted by a biologist and a botanist in August 2008 using the routine onsite determination method described in the *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and, where applicable, in accordance with methods identified in the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual for the Western Mountain Valley Coast Region* (U.S. Army Corps of Engineers (USACE) 2006). Other waters of the United States were mapped and delineated in the field in accordance with the guidelines in the *U.S. Army Corps of Engineers Regulatory Guidance Letter No. 05-05*, dated December 7, 2005.

This report provides a summary of the wetlands and other waters that would likely be subject to regulation by the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act. A draft Jurisdictional Determination (JD) form is included in Appendix A. The form was completed using the *U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook* (USACE 2007; JD Guidebook), dated September 15, 2008.

Based on the field delineation and completion of the draft JD form, no traditional navigable waters (TNWs) are located in the project area. Two relatively permanent waters (RPWs) (i.e., Little Wolf Creek, Magenta Drain), multiple non-RPWs, wetlands directly abutting RPWs, wetlands adjacent to RPWs, wetlands adjacent to non-RPWs, impoundments, and several potentially isolated wetlands are located in the project area.

A description of the wetlands and other water features delineated in the project area is provided in Section 3, *Results*, of this report. The jurisdictional status of each feature in the project area is provided in Section 4, *Preliminary Jurisdictional Determination*, of this report.

Based on field analysis, 29.65 acres of potentially jurisdictional wetlands occur on site and 0.72 acres of other waters are located in the project area.

All wetland boundaries and jurisdictional determinations presented in this report are preliminary and subject to verification by USACE, Sacramento District.

## Section 1 INTRODUCTION

VESTRA Resources Inc. was retained by Golder Associates to conduct a wetland delineation of the Empire Mine State Historic Park. The project area for the delineation comprises a large portion of State-owned park and encompasses approximately 600 acres. The project area encompassing the delineation area is owned by the California Department of Parks and Recreation (CDPR), Gold Mine District.

The wetland delineation and this report have been completed and prepared in accordance with the USACE Sacramento District *Minimum Standards for Acceptance of Preliminary Wetlands Delineations* (USACE, Sacramento District 2001).

### SITE LOCATION

The Empire Mine State Historic Park is located in Nevada County on the western slope of the Sierra Nevada Mountains, within Section 26, 34, and 35, Township 16 North, Range 8 East, in the USGS Grass Valley Quadrangle, MDBM. It 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 CDPR, Gold Mine District. The general site location is shown on Figure 1. The park layout is shown on Figure 2.

### SITE DESCRIPTION

#### Vegetation

Plant communities were classified based upon guidelines outlined in *A Manual of California Vegetation* (Sawyer and Keeler-Wolf 1995). Wetland and riparian communities encountered in the project area are described in Section 3.

Six upland vegetation series were identified and mapped within the project area as shown on Figure 3:

- Ponderosa Pine (*Pinus ponderosa*) Series
- Mixed Conifer Series
- Black Oak (*Quercus kelloggii*) Series
- Whiteleaf Manzanita (*Arctostaphylos viscida*) Series
- Arroyo Willow (*Salix lasiolepis*) Series
- White Alder (*Alnus rhombifolia*) Series

The Ponderosa Pine, Mixed Conifer, and Black Oak Series are the most common vegetation type found in the project area. While the Whiteleaf Manzanita Series occurs throughout the project area, the Arroyo Willow Series is more common and associated with riparian

communities, and the White Alder Series is very common. The White Alder Series typically occurs throughout riparian corridors within the project area.

## **Soils and Geology**

The Park is characterized by many soil types that together create the diverse landscape and habitat occurring within the project area. The park soil matrices are comprised of distinct soils, including Musik sandy loams, Placer diggings, Sites loam, and Sites very stony loam. These soil types are shown on Figure 4 and described below:

### **Musik Sandy Loam**

There are two different types of Musick sandy loams found in the project area: MrC- 5 to 15 percent slopes and MrE- 15 to 50 percent slopes

The Musick sandy loams are a series of well-drained soils with a high available water capacity. Profiles range from 40 to 100 inches deep to bedrock. Where mapped, the Musick and similar soils compose 85 percent of the soil makeup, while other minor components make up the remaining 15 percent. The Musick sandy loams are composed primarily of a weathered granodiorite (Web Soil Survey).

### **Sites Loam**

There are three different series of Sites loam with the deciphering characteristic being slope: SID- 15 to 30 percent slopes, SIC- 9 to 15 percent slopes, and SIB- 2 to 9 percent slopes.

These three associated soil types comprise 85 percent of the area within their mapped zone. The profile ranges between 40 to 80 inches deep to bedrock. The soils are well drained and have a high available water capacity. The parent material from which these soils are formed is metasedimentary rock weathered to metabasic residuum (Web Soil Survey).

### **Sites Very Stony Loam**

This Sites loam (SmE) is a stony loam with a 15 to 50 percent slope and a high available water capacity. Typically, the profile is a cobbly loam from 0 to 12 inches proceeded by layers of clays and clay loams until bedrock is reached within 80 inches of the soil surface. Like the Sites loam, the parent material is metasedimentary rock weathered to metabasic residuum (Web Soil Survey).

### **Placer Diggings**

The Placer diggings occur on a wide range of slopes, from 2 to 75 percent. Their available water capacity is limited and the typical profile and parent materials are variable. Bedrock is usually reached within 60 inches of the soil surface (Web Soil Survey).

The Placer diggings soil is the main soil around the historic mining areas, and it is the most prevalent soil type within the greater part of the proposed project area. It tends to support a variety of habitats, with open shrublands or riparian areas with limited coniferous growth being most common. These areas include the Red Dirt Pile, an emergent wetland area, Cyanide Plant, historic facilities, and the fragmented habitat in between.

## GEOLOGY

The Empire Mine State Historic Park lies in the foothills of the Sierra Nevada Mountain Range. The geology of the area is representative of the Sierra Nevada batholiths. This geologic trend is comprised of plutonic granitic rocks of Mesozoic age. The batholith is flanked on the western foothills by the western metamorphic belt, a terrain of strongly deformed but weakly metamorphosed sedimentary and volcanic rocks. The famed Mother Lode passes through the heart of the area and resulted in the extensive historic mining activities that occurred near the project site.

## HYDROLOGY

The hydrology of the project area consists of perennial streams, ephemeral ponds, man-made drainage corridors, and an emergent wetland. Wetland features are shown on Figure 5.

Little Wolf Creek is the most dominant hydrological feature existing within the project boundaries. Little Wolf Creek is a tributary stream to Wolf Creek and enters the park on the east side and flows west to confluence with the emergent wetland area. The littoral substrate of Little Wolf Creek is comprised of a diverse stratum of silt, woody debris, cobble, and fragmented granitic bedrock. An extensive riparian vegetation corridor has established around the creek including Himalayan blackberry (*Rubus armeniacus*), willow, black oak, and poison oak (*Toxicodendron diversilobum*).

The Magenta Drain is a perennial drainage corridor constructed to drain the underground workings of the Magenta Mine. The drain continually conveys the associated underground water table to Wolf Creek. A vegetation corridor consisting primarily of Himalayan blackberry, cattail (*Typha* spp.), willow, and rush (*Juncus* spp.) species has established throughout this small drainage.

The Stacy Lane Pond is the representative seasonal feature existing within the project area. Stacy Lane Pond is a seasonal water feature that holds water conveyed from the many nearby mine shafts. This pond holds water for only a few months during the wet season and supports a diversity of vegetation. The littoral substrate is mostly sand and woody debris.

The many man-made drainage corridors in the park were designed to convey stormwater from the historic Cyanide Plant and Red Dirt Pile areas into the adjacent emergent wetland area. These recently reclaimed areas lack established vegetation and can accumulate large amounts of storm flows during the wet season. These conveyance corridors allow water to flow into Little Wolf Creek where it is carried into the emergent wetland area. The conveyance corridors are constructed of large cobble with coatings of concrete to smooth the surface and promote rapid water conveyance.

The emergent wetland area is located in the southwest portion of the park. The emergent wetland embankment was built in 1917 to contain mill tailing from the Empire Mine stamp mill and Cyanide Plant facilities. The emergent wetland area is approximately 16 acres and includes the emergent wetland embankment and the containment area behind the embankment. The area includes a varied landscape of vegetated areas, seasonal ponds, and bare ground. The

primary hydrologic feature contributing to the emergent wetland area is Little Wolf Creek. Little Wolf Creek enters the emergent wetland area at its southeastern edge. The hydrology of the emergent wetland area is representative of emergent wetland with intermittent pools and swales.

## Section 2 DELINEATION METHODS

Field work for the delineation was conducted in August 2008 with additional reconnaissance field work conducted in June and July 2008. A qualified biologist and botanist conducted the delineation using the routine onsite determination method described in the *U.S. Army Corps of Engineers Wetlands Delineation Manual* and, where applicable, in accordance with the methods identified in the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (Interim Regional Supplement). Other waters of the United States were mapped and delineated in the field in accordance with USACE Regulatory Guidance Letter No. 05-05, dated December 7, 2005.

As detailed in the Interim Regional Supplement, data on vegetation, soil, and hydrology characteristics that are used as the basis for wetland boundary determinations were collected and recorded on Wetland Determination Data Forms included as Appendix B. The boundaries of nontidal, nonwetland waters (i.e., tributaries and RPWs) were delineated at the ordinary high water mark (OHWM) as defined in 33 Code of Federal Regulations (CFR) 328.3. The OHWM represents the limit of potential USACE jurisdiction over nontidal waters (e.g., streams and ponds) in the absence of adjacent wetlands (33 CFR 328.04).

A comprehensive list of plant species observed in the project area, including the scientific name of each species, is provided in Appendix C. Scientific names follow *The Jepson Manual* (Hickman 1993) as updated by the Jepson Interchange, an online database maintained by the Jepson and University Herbaria (University of California 2007). Wetland indicator status of each species was determined based upon the *National List of Plant Species That Occur in Wetlands: California* (Reed 1988).

A Trimble GeoXT global positioning system (GPS) unit, typically accurate to less than 1 horizontal meter, was used to record the location of jurisdictional boundaries, data points, and other pertinent features (such as culvert locations) wherever possible. Where satellite reception was poor (such as under dense tree canopy or in very steep terrain), aerial photograph interpretation was used to supplement the GPS data. The GPS data were downloaded and superimposed onto existing color orthorectified aerial photographs and edited as necessary to generate the delineation maps for the project area.

Following the field delineation, water bodies and wetland features in the project area were assigned to one of nine types of potential waters of the United States based on the standards presented in the *Rapanos* decision (see Section 4, *Preliminary Jurisdictional Determination*) and were mapped accordingly.

For those waters requiring a “significant nexus” determination, the analysis was undertaken during the preparation of and is detailed on the JD form.

## Section 3 RESULTS

The water features delineated in the project area are summarized in Table 1 and further described below. All of the features are depicted on Figure 5.

<b>Habitat Type</b>	<b>Acreage</b>
Perennial Stream (Little Wolf Creek)	10.54
Perennial Stream (Magenta Drain)	2.81
Emergent Wetland	16.3
Seasonal Pond (Stacy Lane Pond)	0.39
Drainage Ditch	0.33
Total = 30.4 acres	

### WETLANDS

There is one wetland within the Empire Mine State Park project area: Emergent wetland.

#### EMERGENT WETLAND

The emergent wetland area has a total area of 16.3 acres of wetlands. This marsh is fed by rainfall, conveyance channels from the Red Dirt Pile, and Little Wolf Creek. Upon arrival to the site in May 2008, the marsh had 90 percent surface water and was 5 feet deep at its deepest point. When surveys were completed in July 2008, surface water coverage had reduced to 20 percent. On a subsequent visit to the site in September 2008, the marsh was dry. Upland islands within the marsh area are inhabited by ponderosa pine, Himalayan blackberry, and manzanita (*Arctostaphylos* spp.). The lower, more saturated areas provide habitat for rushes, sedges, willows, and cottonwoods. Throughout the study period, available water was teeming with amphibious life, predominantly Pacific chorus frogs (*Pseudacris regilla*). The dense vegetation in combination with ephemeral water concentrations provides a suitable and productive habitat for wildlife, including amphibians, birds, and mammals. This site exhibits established wetland plants and saturated soil conditions in addition to surface hydrology which indicate this feature is a jurisdictional wetland.

#### OTHER WATERS

##### Perennial Streams

There are two perennial streams within the Empire Mine State Park project area: Little Wolf Creek and Magenta Drain.

Little Wolf Creek is a small tributary covering 10.54 acres within the park boundaries which potentially provides habitat for amphibians, fish, and other aquatic animals. It flows into Wolf Creek, a significant tributary of the Bear River, which eventually merges with the Sacramento River. Little Wolf Creek is 19.2 miles to its confluence with the Bear River, the nearest traditional navigable water. Averaging 1 foot deep and 4 feet wide, Little Wolf Creek contains many pools up to 2.5 feet deep. These pools are slower moving and provide preferable habitat for most aquatic life. The vegetation, soil characteristics, and observed hydrology (flowing water June through August) of this feature indicate that this feature is an RPW.

The riparian corridor associated with Little Wolf Creek is dominated by white alder, arroyo willow, shining willow (*Salix lucida*), and big-leaf maple (*Acer macrophyllum*). The understory is dominated by dense Himalayan blackberry, but in areas where the Himalayan blackberry is less dominant, California blackberry (*Rubus ursinus*), western azalea (*Rhododendron occidentale*), and Pacific ninebark (*Physocarpus capitatus*) occur. Herbaceous plants associated with the riparian woodland and channel included: soft rush (*Juncus merica*), tall flatsedge/nut sedge (*Cyperus eragrostis*), American brooklime (*Veronica mericana*), seep spring monkeyflower (*Mimulus guttatus*), small-fruited sedge (*Scirpus microcarpus*), curly dock (*Rumex crispus*), and velvet grass (*Holcus lanatus*).

The Magenta Drain is a perennial drainage corridor constructed to drain the underground workings of the Magenta Mine. The drain functions to convey the associated water table of the upgradient Magenta Mine and the associated underground workings of nearby mines to Wolf Creek. Water from the drain enters a constructed surface channel and then flows through Woodpecker Ravine. The Magenta Drain's total corridor area is 0.2 acres. A vegetation corridor consisting primarily of Himalayan blackberry, cattail (*Typha* spp.), willow (*Salix* spp.) and rush (*Juncus* spp.) has established in the small drainage. Due to the presence of arsenic, iron, and manganese, poor water quality exists in the effluent flow of the Magenta Drain. The drain is located directly adjacent to public recreation facilities and private residential homes. The water quality and location make the habitat quality poor and utilization by wildlife unlikely. The vegetation, soil characteristics, and observed hydrology indicate that this feature is an RPW.

## Seasonal Pond

The seasonal pond on the site is the Stacy Lane Pond. This pond was dry during the first visit in May 2008, but has an area of approximately 0.39 acres and potential to hold water up to a depth of 8 feet. The surrounding vegetation consists of ponderosa pine, Himalayan blackberry, and numerous grass species. Within the pond, there are also well-established willow and cottonwood (*Populus fremontii*) trees. The substrate and bank soils are sandy, allowing for rapid infiltration of water. The dominant wetland vegetation communities and hydrological features observed at this site indicate this seasonal pond is an isolated wetland and non-jurisdictional wetland.

## Drainage Ditch

There are numerous constructed drainage ditches throughout the Red Dirt Pile area that were likely constructed during historic mining operations to convey water away from operational sites. These ditches comprise a total area of 0.33 acres.

None of the drainage ditches were flowing while surveys were being conducted in August and September 2008. However, the nearby California Data Exchange Center recorder station in Grass Valley recorded a particularly dry year, with under 19 inches of rain from January to June, and no rain from June to September. These drainage ditches were observed during a relatively dry year, and likely flow for longer periods during normal years. It is assumed, based upon field observations and local weather records, that despite being a relatively dry year, the ditches will only convey water during times of high rainfall in late winter or early spring. The drainage ditches have, thus, been classified as non-RPWs (non-relatively permanent waters).

These conveyance channels are constructed in uplands and drain solely uplands. Although the channels have some wetland characteristics, there is no notable difference in wildlife activity from these drainage corridors and adjacent upland habitats. These features possess a narrow bed, defined bank, and evidence of flow (i.e., sediment deposits).

## Section 4 PRELIMINARY JURISDICTIONAL DETERMINATION

### POTENTIAL WATERS OF THE UNITED STATES

This preliminary jurisdictional determination has been prepared in keeping with guidance in the *U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook* (JD Guidebook). All determinations in this report should be considered preliminary pending verification by USACE Sacramento District. As detailed in the JD Guidebook, the following types of waters that were identified in the project area are potentially considered waters of the United States:

- RPWs that flow directly or indirectly into TNWs (Little Wolf Creek, Magenta Drain)
- Wetlands directly abutting RPWs that flow directly or indirectly into TNWs (emergent wetland and associated wetlands)

The draft JD form included as Appendix A contains a significant nexus analysis for all the features described above that require such analysis. Additionally, the types of features listed below which are present in the project area appear to be isolated and are not considered waters of the United States:

- Isolated wetland (Stacy Lane Pond)
- Non-RPWs that do not flow directly or indirectly to RPWs (drainage ditches)

A list of all water bodies present in the project area corresponding to the wetland delineation figures is presented in Table 2, including the acreage of each feature, the type of feature (e.g., RPW, isolated wetland), and its jurisdictional code. Representative site photographs are included in Appendix D.

<b>Table 2</b>		
<b>POTENTIAL WATERS OF THE UNITED STATES IN THE PROJECT AREA</b>		
<b>Habitat Type</b>	<b>Acreage</b>	<b>JD Code</b>
Perennial Stream (Little Wolf Creek)	10.54	e
Perennial Stream (Magenta Drain)	2.81	e
Emergent Wetland	16.3	b
Drainage Ditch	0.33	f
Seasonal Pond (Stacy Lane Pond)	0.39	d
Total = 30.37 acres		
<b>Jurisdictional Codes:</b> b = Wetlands adjacent to RPWs d = Isolated wetland e = RPWs f = non-RPW's		

## JURISDICTIONAL SUMMARY

Based on the information contained in this report and the significant nexus analysis completed on the draft JD form, 30.37 acres of potential waters of the United States are located in the project area. Of this total, 16.3 acres are wetlands and 14.07 acres are other waters. Based on the JD analysis, 0.72 acres of other waters are non-jurisdictional (drainage ditches, Stacy Lane Pond) and 16.3 acres of wetlands are jurisdictional (emergent wetland). Jurisdictional waters in the project area are summarized in Table 3.

<b>Jurisdictional Code</b>	<b>Acreage</b>
RPWs that flow directly or indirectly into TNWs	13.35
Wetlands directly abutting RPWs that flow directly or indirectly into TNWs	16.3
Total = 29.65 acres	

## Section 5 REFERENCES

- Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. (Technical Report Y-87-1.) Vicksburg, MS: U.S. Army Waterways Experiment Station.
- Hickman, J. C. (ed) 1993. *The Jepson Manual: Higher Plants of California*. Berkeley, CA: University of California Press
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**APPROVED JURISDICTIONAL DETERMINATION FORM**  
**U.S. Army Corps of Engineers**

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

**SECTION I: BACKGROUND INFORMATION**

**A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): TBD**

**B. DISTRICT OFFICE, FILE NAME, AND NUMBER: TBD**

**C. PROJECT LOCATION AND BACKGROUND INFORMATION:**

State: CA County/parish/borough: Nevada County City: Not in any City: nearest City is Grass Valley  
Center coordinates of site (lat/long in degree decimal format): Lat. ° N, Long. ° Pick List  
Universal Transverse Mercator:

Name of nearest waterbody: Little Wolf Creek

Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Little Wolf Creek Flows into Wolf Creek which flow into Bear River a TNW, which flows into the Sacramento River.

Name of watershed or Hydrologic Unit Code (HUC):

- Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.  
 Check if other sites (e.g., offsite mitigation sites, disposal sites, etc...) are associated with this action and are recorded on a different JD form.

**D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):**

- Office (Desk) Determination. Date:  
 Field Determination. Date(s):

**SECTION II: SUMMARY OF FINDINGS**

**A. RHA SECTION 10 DETERMINATION OF JURISDICTION.**

There  **Are no** "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [Required]

- Waters subject to the ebb and flow of the tide.  
 Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.  
Explain:

**B. CWA SECTION 404 DETERMINATION OF JURISDICTION.**

There  **Are** "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [Required]

**1. Waters of the U.S.**

**a. Indicate presence of waters of U.S. in review area (check all that apply):<sup>1</sup>**

- TNWs, including territorial seas  
 Wetlands adjacent to TNWs  
 Relatively permanent waters<sup>2</sup> (RPWs) that flow directly or indirectly into TNWs  
 Non-RPWs that flow directly or indirectly into TNWs  
 Wetlands directly abutting RPWs that flow directly or indirectly into TNWs  
 Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs  
 Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs  
 Impoundments of jurisdictional waters  
 Isolated (interstate or intrastate) waters, including isolated wetlands

**b. Identify (estimate) size of waters of the U.S. in the review area:**

Non-wetland waters: linear feet: width (ft) and/or acres.  
Wetlands: acres.

**c. Limits (boundaries) of jurisdiction based on: 1987 Delineation Manual**

Elevation of established OHWM (if known):

**2. Non-regulated waters/wetlands (check if applicable):<sup>3</sup>**

- Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.  
Explain: 1 wetland was determined to be isolated.

<sup>1</sup> Boxes checked below shall be supported by completing the appropriate sections in Section III below.

<sup>2</sup> For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

<sup>3</sup> Supporting documentation is presented in Section III.F.

**SECTION III: CWA ANALYSIS**

**A. TNWs AND WETLANDS ADJACENT TO TNWs**

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

**1. TNW**

Identify TNW: No TNWs are present within the study area.

Summarize rationale supporting determination:

**2. Wetland adjacent to TNW**

Summarize rationale supporting conclusion that wetland is "adjacent": Not Applicable.

**B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):**

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody<sup>4</sup> is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

**1. Characteristics of non-TNWs that flow directly or indirectly into TNW**

**(i) General Area Conditions:**

Watershed size: Not Applicable **Pick List**

Drainage area: **Pick List**

Average annual rainfall: inches

Average annual snowfall: inches

**(ii) Physical Characteristics:**

**(a) Relationship with TNW:**

- Tributary flows directly into TNW.
- Tributary flows through 2 tributaries before entering TNW.

Project waters are **Pick List** river miles from TNW.

Project waters are **Pick List** river miles from RPW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Project waters are **Pick List** aerial (straight) miles from RPW.

Project waters cross or serve as state boundaries. Explain:

Identify flow route to TNW<sup>5</sup>:

Tributary stream order, if known:

<sup>4</sup> Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

<sup>5</sup> Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

(b) General Tributary Characteristics (check all that apply):

- Tributary is:  Natural  
 Artificial (man-made). Explain:  
 Manipulated (man-altered). Explain:

Tributary properties with respect to top of bank (estimate):

Average width:       feet  
Average depth:       feet  
Average side slopes: Pick List.

Primary tributary substrate composition (check all that apply):

- |  |  |                                   |
|--|--|-----------------------------------|
| <input type="checkbox"/> Silts           | <input type="checkbox"/> Sands                         | <input type="checkbox"/> Concrete |
| <input type="checkbox"/> Cobbles         | <input type="checkbox"/> Gravel                        | <input type="checkbox"/> Muck     |
| <input type="checkbox"/> Bedrock         | <input type="checkbox"/> Vegetation. Type/% cover: 25% |                                   |
| <input type="checkbox"/> Other. Explain: |  |                                   |

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: No erosion observed.

Presence of run/riffle/pool complexes. Explain: All are present.

Tributary geometry: Pick List

Tributary gradient (approximate average slope):       %

(c) Flow:

Tributary provides for: Pick List

Estimate average number of flow events in review area/year: Pick List

Describe flow regime:

Other information on duration and volume:

Surface flow is: Pick List. Characteristics:

Subsurface flow: Pick List. Explain findings:

- Dye (or other) test performed:

Tributary has (check all that apply):

- |   |   |
|---|---|
| <input type="checkbox"/> Bed and banks  |   |
| <input type="checkbox"/> OHWM <sup>6</sup> (check all indicators that apply): |   |
| <input type="checkbox"/> clear, natural line impressed on the bank            | <input type="checkbox"/> the presence of litter and debris          |
| <input type="checkbox"/> changes in the character of soil                     | <input type="checkbox"/> destruction of terrestrial vegetation      |
| <input type="checkbox"/> shelving   | <input type="checkbox"/> the presence of wrack line                 |
| <input type="checkbox"/> vegetation matted down, bent, or absent              | <input type="checkbox"/> sediment sorting                           |
| <input type="checkbox"/> leaf litter disturbed or washed away                 | <input type="checkbox"/> scour                                      |
| <input type="checkbox"/> sediment deposition                                  | <input type="checkbox"/> multiple observed or predicted flow events |
| <input type="checkbox"/> water staining                                       | <input type="checkbox"/> abrupt change in plant community           |
| <input type="checkbox"/> other (list):  |   |
| <input type="checkbox"/> Discontinuous OHWM. <sup>7</sup> Explain:            |   |

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> High Tide Line indicated by:   | <input checked="" type="checkbox"/> Mean High Water Mark indicated by: |
| <input type="checkbox"/> oil or scum line along shore objects      | <input type="checkbox"/> survey to available datum;                    |
| <input type="checkbox"/> fine shell or debris deposits (foreshore) | <input type="checkbox"/> physical markings;                            |
| <input type="checkbox"/> physical markings/characteristics         | <input type="checkbox"/> vegetation lines/changes in vegetation types. |
| <input type="checkbox"/> tidal gauges                              |  |
| <input type="checkbox"/> other (list):                             |  |

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Explain:

Identify specific pollutants, if known:

<sup>6</sup>A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.

<sup>7</sup>Ibid.

(iv) **Biological Characteristics. Channel supports (check all that apply):**

- Riparian corridor. Characteristics (type, average width):
- Wetland fringe. Characteristics:
- Habitat for:
  - Federally Listed species. Explain findings:
  - Fish/spawn areas. Explain findings:
  - Other environmentally-sensitive species. Explain findings:
  - Aquatic/wildlife diversity. Explain findings:

2. **Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW**

(i) **Physical Characteristics:**

(a) General Wetland Characteristics:

Properties:

Wetland size:        acres

Wetland type. Explain:

Wetland quality. Explain:

Project wetlands cross or serve as state boundaries. Explain:

(b) General Flow Relationship with Non-TNW:

Flow is: Pick List. Explain:

Surface flow is: Pick List

Characteristics:

Subsurface flow: Pick List. Explain findings:

Dye (or other) test performed:

(c) Wetland Adjacency Determination with Non-TNW:

Directly abutting

Not directly abutting

Discrete wetland hydrologic connection. Explain:

Ecological connection. Explain:

Separated by berm/barrier. Explain:

(d) Proximity (Relationship) to TNW

Project wetlands are Pick List river miles from TNW.

Project waters are Pick List aerial (straight) miles from TNW.

Flow is from: Pick List.

Estimate approximate location of wetland as within the Pick List floodplain.

(ii) **Chemical Characteristics:**

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain:

Identify specific pollutants, if known:

(iii) **Biological Characteristics. Wetland supports (check all that apply):**

- Riparian buffer. Characteristics (type, average width):
- Vegetation type/percent cover. Explain:
- Habitat for:
  - Federally Listed species. Explain findings:
  - Fish/spawn areas. Explain findings:
  - Other environmentally-sensitive species. Explain findings:
  - Aquatic/wildlife diversity. Explain findings:

3. **Characteristics of all wetlands adjacent to the tributary (if any)**

All wetland(s) being considered in the cumulative analysis: Pick List

Approximately (        ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)      Size (in acres)      Directly abuts? (Y/N)      Size (in acres)

Summarize overall biological, chemical and physical functions being performed:

### C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs. Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:
2. Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs. Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:
3. Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW. Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

### D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. TNWs and Adjacent Wetlands. Check all that apply and provide size estimates in review area:

TNWs: linear feet width (ft), Or, acres.  
 Wetlands adjacent to TNWs: acres.

2. RPWs that flow directly or indirectly into TNWs.

Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial:

Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally:

Provide estimates for jurisdictional waters in the review area (check all that apply):

Tributary waters: 2000 linear feet 12 width (ft).

Other non-wetland waters: acres.

Identify type(s) of waters:

3. **Non-RPWs<sup>8</sup> that flow directly or indirectly into TNWs.**

- Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):

Tributary waters: linear feet width (ft).

Other non-wetland waters: acres.

Identify type(s) of waters:

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**

- Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.

Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: **Sand Dam area directly abuts and/or confluences with Little Wolf Creek seasonally at high water flows. Emergent marsh has been established..**

Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:

Provide acreage estimates for jurisdictional wetlands in the review area: 35 acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**

- Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**

- Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.<sup>9</sup>**

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.

Demonstrate that impoundment was created from "waters of the U.S.," or

Demonstrate that water meets the criteria for one of the categories presented above (1-6), or

Demonstrate that water is isolated with a nexus to commerce (see E below).

E. **ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):<sup>10</sup>**

which are or could be used by interstate or foreign travelers for recreational or other purposes.

from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.

which are or could be used for industrial purposes by industries in interstate commerce.

Interstate isolated waters. Explain:

Other factors. Explain:

<sup>8</sup>See Footnote # 3.

<sup>9</sup>To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

<sup>10</sup> Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.

**Identify water body and summarize rationale supporting determination:**

Provide estimates for jurisdictional waters in the review area (check all that apply):

- Tributary waters: linear feet width (ft).
- Other non-wetland waters: acres.
- Identify type(s) of waters: .
- Wetlands: acres.

**F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):**

- If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
- Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
  - Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
- Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: **Constructed in uplands and drains underground workings of adjacent mines..**
- Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

- Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
- Lakes/ponds: 0.3 acres.
- Other non-wetland waters: acres. List type of aquatic resource: .
- Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

- Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
- Lakes/ponds: acres.
- Other non-wetland waters: acres. List type of aquatic resource: .
- Wetlands: acres.

**SECTION IV: DATA SOURCES.**

**A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):**

- Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant:
- Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  - Office concurs with data sheets/delineation report.
  - Office does not concur with data sheets/delineation report.
- Data sheets prepared by the Corps:
- Corps navigable waters' study:
- U.S. Geological Survey Hydrologic Atlas:
  - USGS NHD data.
  - USGS 8 and 12 digit HUC maps.
- U.S. Geological Survey map(s). Cite scale & quad name: .
- USDA Natural Resources Conservation Service Soil Survey. Citation: .
- National wetlands inventory map(s). Cite name: Grass valley.
- State/Local wetland inventory map(s): .
- FEMA/FIRM maps:
- 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)
- Photographs:  Aerial (Name & Date): .  
or  Other (Name & Date): .
- Previous determination(s). File no. and date of response letter: .
- Applicable/supporting case law: .
- Applicable/supporting scientific literature: .
- Other information (please specify): CA Parks and Recreation biologist consultations.

**B. ADDITIONAL COMMENTS TO SUPPORT JD:**



**WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region**

Project/Site: Empire Mine State Historic Park City/County: Grass Valley/Nevada County Sampling Date: 6/18/2008  
 Applicant/Owner: CA Department of Parks and Recreation State: CA Sampling Point: Data Point 1  
 Investigator(s): Shawn Fresz, Jeff Stackhouse Section, Township, Range: Section 26,34,35 Township 16 N, Range 08 E  
 Landform (hillslope, terrace, etc.): creek drainage Local relief (concave, convex, none): concave Slope (%): 7  
 Subregion (LRR): Rocky Mountain Forests and Rangelar Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI Classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks)  
 Are Vegetation NO, Soil NO, or Hydrology NO significantly disturbed? Are "Normal Circumstances" Present? Yes YES No \_\_\_\_\_  
 Are Vegetation NO, Soil NO, or Hydrology NO naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <u>X</u> No _____	<b>Is the Sampled Area within a Wetland?</b>	Yes <u>X</u> No _____
Hydric Soil Present? Yes <u>X</u> No _____		Yes <u>X</u> No _____
Wetland Hydrology Present? Yes <u>X</u> No _____		Yes <u>X</u> No _____
Remarks:GPS UTM 10 S 0668499 4341048 Data point located near Little Wolf Creek's confluence with Sand Dam		

**VEGETATION**

<u>Tree Stratum</u> (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?	<b>Dominance Test worksheet:</b>
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>500%</u> (A/B)
4. _____	_____	_____	_____	
Total Cover: _____				
<u>Shrub Stratum</u>				<b>Prevalence Index Worksheet:</b>
1. _____	_____	_____	_____	Total % Cover of: _____ Multiply by: _____
2. _____	_____	_____	_____	OBL species <u>4</u> x1 = <u>4</u>
3. _____	_____	_____	_____	FACW species <u>1</u> x2 = <u>2</u>
4. _____	_____	_____	_____	FAC species _____ x3 = <u>0</u>
5. _____	_____	_____	_____	FACU species <u>1</u> x4 = <u>4</u>
Total Cover: _____				UPL species _____ x5 = <u>0</u>
<u>Herb Stratum</u>				Column Totals: <u>6</u> (A) <u>10</u> (B)
1. <u>Juncus xiphioides</u>	<u>75</u>	<u>yes</u>	<u>OBL</u>	Prevalence Index = B/A = <u>1.7</u>
2. <u>Juncus effusus</u>	<u>10</u>	<u>no</u>	<u>FACW</u>	
3. <u>Agrostis sp</u>	<u>2</u>		<u>OBL</u>	
4. <u>Rubus discolor</u>	<u>10</u>	<u>yes</u>	<u>FACU</u>	<b>Hydrophytic Vegetation Indicators:</b>
5. <u>Scirpus</u>	<u>5</u>		<u>OBL</u>	<u>1</u> Dominance Test is >50%
6. <u>Mimulus guttatus</u>	<u>2</u>		<u>OBL</u>	<u>X</u> Prevalence Index is ≤3.0 <sup>1</sup>
7. _____	_____	_____	_____	Morphological Adaptation <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
8. _____	_____	_____	_____	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Total Cover: <u>100</u>				
<u>Woody Vine Stratum</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
Total Cover: _____				<b>Hydrophytic Vegetation Present?</b> Yes _____ No _____
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				

Remarks:

**SOIL**

Sampling Point: Data Point 1

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)		<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Muck Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)		

<b>Restrictive Layer (if present):</b>	<b>Hydric Soil Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Type: _____ Depth (inches): _____	

Remarks:

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		
Primary Indicators (any one indicator is sufficient)		Secondary Indicators (2 or more required)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Water-Stained Leaves (B9)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

<b>Field Observations:</b>	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Surface Water Present?    Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): 1 inch _____	
Water table Present?      Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____	
Saturation Present?        Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region**

Project/Site: Empire Mine State Historic Park City/County: Grass valley/Nevada County Sampling Date: 6/18/2008  
 Applicant/Owner: CA Dpartment of Parks and Recreation State: CA Sampling Point: Data Point 2  
 Investigator(s): Shawn Fresz, Jeff Stackhouse Section, Township, Range: Section 26,34,35 Township 16 N, Range 08 E  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 3  
 Subregion (LRR): Rocky Mountain Forests and Rangelar Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI Classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks)  
 Are Vegetation NO, Soil NO, or Hydrology NO significantly disturbed? Are "Normal Circumstances" Present? Yes X No \_\_\_\_\_  
 Are Vegetation NO, Soil NO, or Hydrology NO naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>	<b>Is the Sampled Area within a Wetland?</b>	Yes _____ No <u>X</u>
Hydic Soil Present?	Yes _____ No <u>X</u>		
Wetland Hydrology Present?	Yes _____ No <u>X</u>		
Remarks:			

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?	
1. <u><i>Alnus rhombifolia</i></u>	40	yes	FACW	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. <u><i>Quercus kelloggii</i></u>	10			
3. <u><i>Salix lucida</i></u>	10		NI	
4. <u><i>Acer Macrophyllum</i></u>	5			
Total Cover: _____				<b>Prevalence Index Worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x1 = <u>0</u> FACW species <u>1</u> x2 = <u>2</u> FAC species _____ x3 = <u>0</u> FACU species <u>1</u> x4 = <u>4</u> UPL species _____ x5 = <u>0</u> Column Totals: <u>2</u> (A) <u>6</u> (B) Prevalence Index = B/A = <u>3.0</u>
<b>Shrub Stratum</b>				
1. <u><i>Rubus discolor</i></u>	90		FACU	
2. _____				
3. _____				
4. _____				
5. _____				
Total Cover: _____				
<b>Herb Stratum</b>				<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> _____ Morphological Adaptation <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
Total Cover: _____				
<b>Woody Vine Stratum</b>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
1. _____				
2. _____				
Total Cover: _____				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				<b>Hydrophytic Vegetation Present?</b> Yes _____ No _____

Remarks:

**SOIL**

Sampling Point: Data Point 2

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	5YR4/4	100						

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)		<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Muck Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)		

<b>Restrictive Layer (if present):</b>	<b>Hydric Soil Present?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Type: _____			
Depth (inches): _____			

Remarks:

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		
<b>Primary Indicators (any one indicator is sufficient)</b>		<b>Secondary Indicators (2 or more required)</b>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input checked="" type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Water-Stained Leaves (B9)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

<b>Field Observations:</b>		<b>Wetland Hydrology Present?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	_____	
Water table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	_____	
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	_____	
(includes capillary fringe)				

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region**

Project/Site: Empire Mine State Historic Park City/County: Grass valley/Nevada County Sampling Date: 6/18/2008  
 Applicant/Owner: CA Dpartment of Parks and Recreation State: CA Sampling Point: Data Point 3  
 Investigator(s): Shawn Fresz, Jeff Stackhouse Section, Township, Range: section 26, 34, 35 , Township 16 N , Range 08 East  
 Landform (hillslope, terrace, etc.): flat area Local relief (concave, convex, none): concave Slope (%): 2  
 Subregion (LRR): Rocky Mountain Forests and Rangelar Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI Classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks)  
 Are Vegetation NO , Soil NO , or Hydrology NO significantly disturbed? Are "Normal Circumstances" Present? Yes X No \_\_\_\_\_  
 Are Vegetation NO , Soil NO , or Hydrology NO naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	<b>Is the Sampled Area within a Wetland?</b>	Yes _____ No _____
Hydric Soil Present?	Yes <u>X</u> No _____		
Wetland Hydrology Present?	Yes _____ No <u>X</u>		
Remarks: UTM 0667987, 4341401 Data Point located north of Sand Dam in the western quadrant.			

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?	<b>Dominance Test worksheet:</b>	
1. <u>Betula occidentalis</u>	40		FACW	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)	
2. _____				Total Number of Dominant Species Across All Strata: <u>3</u> (B)	
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67%</u> (A/B)	
4. _____					
Total Cover: _____					
<b>Shrub Stratum</b>				<b>Prevalence Index Worksheet:</b>	
1. <u>Rubus discolor</u>	40		FACU	Total % Cover of: _____ Multiply by: _____	
2. <u>Salix lucida</u>	15		NI	OBL species _____ x1 = <u>0</u>	
3. _____				FACW species <u>2</u> x2 = <u>4</u>	
4. _____				FAC species _____ x3 = <u>0</u>	
5. _____				FACU species <u>1</u> x4 = <u>4</u>	
Total Cover: _____				UPL species _____ x5 = <u>0</u>	
<b>Herb Stratum</b>				Column Totals: <u>3</u> (A) <u>8</u> (B)	
1. <u>Juncus effusus</u>	50		FACW	Prevalence Index = B/A = <u>2.7</u>	
2. <u>Agrostis gigantea</u>	2		NI		
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
Total Cover: _____					
<b>Woody Vine Stratum</b>				<b>Hydrophytic Vegetation Indicators:</b>	
1. _____				<u>X</u> Dominance Test is >50%	
2. _____				<u>X</u> Prevalence Index is ≤3.0 <sup>1</sup>	
				____ Morphological Adaptation <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
				____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.	
Total Cover: _____					
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				<b>Hydrophytic Vegetation Present? Yes <u>X</u></b>	

Remarks:



**WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region**

Project/Site: Empire Mine State Historic Park City/County: Grass valley/Nevada County Sampling Date: 6/18/2008  
 Applicant/Owner: CA Dpartment of Parks and Recreation State: CA Sampling Point: Data Point 4  
 Investigator(s): Shawn Fresz, Jeff Stackhouse Section, Township, Range: Section 26,34,35 Township 16 N, Range 08 E  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): Rocky Mountain Forests and Rangelar Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI Classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks)  
 Are Vegetation YES, Soil YES, or Hydrology YES significantly disturbed? Are "Normal Circumstances" Present? Yes X No \_\_\_\_\_  
 Are Vegetation NO, Soil NO, or Hydrology NO naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks:	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?	Dominance Test worksheet:
1. <u>Pinus ponderosa</u>	40	yes	FACU-	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
2. <u>Salix lasiolepis</u>	5		FACW	
3. _____				
4. _____				
Total Cover: _____				
<b>Shrub Stratum</b>				<b>Prevalence Index Worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x1 = <u>0</u> FACW species <u>1</u> x2 = <u>2</u> FAC species <u>0</u> x3 = <u>0</u> FACU species <u>1</u> x4 = <u>4</u> UPL species <u>0</u> x5 = <u>0</u> Column Totals: <u>2</u> (A) <u>6</u> (B) Prevalence Index = B/A = <u>3.0</u>
1. _____	5			
2. _____				
3. _____				
4. _____				
5. _____				
Total Cover: _____				
<b>Herb Stratum</b>				<b>Hydrophytic Vegetation Indicators:</b> _____ Dominance Test is >50% <u>X</u> Prevalence Index is ≤3.0 <sup>1</sup> _____ Morphological Adaptation <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. <u>Lathyrus latifolious</u>	40			
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
Total Cover: _____				
<b>Woody Vine Stratum</b>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
1. _____				
2. _____				
Total Cover: _____				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>
Remarks:				

**SOIL**

Sampling Point: Data Point 4

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	5YR4/4	100						

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)		<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Muck Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)		

<b>Restrictive Layer (if present):</b>	<b>Hydric Soil Present?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Type: _____			
Depth (inches): _____			

Remarks:

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		
<b>Primary Indicators (any one indicator is sufficient)</b>		<b>Secondary Indicators (2 or more required)</b>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Water-Stained Leaves (B9)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

<b>Field Observations:</b>		<b>Wetland Hydrology Present?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	_____	
Water table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	_____	
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	_____	
(includes capillary fringe)				

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region**

Project/Site: Empire Mine State Historic Park City/County: Grass valley/Nevada County Sampling Date: 6/18/2008  
 Applicant/Owner: CA Dpment of Parks and Recreation State: CA Sampling Point: Data Point 5  
 Investigator(s): Shawn Fresz, Jeff Stackhouse Section, Township, Range: Section 26,34,35 Township 16 N, Range 08 E  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): Rocky Mountain Forests and Rangelar Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI Classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks)  
 Are Vegetation NO, Soil NO, or Hydrology NO significantly disturbed? Are "Normal Circumstances" Present? Yes X No \_\_\_\_\_  
 Are Vegetation NO, Soil NO, or Hydrology NO naturally problematic? (if needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No _____ Hydric Soil Present? Yes _____ No _____ Wetland Hydrology Present? Yes _____ No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No _____
Remarks: _____ _____ _____	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
4. _____	_____	_____	_____	
Total Cover: _____				
<b>Shrub Stratum</b>				<b>Prevalence Index Worksheet:</b>
1. _____	_____	_____	_____	Total % Cover of: _____ Multiply by: _____
2. _____	_____	_____	_____	OBL species _____ x1 = <u>0</u>
3. _____	_____	_____	_____	FACW species <u>2</u> x2 = <u>4</u>
4. _____	_____	_____	_____	FAC species _____ x3 = <u>0</u>
5. _____	_____	_____	_____	FACU species <u>1</u> x4 = <u>4</u>
Total Cover: _____				UPL species _____ x5 = <u>0</u>
<b>Herb Stratum</b>				Column Totals: <u>3</u> (A) <u>8</u> (B)
1. <u>Juncus nevadensis</u>	<u>98</u>	<u>yes</u>	<u>FACW</u>	Prevalence Index = B/A = <u>2.7</u>
2. <u>Polypogon monspeliensis</u>	<u>1</u>		<u>FACW</u>	
3. <u>Prunella vulgaris</u>	<u>1</u>		<u>FACU+</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
Total Cover: <u>100</u>				
<b>Woody Vine Stratum</b>				<b>Hydrophytic Vegetation Indicators:</b>
1. _____	_____	_____	_____	<input checked="" type="checkbox"/> Dominance Test is >50%
2. _____	_____	_____	_____	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup>
Total Cover: _____				_____ Morphological Adaptation <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____

Remarks: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**SOIL**

Sampling Point: Data Point 5

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2	dark red / brown	70	5YR3/3					
8	light green grey	20	Gely 2 7/1					
12	dark grey brown	10	10 YR 4/2					

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>	
<input type="checkbox"/> Histosol (A1)	<input checked="" type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)		<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Muck Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)		

<b>Restrictive Layer (if present):</b>	<b>Hydric Soil Present?</b>	<b>Yes</b> <input checked="" type="checkbox"/> <b>No</b> <input type="checkbox"/>
Type: _____		
Depth (inches): _____		

Remarks:

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		<b>Secondary Indicators (2 or more required)</b>
<b>Primary Indicators (any one indicator is sufficient)</b>		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input checked="" type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input checked="" type="checkbox"/> Water-Stained Leaves (B9)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

<b>Field Observations:</b>	<b>Wetland Hydrology Present?</b>	<b>Yes</b> <input checked="" type="checkbox"/> <b>No</b> <input type="checkbox"/>
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____		
Water table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____		
Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)		

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region**

Project/Site: Empire Mine State Historic Park City/County: Grass valley/Nevada County Sampling Date: 6/18/2008  
 Applicant/Owner: CA Dpartment of Parks and Recreation State: CA Sampling Point: Data Point 6  
 Investigator(s): Shawn Fresz, Jeff Stackhouse Section, Township, Range: Section 26,34,35 Township 16 N, Range 08 E  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): Rocky Mountain Forests and Rangelar Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI Classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks) \_\_\_\_\_  
 Are Vegetation NO, Soil NO, or Hydrology NO significantly disturbed? Are "Normal Circumstances" Present? Yes X  
 Are Vegetation NO, Soil NO, or Hydrology NO naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks:	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?	Dominance Test worksheet:
1. <u>Pinus ponderosa</u>	10		#REF!	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
4. _____				
Total Cover: <u>10</u>				
<b>Shrub Stratum</b>				<b>Prevalence Index Worksheet:</b>
1. <u>Arctostaphylos vicida</u>	60	yes	UPL	Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x1 = <u>0</u>
3. _____				FACW species _____ x2 = <u>0</u>
4. _____				FAC species <u>1</u> x3 = <u>3</u>
5. _____				FACU species <u>1</u> x4 = <u>4</u>
				UPL species <u>1</u> x5 = <u>5</u>
Total Cover: <u>60</u>				Column Totals: <u>3</u> (A) <u>12</u> (B)
				Prevalence Index = B/A = <u>4.0</u>
<b>Herb Stratum</b>				<b>Hydrophytic Vegetation Indicators:</b>
1. <u>Melilotus alba</u>	20		FACU	_____ Dominance Test is >50%
2. <u>Plantago lanceolata</u>	5		FAC	_____ Prevalence Index is ≤3.0 <sup>1</sup>
3. <u>Vulpia bromoides</u>	5		NI	_____ Morphological Adaptation <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
4. _____				_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5. _____				
6. _____				
7. _____				
8. _____				
Total Cover: <u>40</u>				
<b>Woody Vine Stratum</b>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
1. _____				
2. _____				
Total Cover: _____				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>

Remarks:



**WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region**

Project/Site: Empire Mine State Historic Park City/County: Grass valley/Nevada County Sampling Date: 6/18/2008  
 Applicant/Owner: CA Dpartment of Parks and Recreation State: CA Sampling Point: 7  
 Investigator(s): Shawn Fresz, Jeff Stackhouse Section, Township, Range: Section 26,34,35 Township 16 N, Range 08 E  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): Rocky Mountain Forests and Rangelar Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI Classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks)  
 Are Vegetation NO, Soil NO, or Hydrology NO significantly disturbed? Are "Normal Circumstances" Present? Yes X No \_\_\_\_\_  
 Are Vegetation NO, Soil NO, or Hydrology NO naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Remarks:UTMs 0668048 4340996	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?	Dominance Test worksheet:
1. <u>Alnus rhombifolia</u>	60	Yes	FACW	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. <u>Quercus keloggii</u>	2			Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. <u>Salix lucida</u>	2		NI	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
4. _____				
Total Cover: _____	64			
<b>Shrub Stratum</b>				<b>Prevalence Index Worksheet:</b>
1. _____				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x1 = <u>0</u>
3. _____				FACW species <u>2</u> x2 = <u>4</u>
4. _____				FAC species _____ x3 = <u>0</u>
5. _____				FACU species <u>2</u> x4 = <u>8</u>
Total Cover: _____				UPL species _____ x5 = <u>0</u>
<b>Herb Stratum</b>				Column Totals: <u>4</u> (A) <u>12</u> (B)
1. <u>Rubus discolor</u>	15		FACU	Prevalence Index = B/A = <u>3.0</u>
2. <u>Equisetum telmateia</u>	10		FACW	
3. <u>Prunella vulgaris</u>	20		FACU+	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
Total Cover: _____	45			
<b>Woody Vine Stratum</b>				<b>Hydrophytic Vegetation Indicators:</b>
1. _____				<u>X</u> Dominance Test is >50%
2. _____				<u>X</u> Prevalence Index is ≤3.0 <sup>1</sup>
Total Cover: _____				_____ Morphological Adaptation <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

**Hydrophytic Vegetation Present?** Yes X No \_\_\_\_\_

Remarks:

**SOIL**

Sampling Point: Data Point 7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2	Dark Yellowish Brown	40	10YR 4/6					
12	Light Green Grey	60	Gley 2 7/1					

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)			Indicators for Problematic Hydric Soils <sup>3</sup> :		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Other (Explain in Remarks)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)				
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)				
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.			
<input type="checkbox"/> Sandy Muck Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)				
<input type="checkbox"/> Sandy gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)				

<b>Restrictive Layer (if present):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks:

**HYDROLOGY**

Wetland Hydrology Indicators:		
Primary Indicators (any one indicator is sufficient)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input checked="" type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input checked="" type="checkbox"/> Water-Stained Leaves (B9)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

<b>Field Observations:</b> Surface Water Present?    Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water table Present?      Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present?        Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region**

Project/Site: Empire Mine State Historic Park City/County: Grass valley/Nevada County Sampling Date: 6/18/2008  
 Applicant/Owner: CA Dpartment of Parks and Recreation State: CA Sampling Point: Data Point 8  
 Investigator(s): Shawn Fresz, Jeff Stackhouse Section, Township, Range: Section 26,34,35 Township 16 N, Range 08 E  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): Rocky Mountain Forests and Rangelar Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI Classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks)  
 Are Vegetation NO, Soil NO, or Hydrology NO significantly disturbed? Are "Normal Circumstances" Present? Yes X No \_\_\_\_\_  
 Are Vegetation NO, Soil NO, or Hydrology NO naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No _____ Hydric Soil Present? Yes _____ No _____ Wetland Hydrology Present? Yes _____ No _____	Is the Sampled Area within a Wetland? Yes _____ No _____
Remarks:	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?	Dominance Test worksheet:
1. <u>Populus freemontii</u>	50	Y	FACW	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. <u>Alnus rhombifolia</u>	50	Y	FACW	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
4. _____				
Total Cover: _____				
<b>Shrub Stratum</b>				<b>Prevalence Index Worksheet:</b>
1. <u>Salix lasiolepis</u>	10		FACW	Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x1 = <u>0</u>
3. _____				FACW species <u>4</u> x2 = <u>8</u>
4. _____				FAC species _____ x3 = <u>0</u>
5. _____				FACU species <u>2</u> x4 = <u>8</u>
Total Cover: _____				UPL species _____ x5 = <u>0</u>
<b>Herb Stratum</b>				Column Totals: <u>6</u> (A) <u>16</u> (B)
1. <u>Equisetum telmateia</u>	10		FACW	Prevalence Index = B/A = <u>2.7</u>
2. <u>Rubus discolor</u>	15		FACU	
3. <u>Prunella vulgaris</u>	20		FACU+	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
Total Cover: _____				
<b>Woody Vine Stratum</b>				<b>Hydrophytic Vegetation Indicators:</b>
1. _____				<u>X</u> Dominance Test is >50%
2. _____				<u>X</u> Prevalence Index is ≤3.0 <sup>1</sup>
Total Cover: _____				_____ Morphological Adaptation <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Remarks:				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____

Remarks:



**WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region**

Project/Site: Empire Mine State Historic Park City/County: Grass valley/Nevada County Sampling Date: 6/18/2008  
 Applicant/Owner: CA Dpertment of Parks and Recreation State: CA Sampling Point: Data Point 9  
 Investigator(s): Shawn Fresz, Jeff Stackhouse Section, Township, Range: Section 26,34,35 Township 16 N, Range 08 E  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): Rocky Mountain Forests and Rangelar Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI Classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks)  
 Are Vegetation NO, Soil NO, or Hydrology NO significantly disturbed? Are "Normal Circumstances" Present? Yes \_\_\_\_\_ No \_\_\_\_\_  
 Are Vegetation NO, Soil NO, or Hydrology NO naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <u>X</u>
Remarks: _____ _____ _____	

**VEGETATION**

<u>Tree Stratum</u> (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?	<b>Dominance Test worksheet:</b>
1. <u><i>Pinus ponderosa</i></u>	60	Y	UPL	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. <u><i>Arbutus menziesii</i></u>	1		UPL	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
4. _____				
Total Cover: _____				
<u>Shrub Stratum</u>				<b>Prevalence Index Worksheet:</b>
1. <u><i>Salix lasiolepis</i></u>	5		FACW	Total % Cover of: _____ Multiply by: _____
2. <u><i>Arctostaphylos mewuka mewuka</i></u>	5			OBL species _____ x1 = <u>0</u>
3. <u><i>Rubus discolor</i></u>	5		FACU	FACW species <u>1</u> x2 = <u>2</u>
4. <u><i>Mahonia aquifolium</i></u>	1		UPL	FAC species _____ x3 = <u>0</u>
5. _____				FACU species <u>1</u> x4 = <u>4</u>
Total Cover: _____				UPL species <u>3</u> x5 = <u>15</u>
<u>Herb Stratum</u>				Column Totals: <u>4</u> (A) <u>21</u> (B)
1. _____				Prevalence Index = B/A = <u>5.3</u>
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
Total Cover: _____				
<u>Woody Vine Stratum</u>				<b>Hydrophytic Vegetation Indicators:</b>
1. _____				<u>X</u> Dominance Test is >50%
2. _____				Prevalence Index is ≤3.0 <sup>1</sup>
Total Cover: _____				Morphological Adaptation <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
				<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>

Remarks: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



**WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region**

Project/Site: Empire Mine State Historic Park City/County: Grass valley/Nevada County Sampling Date: 6/18/2008  
 Applicant/Owner: CA Dpartment of Parks and Recreation State: CA Sampling Point: Data Point 10  
 Investigator(s): Shawn Fresz, Jeff Stackhouse Section, Township, Range: Section 26,34,35 Township 16 N, Range 08 E  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): Rocky Mountain Forests and Rangelar Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI Classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks)  
 Are Vegetation NO, Soil NO, or Hydrology NO significantly disturbed? Are "Normal Circumstances" Present? Yes X No \_\_\_\_\_  
 Are Vegetation NO, Soil NO, or Hydrology NO naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks:UTMs 10 S 0667669 4341570	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?	Dominance Test worksheet:
1. <u>Pinus ponderosa</u>	55	Y	UPL	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. <u>Populus fremontii</u>	5		FACW	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. <u>Arbutus menziesii</u>	1		NI	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
4. <u>Calocedrus decurrens</u>			UPL	
Total Cover: <u>61</u>				
<b>Shrub Stratum</b>				<b>Prevalence Index Worksheet:</b>
1. <u>Quercus kelloggii</u>	1		UPL	Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x1 = <u>0</u>
3. _____				FACW species <u>1</u> x2 = <u>2</u>
4. _____				FAC species _____ x3 = <u>0</u>
5. _____				FACU species <u>1</u> x4 = <u>4</u>
Total Cover: <u>1</u>				UPL species <u>3</u> x5 = <u>15</u>
<b>Herb Stratum</b>				Column Totals: <u>5</u> (A) <u>21</u> (B)
1. <u>Elymus glaucus</u>	1		FACU	Prevalence Index = B/A = <u>4.2</u>
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
Total Cover: <u>1</u>				
<b>Woody Vine Stratum</b>				<b>Hydrophytic Vegetation Indicators:</b>
1. _____				<u>X</u> Dominance Test is >50%
2. _____				Prevalence Index is ≤3.0 <sup>1</sup>
				Morphological Adaptation <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Total Cover: _____				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>

Remarks:

**SOIL**

Sampling Point: Data point 10

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	grey brown		10 YR 5/2					

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)                         | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)  |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)                     | <input type="checkbox"/> Red Parent Material (TF2)  |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) | <input type="checkbox"/> Other (Explain in Remarks)   |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                 |   |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3)                     |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Dark Surface (F6)                  | <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. |
| <input type="checkbox"/> Sandy Muck Mineral (S1)           | <input type="checkbox"/> Depleted Dark Surface (F7)               |   |
| <input type="checkbox"/> Sandy gleyed Matrix (S4)          | <input type="checkbox"/> Redox Depressions (F8)                   |   |

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No **X**

Remarks: Very sandy soil complex

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

Secondary Indicators (2 or more required)

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> Surface Water (A1)                      | <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A and 4B) | <input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A and 4B) |
| <input type="checkbox"/> High Water Table (A2)                   | <input type="checkbox"/> Salt Crust (B11)  | <input type="checkbox"/> Drainage Patterns (B10)                          |
| <input type="checkbox"/> Saturation (A3)                         | <input type="checkbox"/> Aquatic Invertebrates (B13)                             | <input type="checkbox"/> Dry-Season Water Table (C2)                      |
| <input type="checkbox"/> Water Marks (B1)                        | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                              | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)        |
| <input type="checkbox"/> Sediment Deposits (B2)                  | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)           | <input type="checkbox"/> Geomorphic Position (D2)                         |
| <input type="checkbox"/> Drift Deposits (B3)                     | <input type="checkbox"/> Presence of Reduced Iron (C4)                           | <input type="checkbox"/> Shallow Aquitard (D3)                            |
| <input type="checkbox"/> Algal Mat or Crust (B4)                 | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)              | <input type="checkbox"/> FAC-Neutral Test (D5)                            |
| <input type="checkbox"/> Iron Deposits (B5)                      | <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)                 | <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)                   |
| <input type="checkbox"/> Surface Soil Cracks (B6)                | <input type="checkbox"/> Other (Explain in Remarks)                              | <input type="checkbox"/> Frost-Heave Hummocks (D7)                        |
| <input type="checkbox"/> Water-Stained Leaves (B9)               |  |   |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |  |   |

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No **X** Depth (inches): \_\_\_\_\_  
 Water table Present? Yes \_\_\_\_\_ No **X** Depth (inches): \_\_\_\_\_  
 Saturation Present? Yes \_\_\_\_\_ No **X** Depth (inches): \_\_\_\_\_  
 (includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No wetland hydrology indicators present

**WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region**

Project/Site: Empire Mine State Historic Park City/County: Grass valley/Nevada County Sampling Date: 6/18/2008  
 Applicant/Owner: CA Dpartment of Parks and Recreation State: CA Sampling Point: Data Point 11  
 Investigator(s): Shawn Fresz, Jeff Stackhouse Section, Township, Range: Section 26,34,35 Township 16 N, Range 08 E  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): Rocky Mountain Forests and Rangelar Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI Classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks)  
 Are Vegetation NO, Soil NO, or Hydrology NO significantly disturbed? Are "Normal Circumstances" Present? Yes \_\_\_\_\_ No \_\_\_\_\_  
 Are Vegetation NO, Soil NO, or Hydrology NO naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Remarks: _____ _____ _____	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?	Dominance Test worksheet:
1. <u>Populus fremontii</u>	<u>90</u>	<u>y</u>	<u>FACW</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. <u>Salix lasiolepis</u>	<u>10</u>		<u>FACW</u>	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
4. _____				
Total Cover: _____				
<b>Shrub Stratum</b>				<b>Prevalence Index Worksheet:</b>
1. _____				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x1 = <u>0</u>
3. _____				FACW species <u>2</u> x2 = <u>4</u>
4. _____				FAC species _____ x3 = <u>0</u>
5. _____				FACU species _____ x4 = <u>0</u>
Total Cover: _____				UPL species _____ x5 = <u>0</u>
<b>Herb Stratum</b>				Column Totals: <u>2</u> (A) <u>4</u> (B)
1. _____				Prevalence Index = B/A = <u>2.0</u>
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
Total Cover: _____				
<b>Woody Vine Stratum</b>				<b>Hydrophytic Vegetation Indicators:</b>
1. _____				<u>X</u> Dominance Test is >50%
2. _____				<u>X</u> Prevalence Index is ≤3.0 <sup>1</sup>
Total Cover: _____				_____ Morphological Adaptation <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____

Remarks: Hydrophytic vegetation is present at this data point

**SOIL**

Sampling Point: Data Point 11

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	grey brown							

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>	
<input type="checkbox"/> Histsol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input checked="" type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)		<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Muck Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)		

<b>Restrictive Layer (if present):</b>	<b>Hydric Soil Present?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Type: _____			
Depth (inches): _____			

Remarks: Stratified Layers

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		
<b>Primary Indicators (any one indicator is sufficient)</b>		<b>Secondary Indicators (2 or more required)</b>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input checked="" type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input checked="" type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input checked="" type="checkbox"/> Water-Stained Leaves (B9)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

<b>Field Observations:</b>	<b>Wetland Hydrology Present?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____		
Water table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____		
Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____		
(includes capillary fringe)			

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:



## Empire Mine State Historic Park

Plant List for Hiking Trails and Union Meadow, Grass Valley, California

Based on list from Karen Callahan, Redbud Chapter, CNPS

June 2005, with taxonomic updates (MJW, Aug 2008)

Family	Scientific Name	Common Name * = non-native species
Aceraceae	<i>Acer macrophyllum</i>	Big leaf maple
Anacardiaceae	<i>Toxicodendron diversilobum</i>	Poison-oak
Apiaceae	<i>Osmorhiza berteroi</i> [ <i>O. chilensis</i> ]	Sweet cicely
Apiaceae	<i>Sanicula bipinnata</i>	Poison sanicle
Apiaceae	<i>Sanicula crassicaulis</i>	Pacific snakeroot
Apiaceae	<i>Tauschia hartwegii</i>	Hartweg's tauschia
Apiaceae	<i>Torilis arvensis</i>	Hedge parsley *
Apocynaceae	<i>Apocynum androsaemifolium</i>	Bitter dogbane
Apocynaceae	<i>Vinca major</i>	Periwinkle *
Araliaceae	<i>Hedera helix</i>	English ivy *
Aristolochiaceae	<i>Asarum hartwegii</i>	Hartweg's ginger
Asclepiadaceae	<i>Asclepias cordifolia</i>	Purple milkweed
Asclepiadaceae	<i>Asclepias eriocarpa</i>	India milkweed
Asteraceae	<i>Asclepias speciosa</i>	Showy milkweed
Asteraceae	<i>Achillea millefolium</i>	Yarrow
Asteraceae	<i>Adenocaulon bicolor</i>	Trail plant
Asteraceae	<i>Agoseris grandiflora</i>	Large-flowered agoseris
Asteraceae	<i>Artemisia douglasiana</i>	Douglas mugwort
Asteraceae	<i>Eurybia</i> [ <i>Aster</i> ] <i>radulinus</i>	White aster
Asteraceae	<i>Baccharis pilularis</i>	Coyote brush
Asteraceae	<i>Baccharis salicifolia</i>	Mule fat
Asteraceae	<i>Balsamorhiza deltoidea</i>	Balsam-root
Asteraceae	<i>Carduus pycnocephalus</i>	Italian thistle *
Asteraceae	<i>Centaurea solstitialis</i>	Yellow starthistle *
Asteraceae	<i>Cichorium intybus</i>	Chicory *
Asteraceae	<i>Cirsium occidentale</i>	Cobweb thistle
Asteraceae	<i>Cirsium vulgare</i>	Bull thistle *
Asteraceae	<i>Eriophyllum lanatum</i> var. <i>achillaeoides</i>	Woolly sunflower
Asteraceae	<i>Eriophyllum lanatum</i> var. <i>croceum</i>	Woolly sunflower
Asteraceae	<i>Pseudognaphalium</i> [ <i>Gnaphalium</i> ] <i>canescens</i>	Cudweed
Asteraceae	<i>Grindelia hirsutula</i>	Gumplant
Asteraceae	<i>Ericameria arborescens</i> [ <i>Haplopappus</i> ]	Golden fleece
Asteraceae	<i>Helianthella californica</i>	California sunflower
Asteraceae	<i>Hieracium albiflorum</i>	Hawkweed
Asteraceae	<i>Hypochaeris radicata</i>	Rough cat's ear *

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Family	Scientific Name	Common Name * = non-native species
Asteraceae	<i>Lactuca serriola</i>	Prickly lettuce *
Asteraceae	<i>Leucanthemum vulgare</i>	Ox-eye daisy *
Asteraceae	<i>Madia exigua</i>	Theaste madia
Asteraceae	<i>Madia gracilis</i>	Slender tarweed
Asteraceae	<i>Rafinesquia californica</i>	California chicory
Asteraceae	<i>Senecio aronicoides</i>	California butterwort
Asteraceae	<i>Solidago canadensis</i> var. <i>salebrosa</i> [S. c. ssp. <i>elongata</i> ]	Golden rod
Asteraceae	<i>Taraxacum officinale</i>	Common dandelion *
Asteraceae	<i>Tragopogon dubius</i>	Goat's beard *
Asteraceae	<i>Tragopogon porrifolius</i>	Purple salsify *
Berberidaceae	<i>Wyethia angustifolia</i>	Narrow-leaved mule ears
Berberidaceae	<i>Mahonia aquifolium</i> [Berberis a. var. a.]	Oregon grape, mahonia
Betulaceae	<i>Mahonia repens</i> [Berberis a. var. <i>repens</i> ]	Creeping mahonia
Betulaceae	<i>Alnus rhombifolia</i>	White alder
Boraginaceae	<i>Corylus cornuta</i>	California hazelnut
Boraginaceae	<i>Cynoglossum grande</i>	Hound's tongue
Boraginaceae	<i>Lithospermum californicum</i>	Stoneseed
Brassicaceae	<i>Plagiobothrys</i> sp.	Popcorn flower
Brassicaceae	<i>Streptanthus tortuosus</i>	Mountain jewel flower
Brassicaceae	<i>Barbarea orthoceras</i>	Winter cress
Brassicaceae	<i>Brassica nigra</i>	Black mustard *
Brassicaceae	<i>Cardamine pensylvanica</i>	Bitter cress
Brassicaceae	<i>Erysimum capitatum</i>	Western wallflower
Brassicaceae	<i>Lepidium campestre</i>	Perennial pepperweed *
Brassicaceae	<i>Nasturtium officinale</i> [Rorippa <i>nasturtium-aquaticum</i> ]	Watercress
Brassicaceae	<i>Sisymbrium officinale</i>	Hedge mustard *
Campanulaceae	<i>Campanula prenanthoides</i>	California harebell
Caprifoliaceae	<i>Lonicera hispidula</i>	Wild honeysuckle
Caprifoliaceae	<i>Symphoricarpos albus</i>	Snowberry
Caryophyllaceae	<i>Silene californica</i>	India pink
Caryophyllaceae	<i>Silene lemmonii</i>	Lemmon's catch-fly
Caryophyllaceae	<i>Dianthus armeria</i>	Grass pink *
Caryophyllaceae	<i>Petrorhagia dubia</i>	Wild carnation *
Convolvulaceae	<i>Calystegia occidentalis</i>	Morning glory
Convolvulaceae	<i>Convolvulus arvensis</i>	Bindweed *

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Cornaceae	<i>Cornus nuttallii</i>	Mountain dogwood
Cupressaceae	<i>Calocedrus decurrens</i>	Incense cedar
Cucurbitaceae	<i>Marah sp.</i>	Wild cucumber
Cuscutaceae	<i>Cuscuta sp.</i>	Dodder
Cyperaceae	<i>Carex dudleyi</i>	Dudley's sedge
Cyperaceae	<i>Carex multicaulis</i>	Sedge
Dennstaedtiaceae	<i>Pteridium aquilinum</i>	Bracken fern
Dipsacaceae	<i>Dipsacus fullonum</i>	Teasel*
Equisetaceae	<i>Equisetum hyemale</i>	Scouring rush
Ericaceae	<i>Arbutus menziesii</i>	Madrone
Ericaceae	<i>Arctostaphylos mewukka ssp. mewukka</i>	Indian manzanita
Ericaceae	<i>Arctostaphylos patula</i>	Greenleaf manzanita
Ericaceae	<i>Arctostaphylos viscida</i>	Whiteleaf manzanita
Ericaceae	<i>Chimaphila menziesii</i>	Little prince's pine
Ericaceae	<i>Chimaphila umbellata</i>	Prince's pine
Ericaceae	<i>Pyrola picta</i>	White-veined wintergreen
Ericaceae	<i>Rhododendron occidentale</i>	Western azalea
Fabaceae	<i>Cercis occidentalis</i>	Western redbud
Fabaceae	<i>Colutea arborescens</i>	Bladder senna *
Fabaceae	<i>Cytisus scoparius</i>	Scotch broom *
Fabaceae	<i>Genista monspessulana</i>	French broom *
Fabaceae	<i>Lathyrus latifolius</i>	Perennial sweet pea *
Fabaceae	<i>Lathyrus nevadensis</i>	Sierra sweet pea
Fabaceae	<i>Lathyrus sulphureus</i>	Sulfur pea
Fabaceae	<i>Lotus corniculatus</i>	Birdsfoot trefoil *
Fabaceae	<i>Lotus grandiflorus</i>	Large flower lotus
Fabaceae	<i>Lotus micranthus</i>	Miniature lotus
Fabaceae	<i>Lotus purshianus</i>	Spanish lotus
Fabaceae	<i>Lupinus albicaulis</i>	Pine lupine
Fabaceae	<i>Melilotus alba</i>	White sweetclover *
Fabaceae	<i>Robinia pseudoacacia</i>	Black locust *
Fabaceae	<i>Trifolium breweri</i>	Purple clover
Fabaceae	<i>Trifolium dubium</i>	Little hop clover *
Fabaceae	<i>Trifolium hirtum</i>	Rose clover *
Fabaceae	<i>Vicia americana</i>	American vetch
Fabaceae	<i>Vicia sativa</i>	Spring vetch *
Fabaceae	<i>Vicia villosa</i>	Winter vetch *
Fagaceae	<i>Quercus chrysolepis</i>	Canyon live oak

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Family	Scientific Name	Common Name * = non-native species
Fagaceae	<i>Quercus kelloggii</i>	Black oak
Fagaceae	<i>Quercus lobata</i>	Valley oak
Gentianaceae	<i>Centaurium venustum</i>	Chanchalagua
Gentianaceae	<i>Swertia albicaulis</i>	Whitestem swertia
Geraniaceae	<i>Erodium cicutarium</i>	Redstem filaree *
Geraniaceae	<i>Geranium dissectum</i>	Cutleaf geranium *
Grossulariaceae	<i>Ribes roezlii</i>	Sierra gooseberry
Hydrophyllaceae	<i>Eriodictyon californicum</i>	Yerba santa
Hydrophyllaceae	<i>Nemophila heterophylla</i>	Canyon nemophila
Hydrophyllaceae	<i>Phacelia heterophylla</i>	Varied leaf phacelia
Hypericaceae	<i>Hypericum concinnum</i>	Gold wire
Hypericaceae	<i>Hypericum perforatum</i>	St Johns wort *
Iridaceae	<i>Iris hartwegii</i>	Hartweg's iris
Iridaceae	<i>Iris macrosiphon</i>	Foothills iris
Iridaceae	<i>Sisyrinchium bellum</i>	Blue-eyed grass
Juglandaceae	<i>Juglans species (hybrid)</i>	Walnut *
Juncaceae	<i>Juncus balticus</i>	Baltic rush
Juncaceae	<i>Juncus xiphioides</i>	Iris-leaved rush
Juncaceae	<i>Luzula comosa</i>	Hairy wood rush
Lamiaceae	<i>Lamium amplexicaule</i>	Giraffe's head *
Lamiaceae	<i>Marrubium vulgare</i>	Horehound *
Lamiaceae	<i>Mentha x piperita</i>	Peppermint *
Lamiaceae	<i>Monardella villosa</i>	Coyote mint
Lamiaceae	<i>Prunella vulgaris</i>	Self-heal *?
Lamiaceae	<i>Salvia pratensis</i>	Meadow sage
Lamiaceae	<i>Salvia sonomensis</i>	Creeping sage
Liliaceae	<i>Calochortus monophyllus</i>	Yellow star tulip
Liliaceae	<i>Chlorogalum pomeridianum</i>	Soap plant
Liliaceae	<i>Dichelostemma capitatum</i>	Blue dicks
Liliaceae	<i>Dichelostemma multiflorum</i>	Wild hyacinth
Liliaceae	<i>Fritillaria micrantha</i>	Brown bells
Liliaceae	<i>Fritillaria recurva</i>	Scarlet fritillary
Liliaceae	<i>Lilium humboldtii</i> ssp. <i>humboldtii</i>	Humboldt lily
Liliaceae	<i>Lilium pardalinum</i>	Leopard lily
Liliaceae	<i>Smilax californica</i>	Smilax
Liliaceae	<i>Trillium angustipetalum</i>	Sierra trillium
Liliaceae	<i>Triteleia ixioides</i>	Pretty faces
Linaceae	<i>Linum usitatissimum</i>	Common flax *

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June 2005, with taxonomic updates (MJW, Aug 2008)

Family	Scientific Name	Common Name * = non-native species
Oleaceae	<i>Fraxinus latifolia</i>	Oregon ash
Onagraceae	<i>Clarkia rhomboidea</i>	Diamond clarkia
Onagraceae	<i>Epilobium species</i>	Willow herb
Orchidaceae	<i>Cephalanthera austinae</i> [Eburophyton]	Phantom orchid
Orchidaceae	<i>Corallorhiza maculata</i>	Spotted coralroot orchid
Orchidaceae	<i>Corallorhiza striata</i>	Striped coralroot orchid
Orchidaceae	<i>Goodyera oblongifolia</i>	Rattlesnake plantain orchid
Orchidaceae	<i>Piperia elongata</i>	Green-flowered rein-orchid
Orchidaceae	<i>Piperia transversa</i>	White-flowered rein-orchid
Papaveraceae	<i>Dendromecon rigida</i>	Bush poppy
Papaveraceae	<i>Dicentra formosa</i>	Bleeding heart
Papaveraceae	<i>Eschscholzia californica</i>	California poppy
Philadelphaceae	<i>Philadelphus lewisii</i>	Wild mock orange
Pinaceae	<i>Abies concolor</i>	White fir
Pinaceae	<i>Pinus lambertiana</i>	Sugar pine
Pinaceae	<i>Pinus ponderosa</i>	Western yellow pine
Pinaceae	<i>Pseudotsuga menziesii</i>	Douglas-fir
Plantaginaceae	<i>Plantago major</i>	Common plantain *
Poaceae	<i>Aegilops triuncialis</i>	Barbed goat grass *
Poaceae	<i>Bromus diandrus</i>	Ripgut brome *
Poaceae	<i>Bromus hordeaceus</i>	Soft chess *
Poaceae	<i>Bromus sterilis</i>	Poverty brome *
Poaceae	<i>Bromus madritensis</i>	Brome *
Poaceae	<i>Bromus tectorum</i>	Cheat grass *
Poaceae	<i>Dactylis glomerata</i>	Orchard grass *
Poaceae	<i>Elymus glaucus</i> ssp. <i>glaucus</i>	Blue wild rye
Poaceae	<i>Elymus trachycaulus</i>	Slender wheatgrass
Poaceae	<i>Festuca arundinacea</i>	Tall fescue *
Poaceae	<i>Festuca idahoensis</i>	Idaho fescue
Poaceae	<i>Festuca rubra</i>	Red fescue
Poaceae	<i>Holcus lanatus</i>	Common velvet grass *
Poaceae	<i>Hordeum marinum</i>	Mediterranean barley *
Poaceae	<i>Lolium multiflorum</i>	Italian ryegrass *
Poaceae	<i>Lolium perenne</i>	Perennial ryegrass *
Poaceae	<i>Phleum pratense</i>	Timothy grass *
Poaceae	<i>Poa annua</i>	Annual bluegrass *
Poaceae	<i>Poa pratensis</i> ssp. <i>pratensis</i>	Kentucky bluegrass *
Poaceae	<i>Taeniatherum caput-medusae</i>	Medusa-head *

## Empire Mine State Historic Park

Plant List for Hiking Trails and Union Meadow, Grass Valley, California

Based on list from Karen Callahan, Redbud Chapter, CNPS

June 2005, with taxonomic updates (MJW, Aug 2008)

Family	Scientific Name	Common Name * = non-native species
Poaceae	<i>Vulpia myuros</i>	Vulpia *
Polemoniaceae	<i>Collomia heterophylla</i>	Varied leaf collomia
Polemoniaceae	<i>Navarretia intertexta</i>	Navarretia
Polemoniaceae	<i>Navarretia squarrosa</i>	Skunkweed
Polygalaceae	<i>Polygala cornuta</i>	Sierra milkwort
Polygonaceae	<i>Polygonum amphibium</i>	Water smartweed *
Polygonaceae	<i>Rumex acetosella</i>	Sheep sorrel *
Polygonaceae	<i>Rumex crispus</i>	Curly dock *
Portulacaceae	<i>Claytonia perfoliata</i>	Miners lettuce
Primulaceae	<i>Dodecatheon hendersonii</i>	Shooting star
Primulaceae	<i>Trientalis latifolia</i>	Star flower
Ranunculaceae	<i>Aquilegia formosa</i>	Crimson columbine
Ranunculaceae	<i>Delphinium sp.</i>	Larkspur
Ranunculaceae	<i>Ranunculus occidentalis</i>	Buttercup
Rhamnaceae	<i>Ceanothus cuneatus</i>	Buck brush
Rhamnaceae	<i>Ceanothus integerrimus</i>	Deer brush
Rhamnaceae	<i>Ceanothus lemmonii</i>	Lemmon's ceanothus
Rhamnaceae	<i>Ceanothus prostratus</i>	Mahala mat
Rhamnaceae	<i>Frangula californica [Rhamnus c.]</i>	California coffeeberrv
Rhamnaceae	<i>Rhamnus ilicifolia</i>	Holly-leaf redberry
Rhamnaceae	<i>Frangula rubra ssp. obtusissima [Rhamnus]</i>	Sierra coffeeberry
Rosaceae	<i>Chamaebatia foliolosa</i>	Mountain misery
Rosaceae	<i>Crataegus monogyna</i>	Hawthorn *
Rosaceae	<i>Fragaria vesca</i>	Wood strawberry
Rosaceae	<i>Heteromeles arbutifolia</i>	Toyon
Rosaceae	<i>Horkelia tridentata</i>	Threetooth horkelia
Rosaceae	<i>Potentilla glandulosa</i>	Sticky cinquefoil
Rosaceae	<i>Potentilla gracilis var. fastigiata</i>	Cinquefoil
Rosaceae	<i>Prunus species</i>	Cultivated plums / cherries *
Rosaceae	<i>Prunus subcordata</i>	Sierra plum
Rosaceae	<i>Rosa bridgesii</i>	Bridge's rose
Rosaceae	<i>Rosa eglanteria</i>	Sweet-brier rose *
Rosaceae	<i>Rosa gymnocarpa</i>	Woodrose
Rosaceae	<i>Rubus discolor</i>	Himalayan blackberry *
Rosaceae	<i>Rubus laciniatus</i>	Cutleaf blackberry *
Rosaceae	<i>Rubus leucodermis</i>	Blackcap raspberry
Rosaceae	<i>Rubus parviflorus</i>	Thimbleberry

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Family	Scientific Name	Common Name * = non-native species
Rosaceae	<i>Sanguisorba minor ssp. muricata</i>	Garden burnet *
Rubiaceae	<i>Galium aparine</i>	Goosegrass
Rubiaceae	<i>Galium porrigens</i>	Climbing bedstraw
Salicaceae	<i>Populus fremontii</i>	Fremont cottonwood
Salicaceae	<i>Salix exigua</i>	Narrow-leaved willow
Salicaceae	<i>Salix laevigata</i>	Red willow
Salicaceae	<i>Salix lasiolepis</i>	Arroyo willow
Salicaceae	<i>Salix lucida</i>	Shining willow
Saxifragaceae	<i>Heuchera micrantha</i>	Alum root
Scrophulariaceae	<i>Cordylanthus tenuis</i>	Bird's beak
Scrophulariaceae	<i>Mimulus guttatus</i>	Seep-spring monkeyflower
Scrophulariaceae	<i>Mimulus torreyi</i>	Torrey's mimulus
Scrophulariaceae	<i>Penstemon heterophyllus</i>	Foothill penstemon
Scrophulariaceae	<i>Penstemon laetus ssp. laetus</i>	Gay penstemon
Scrophulariaceae	<i>Verbascum blattaria</i>	Moth mullein *
Scrophulariaceae	<i>Verbascum sp.</i>	Woolly mullein *
Scrophulariaceae	<i>Veronica peregrina ssp. xalapensis</i>	Purslane speedwell
Simaroubaceae	<i>Ailanthus altissima</i>	Tree-of-heaven *
Taxaceae	<i>Taxus brevifolia</i>	Pacific yew
Violaceae	<i>Viola lobata</i>	Pine violet
Violaceae	<i>Viola purpurea</i>	Mountain violet
Violaceae	<i>Viola sheltonii</i>	Fan violet
Viscaceae	<i>Phoradendron villosum</i>	Oak mistletoe





Photo #1: Little Wolf Creek



Photo #2: Sand Dam Area



Photo #3: Magenta Drain

Note: There was no water in Stacy Lane Pond during surveys so there are no representative photos of the site.