









TIOGA ROAD REHABILITATION

Delineation of Wetlands and Other Waters of the United States March 2011

ACRONYMS AND ABBREVIATIONS

0	degree(s)	OBL	obligate wetland (indicator status)
BLM	Bureau of Land Management	OHWM	ordinary high water mark
CFR	Code of Federal Regulations	PEM	palustrine emergent wetland
F	Fahrenheit	PFO	palustrine forested wetland
FAC	facultative (indicator status)	PSS	palustrine scrub-shrub wetland
FACU	facultative upland (indicator status)	PUB palus ⁻	trine unconsolidated bottom wetland
FACW	facultative wetland (indicator status)	R3RB	riverine upper perennial rock bottom
GIS	geographic information system	R3UB rive	erine upper perennial unconsolidated
GPS	global positioning system		bottom
NHD	National Hydrography Dataset	R4SB	riverine intermittent streambed
NPS	National Park Service	UPL	obligate upland (indicator status)
NWI	National Wetlands Inventory	USACE	U.S. Army Corps of Engineers

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EXECUTIVE SUMMARY

This report provides the results of delineations and functional assessments of wetlands, other waters of the United States, and other Cowardin et al. (1979) habitats at specific sites within the affected environment of the Tioga Road Rehabilitation Project in Yosemite National Park. As per National Park Service procedures, this delineation was performed in support of an Environmental Assessment of the project and to meet the requirements of Clean Water Act, Section 404 and *Director's Order #77-1: Wetland Protection*.

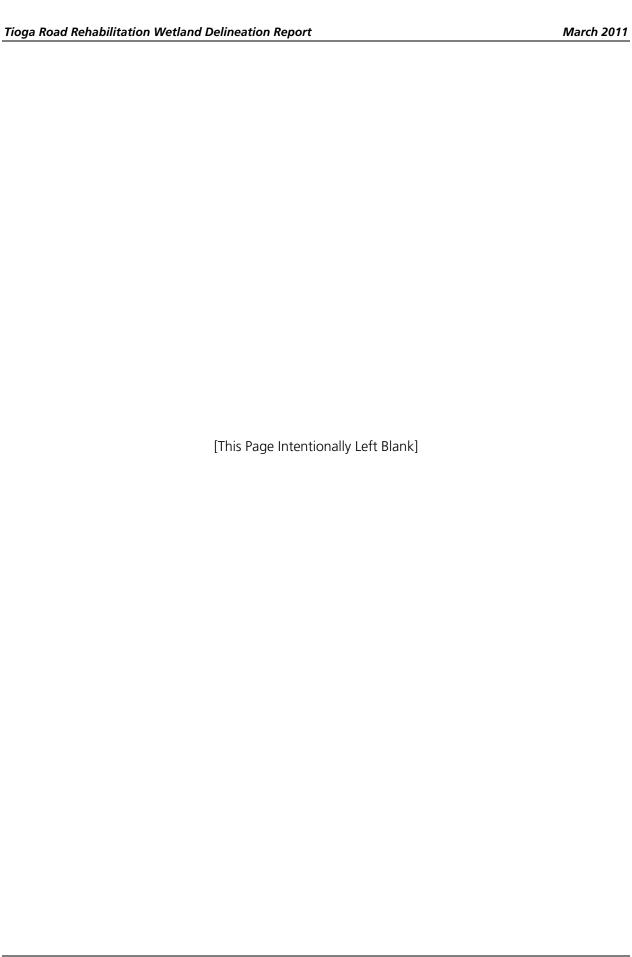
The project area consists of the Tioga Road corridor from Crane Flat through Tuolumne Meadows to Blue Slide. Field investigations were focused on sites supporting the most extensive and significant wetland habitats within the project area, including Tuolumne Meadows and other locations identified by Yosemite National Park environmental staff (see Appendix A for the locations of the specific survey areas).

Wetlands were delineated in the field in accordance with the *Corps of Engineers Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (USACE 2010). Other waters of the United States were delineated in the field in accordance with U.S. Army Corps of Engineers *Regulatory Guidance Letter No. 05-05* (USACE 2005). All features were mapped in the field with a handheld global positioning system receiver to submeter accuracy. Field investigations for this report were conducted in August and September 2010.

A total of 29.11 acres of wetlands, other waters of the United States, and other Cowardin habitats were identified and mapped within the surveyed areas (Table ES-1). Delineations and functional assessment boundaries extended to 160 feet from the road centerline on both sides, except in the Tuolumne Meadows survey region where delineation boundaries extended to 320 feet from the road centerline on the north side, as directed by Yosemite National Park staff.

Table ES-1. Acreage Summary of Wetlands and Other Aquatic Habitats Delineated in the Tioga
Road Rehabilitation Project Survey Areas

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Cowardin Habitat Type	Acres	Total
Palustrine Emergent Wetland	19.14	
Palustrine Forested Wetland	2.60	
Palustrine Scrub-Shrub Wetland	0.41	Palustrine Wetlands: 23.26 acres
Palustrine Unconsolidated Bottom Wetland	1.11	
Riverine Upper Perennial Rock Bottom	1.77	
Riverine Upper Perennial Unconsolidated Bottom	0.003	Riverine Habitat: 5.85 acres
Riverine Intermittent Streambed	4.08	
		Total Waters of the U.S.: 29.11



1 Introduction

This report provides the results of a delineation of wetlands, other waters of the United States, and other Cowardin et al. (1979) habitats, as well as functional assessments of these habitats, at specific sites within the affected environment of the Tioga Road Rehabilitation Project in Yosemite National Park. This report has been prepared in support of planning efforts and an Environmental Assessment of the project.

1.1 Tioga Road Rehabilitation Project

Tioga Road lies within both Tuolumne and Mariposa counties and is the only road that provides direct access between the east and west portions of the park (Figure 1-1). The National Park Service (NPS) has identified the need for repairs and improvements to Tioga Road, which in the summer serves as a major travel corridor through the park and across the crest of the Sierra Nevada. The Tioga Road Rehabilitation Project is intended to address various needs that include pavement resurfacing, vegetation clearing and slope stabilization for safety on road edges, obliteration and paving of vehicle turnouts to limit resource damage to roadside habitats, revegetation of certain roadside areas, and road surface and culvert and drainage improvements along the 41-mile stretch from Crane Flat to Blue Slide just east of Tuolumne Meadows. As required by the National Environmental Policy Act (NEPA) of 1969, an environmental assessment is being prepared to evaluate the potential impacts of the project on the resources of the park, to identify appropriate mitigation measures, and to consider alternative means of accomplishing the project's goals.

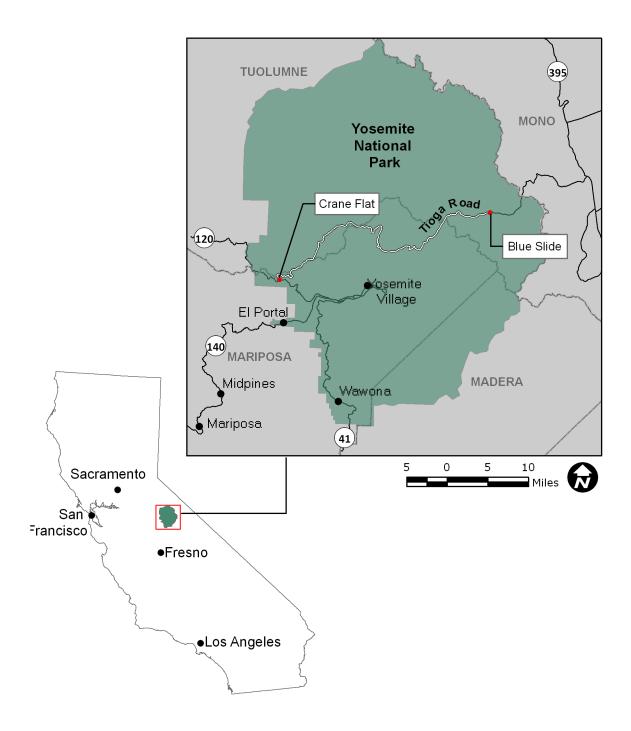
1.2 Purpose and Need for Delineation Report and Functional Assessment

The Tioga Road Rehabilitation Project may necessitate work within or otherwise affecting Clean Water Act (Section 404) jurisdictional wetlands, other Section 404 waters of the United States, and other wetland and aquatic habitats (Cowardin et al. 1979). The regulatory and environmental significance of these features is recognized in the Clean Water Act, Executive Order 11990: *Protection of Wetlands* (42 Fed. Reg. 26961), and National Park Service Procedural Manual #77-1: *Wetland Protection*. This report is needed to support the NEPA evaluation of the project and to support Section 404 permitting.

1.3 Scope of Report

The scope of this report is the delineation of jurisdictional wetlands, other waters of the United States, and other Cowardin habitats at specific sites along the Tioga Road Rehabilitation Project corridor. Functional assessments of wetlands and other aquatic habitats were completed for 22 of the larger (>0.10 acre), more significant sites that may be affected by the project. This report has been prepared to provide guidance and disclose the potential impacts of the project to wetlands and other waters within the project corridor.

Figure 1-1. Tioga Road Project Area



2 PROJECT AREA CONDITIONS

The project area along Tioga Road ranges in elevation from approximately 6,200 feet at Crane Flat to 8,700 feet at Blue Slide just east of Tuolumne Meadows. Project area conditions are variable along this corridor and are highly influenced by elevation, topographic differences, and seasonality. An overview of climate, hydrology, soils, and vegetation that typify the area is provided below.

Areas of special interest, including popular tourist sites, along Tioga Road that were surveyed for this report included Crane Flat, Gin Flat, Siesta Lake, McSwain Meadows, Porcupine Flat Campground, and Tuolumne Meadows.

2.1 Climate

The climate in Yosemite National Park, like much of the central portion of the Sierra Nevada, is characterized by warm, dry summers and cold winters with fair amounts of rain and/or snowfall. Though no long-term weather data exists for the Tioga Road portion of Yosemite National Park, data from the South Entrance (located at 5,120 feet and collected from 1971 to 2000) shows the coldest temperatures and highest precipitation occurs between the months of December and March (NRCS 2010a). January is the coldest and wettest month, with average daily temperatures of 36.1 degrees (°) Fahrenheit (F) and average monthly precipitation of 8.5 inches. The greatest average monthly snowfall occurs in February (25.6 inches), while the average annual snowfall is 85.5 inches (NRCS 2010a). Between May and October, temperatures are higher and there is much less precipitation. July has the warmest average daily temperature (64.4°F), while August has the lowest average monthly precipitation (0.09 inches) (NRCS 2010a).

The growing season is often approximated as the period of time between the average date of the last killing frost in the spring to the average date of the first killing frost in the fall. This represents a temperature threshold of 28°F or lower at a frequency of 5 years in 10, or 50 percent (NRCS 2010a). For the South Entrance, between 1971 and 2000, the growing season averaged 171 days from May 5 to October 24 (NRCS 2010a). However, it is expected that average daily temperatures are typically lower and snowfall much higher (likely exceeding 300 inches above 8000 feet) along Tioga Road than at the South Entrance. Thus, the growing season for vegetation in the vicinity of Tioga Road would be significantly shorter than the 171 days at the South Entrance.

2.2 Hydrology

In Yosemite National Park, the majority of precipitation falls in the form of snow that accumulates above 6,000 feet during the winter, creating a natural water tower that slowly releases meltwater through the spring and early summer (NPS 2010) (Figure 2-1). The hydrology of the Tioga Road corridor is primarily influenced by meltwater of the Tuolumne River and Merced River watersheds, as the road meanders between both of these watersheds.

The Tuolumne River originates in the high peaks above Tuolumne Meadows, and drains the entire northern portion of the park. The Tuolumne River has two principal sources: the Dana Fork, which drains the west-facing slopes of Mount Dana, and the Lyell Fork, which begins at the base of the glacier on Mount Lyell (NPS 2010). The confluence of these two forks occurs at the eastern end of Tuolumne Meadows, where the river flows westward until it meets with the San Joaquin River in the Central Valley. Many of the creeks, streams, and lakes that occur along the Tioga Road corridor eventually join the Tuolumne River.

Tenaya Lake (Figure 2-2) is the largest surface water feature within the project area. Tenaya Lake, and creeks along portions of the road nearer to Crane Flat, eventually drain to the Merced River in the southern portion of Yosemite National Park. Wetlands and other waters of the United States in the vicinity of Tenaya Lake were previously mapped in 2008 (Herrera Environmental Consultants, Inc. 2009), and thus this area was not surveyed for the purposes of this report.



Figure 2-1. Snowmelt Influences Hydrology



Figure 2-2. Tenaya Lake

2.3 Soils

More than 50 soil types are found within Yosemite National Park. General and local variations depend upon glacial history, microclimatic differences, and the ongoing influences of weathering and stream erosion/deposition. Soils of the region are primarily derived from underlying granitic bedrock and are of similar chemical and mineralogical composition. The surface soil in Yosemite National Park consists primarily of granitic sands in various stages of decomposition (Borchers 1996). The extensive glaciation of the region has resulted in typically poorly developed topsoil and soil horizons. The dominant soil types generally have low shrink-swell potential because of their minimal clay content but high erosive potential because they are generally thin and sandy (NRCS 2006). Figures in Appendix B show the soil types occurring within a 500-foot buffer of Tioga Road, based on the digital soils map provided by Yosemite National Park. Descriptions of these soils are provided in Table 2-1.

Evidence of hydric soil within a given area is one of three required parameters (along with hydrophytic vegetation and wetland hydrology) for U.S. Army Corps of Engineers classification as a jurisdictional wetland. Hydric soils are strongly influenced by the presence of water, and require conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper part (NRCS 2010d). Soil types within the project area that have hydric soil components are shown in Table 2.1.

Table 2-1. Soil Types in the Tioga Road Rehabilitation Project Area

	Table 2-1. Soil Types in the Tioga Road Rehabilitation Project Area							
Map Unit	Soil Map Unit Name	Hydric Soil Component(s)?	Drainage Class	Depth to Water Table	Available Water Capacity	Landform		
213	Canisrocks-Glacierpoint-Vitrandic Dystrocryepts complex, bouldery, 20 to 45 percent slopes, medial moraines, cryic		Somewhat excessively drained	More than 72 inches	Very low (about 2.0 inches)	Summits on medial moraines, mountainsides, lateral moraines, mountain slopes		
214	Marmotland-Oxyaquic Dystrocryepts- Xeric Dystrocryepts complex, 0 to 15 percent slopes, mountain valley floors, cryic	Y	Moderately well drained	About 60 to 72 inches	Moderate (about 7.1 inches)	Moraines, above normally active flood plain on valley floors		
224	Rock outcrop-Crazymule-Vitrandic Cryorthents association, 0 to 45 percent slopes, joints, fractures, scoured, cryic	Y	Somewhat excessively drained	More than 72 inches	Low (about 4.6 inches)	Mountainsides		
225	Canisrocks-Rock outcrop-Rubble land- Vitrandic Dystrocryepts association, 2 to 30 percent slopes, glacially scoured mountain valleys, cryic	Y	Somewhat excessively drained	More than 72 inches	Very low (about 3.0 inches)	Nivational cirques on mountains, colluvial aprons on mountainsides		
232	Canisrocks-Glacierpoint complex, 0 to 25 percent slopes, lateral moraines, cryic	Y	Somewhat excessively drained	More than 72 inches	Very low (about 1.9 inches)	Mountain slopes, lateral moraines		
235	Canisrocks-Rock outcrop-Rubble land complex, 30 to 80 percent slopes, mountainflanks, cryic	Y	Somewhat excessively drained	More than 72 inches	Very low (about 2.6 inches)	Mountain slopes, avalanche chutes		
242	Rock outcrop-Canisrocks-Xeric Dystrocryepts complex, 0 to 35 percent slopes, mountain slopes, cryic	Y	Somewhat excessively drained	More than 72 inches	Very low (about 2.4 inches)	Mountain slopes		
245	Rock outcrop-Canisrocks-Xeric Dystrocryepts association, 0 to 35 percent slopes, mountain valleys, scoured, filled, cryic	Y	Somewhat excessively drained	More than 72 inches	Very low (about 3.0 inches)	Mountain slopes, flood plains		

Table 2-1. Soil Types in the Tioga Road Rehabilitation Project Area

	Table 2-1. 3011 Types III the Hoga Road Rehabilitation Project Area							
Map Unit	Soil Map Unit Name	Hydric Soil Component(s)?	Drainage Class	Depth to Water Table	Available Water Capacity	Landform		
246	Rock outcrop, domes, cryic		Not determined	More than 72 inches	Very low	Domes		
247	Canisrocks-Xeric Dystrocryepts association, 5 to 30 percent slopes, mountain valleys, moraines, cryic	Υ	Somewhat excessively drained	More than 72 inches	Very low (about 2.2 inches)	Moraines, mountainsides, stream terraces		
248	Canisrocks-Rock outcrop-Glacierpoint complex, 30 to 70 percent slopes, mountain slopes, cryic		Somewhat excessively drained	More than 72 inches	Very low (about 1.4 inches)	Structural benches, mountain slopes		
249	Rock outcrop-Canisrocks complex, 30 to 70 percent slopes, mountain slopes, cryic	Y	Somewhat excessively drained	More than 72 inches	Very low	Mountainsides		
251	Glacierpoint-Typic Cryorthents complex, 30 to 65 percent slopes, mountain slopes, lateral moraines, aprons, cryic		Somewhat excessively drained	More than 72 inches	Low (about 3.1 inches)	Lateral moraines, mountain slopes		
252	Rock outcrop-Canisrocks-Xeric Dystrocryepts complex, 5 to 45 percent slopes, moraines, mountain slopes, cryic	Υ	Somewhat excessively drained	More than 72 inches	Very low (about 3.0 inches)	Avalanche chutes, moraines, mountain slopes, ridges		
253	Canisrocks-Glacierpoint-Humic Dystrocryepts complex, 15 to 55 percent slopes, lateral moraines, cryic	Υ	Somewhat excessively drained	More than 72 inches	Very low (about 1.9 inches)	Lateral moraines, avalanche chutes, mountain slopes		
257	Badgerpass-Oxyaquic Dystroxerepts association, 0 to 15 percent slopes, mountain valley floors, frigid	Υ	Somewhat excessively drained	More than 72 inches	Low (about 3.4 inches)	Terraces, mountain valleys		

Table 2-1. Soil Types in the Tioga Road Rehabilitation Project Area

	Table 2-1. 3011 Types III the Hoga Road Rehabilitation Floject Area						
Map Unit	Soil Map Unit Name	Hydric Soil Component(s)?	Drainage Class	Depth to Water Table	Available Water Capacity	Landform	
258	Typic Dystroxerepts-Badgerpass-Dystric Xerorthents complex, 15 to 45 percent slopes, mountain slopes,		Well drained	More than 72 inches	Moderate (about 8.0 inches)	Mountain slopes, moraines	
	moraines, frigid			inches	iriches)		
260	Rock outcrop-Craneflat-Dystric Xerorthents complex, 30 to 65 percent slopes, mountain slopes, frigid		Somewhat excessively drained	More than 72 inches	Very low (about 1.3 inches)	Mountain slopes	
261	Dystric Xeropsamments-Typic Dystroxerepts-Badgerpass-Rock outcrop association, 5 to 35 percent slopes, mountain valleys, mountain slopes, frigid	Y	Somewhat excessively drained	More than 72 inches	Low (about 5.2 inches)	Mountain valleys, mountain slopes, moraines	
267	Rock outcrop-Typic Cryorthents-Xeric Dystrocryepts complex, 0 to 35 percent slopes, mountain slopes, joints, cryic	Y	Somewhat excessively drained	More than 72 inches	Very low (about 1.7 inches)	Lateral moraines, mountain slopes, mountainsides	
269	Canisrocks-Rock outcrop-Glacierpoint complex, 0 to 35 percent slopes, mountain slopes, moraines, joints, cryic		Somewhat excessively drained	More than 72 inches	Very low (about 1.5 inches)	Mountain slopes, moraines	
279	Canisrocks-Xeric Dystrocryepts complex, 15 to 45 percent slopes, mountain slopes, moraines, cryic	Y	Somewhat excessively drained	More than 72 inches	Very low (about 2.3 inches)	Mountain slopes, moraines, mountainsides	
280	Typic Dystroxerepts-Humic Dystroxerepts-Rock outcrop association, 15 to 45 percent slopes, mountain slopes, frigid		Somewhat excessively drained	More than 72 inches	Low (about 5.6 inches)	Mountain slopes, moraines	

Table 2-1. Soil Types in the Tioga Road Rehabilitation Project Area

	rable 2 1. Son Ty					
Map Unit	Soil Map Unit Name	Hydric Soil Component(s)?	Drainage Class	Depth to Water Table	Available Water Capacity	Landform
285	Waterwheel-Humic Dystroxerepts complex, 15 to 45 percent slopes, mountain slopes, frigid		Somewhat excessively drained	More than 72 inches	Very low (about 2.3 inches)	Mountain slopes, landslides
289	Waterwheel-Craneflat complex, 35 to 70 percent slopes, mountain slopes, frigid		Somewhat excessively drained	More than 72 inches	Very low (about 2.4 inches)	Mountain slopes, moraines
293	Xeric Dystrocryepts-Vitrandic Dystrocryepts association, 0 to 25 percent slopes, mountain slopes, summits, cryic		Somewhat excessively drained	More than 72 inches	Low (about 3.8 inches)	Mountains, moraines, mountain slopes
294	Waterwheel-Typic Dystroxerepts complex, 30 to 70 percent slopes, landslides, mountain slopes, frigid		Somewhat excessively drained	More than 72 inches	Very low (about 1.4 inches)	Mountain slopes, landslides
306	Typic Cryopsamments-Humic Dystrocryepts complex, 0 to 20 percent slopes, mountain toeslopes, moraines, cryic	Υ	Somewhat excessively drained	More than 72 inches	Very low (about 3.0 inches)	Mountainsides, ephemeral streams, moraines
313	Nevadafalls-Oxyaquic Dystrudepts complex, 5 to 30 percent slopes, mountain valleys, moraines, frigid	Υ	Moderately well drained	About 20 to 39 inches	Low (about 5.5 inches)	Flood plains, ground moraines
328	Clarkslodge-Ultic Palexeralfs complex, metasedimentary, 15 to 45 percent slopes, mountain slopes, landslides, frigid		Well drained	More than 72 inches	Low (about 5.5 inches)	Landslides, ridges, mountain slopes

Sources: NRCS 2006, 2010b, 2010c

2.4 Vegetation

For the purpose of this report, common names are used for plant species identification. Appendix C provides a list of the scientific names of all species identified during field investigations, as well as all species mentioned in this report. Scientific nomenclature used for plant species throughout this report, and in Appendix C, follows the current taxonomic designations found in the Integrated Taxonomic Information System database (2010).

The Tioga Road project area is in the Central High Sierra Nevada district of the California Floristic Province (Hickman 1993). The High Sierra Nevada subregion of the California Floristic Province is characterized primarily by conifer forest above 2,500 feet, with treeless alpine communities at the highest elevations (9,000 to 14,000 feet) (Hickman 1993). Though elevations in Yosemite National Park range from 1,800 feet to over 13,000 feet, with elevation strongly influencing plant community distribution, the project area along Tioga Road has a smaller gradient from roughly 6,200 feet to 8,700 feet above sea level.

Two vegetation zones dominate the Tioga Road corridor: upper montane forest and subalpine forest (NPS 2010). Upper montane forest (Figure 2-3) begins at elevations near 6,000 feet in and around Yosemite National Park, and is the primary vegetation zone located along the Tioga Road corridor.



Figure 2-3. Typical Upper Montane Forest (surrounding a ponded wetland)

California red fir and Sierra lodgepole pine are the typical dominant tree species in this forest, and often form pure stands. Jeffrey pine and Sierra juniper are other common component tree species found within the upper montane forest. Around elevations of 8,000 feet, where the growing season is shorter and snowfall is typically higher, subalpine forest replaces the upper montane forest (NPS 2010). Dominant tree species in the subalpine forest are western white pine, mountain hemlock, and Sierra lodgepole pine. Subalpine forest is the dominant vegetation zone in the eastern portion of the Tioga Road corridor. Within these broadly

defined zones, however, the vegetation can be further classified on the basis of growth form, geomorphology, and the dominant plant species and includes a variety of herbaceous, scrub, and woodland/forest types.

A geographical information systems (GIS) vegetation map for Yosemite National Park was completed in 2007 (http://www.nps.gov/yose/naturescience/vegetation-map.htm). The map was based on the interpretation of color infrared aerial photographs taken in 1997 and subsequently validated by intensive, quantitative sampling on the ground. The vegetation was classified to the alliance or superassociation level based on the dominant/diagnostic plant species, usually of the uppermost stratum. This

classification represents over 200 distinct vegetation types in the original map. For this analysis, these vegetation types have been aggregated into larger categories based on the dominant species and/or the growth forms of those species, and are listed in Table 2-2 by acreage within the project study area. Figures in Appendix D show the vegetation types within a 500-foot buffer of Tioga Road along the length of the project study area.

Table 2-2. Vegetation Types Within the Tioga Road Project Area

Vegetation Type ¹	Acres	Percent of Total Area
California Red Fir Forest	588.9	35.9
Sierra Lodgepole Pine Forest	397.6	24.2
Jeffrey Pine Forest	151.5	9.2
Sierra Juniper Woodland	90.4	5.5
Western White Pine Forest	85.4	5.2
White Fir Forest	73.9	4.5
Meadow	60.9	3.7
Sparsely Vegetated/Exposed Rock	45.9	2.8
Mountain Hemlock Forest	30.4	1.9
Herbaceous	24.5	1.5
Manzanita/Chinquapin/ Huckleberry Oak Shrubland	22.0	1.3
Sagebrush/Oceanspray/Mountain Heather Shrubland	17.1	1.0
Open Water	14.5	0.9
Ceanothus Shrubland	11.2	0.7
Urban/Developed	8.1	0.5
Quaking Aspen Forest	6.1	0.4
Montane Shrubland	4.7	0.3
Non-alpine Talus	3.8	0.2
Granitic Dome	3.6	0.2
Willow Shrubland	1.6	0.1
Permanently Flooded, Emergent, or Floating Vegetation	1.1	0.1
TOTAL	1643.2	100.0

Note: ¹ These vegetation types represent the dominant species within the community and may be mixed with other species. For example, California red fir is often mixed with lodgepole pine, Jeffrey pine and white fir.

Among the many other plant communities and vegetation types that occur along Tioga Road are

meadow and riparian communities that contain the majority of the wetlands and other waters of the United States that occur within the project boundary.

Meadow Communities

Meadows (Figure 2-4) are typically dominated by low-statured herbaceous species that require periods of surface water inundation and/or shallow groundwater. These communities often have woody shrub and tree components, but these woody species are never dominant.

Meadows occur throughout Yosemite National Park at elevations from 3,000 feet to 11,000 feet.



Figure 2-4. Representative Meadow Community (surrounded by upper montane forest)

The locations of meadow communities are typically determined by the topography of a given area. On the western slope of the Sierra Nevada, meadows occur in situations where a relatively flat landform is surrounded by steep terrain with a large watershed that offers a shallow water table and fine textured soils (NPS 2010).

During the spring, snowmelt causes rising groundwater levels and streams to inundate meadows, bringing the nutrients that sustain these communities. Water table and soil moisture gradients strongly influence vegetation composition and structure in meadows. Most meadows contain a complex mosaic of wet, moist, and dry areas that support distinctly different plant and animal communities. Fens, which are the wettest portions of wet meadows and which contain many of the park's wetlands, are groundwater-fed systems whose soils remain saturated throughout the growing season. This slows the rate of decomposition such that there is a continual accumulation of plant material at the surface, resulting in a layer of organic soil known as peat. In their natural, undrained state, fens remove and store carbon that would otherwise be released back to the atmosphere through decomposition. Drier areas within meadows are typically found along the meadow margins and have a much deeper water table.

Meadows within Yosemite National Park reduce flood damage by accumulating flood waters and then slowly releasing the stored water; improving water quality by trapping sediments; allowing for groundwater recharge and/or discharge; and reducing erosion in floodplains and along lake shores and stream banks (NPS 2010).

Meadow communities within Yosemite National Park are highly variable in structure and species composition. Common and dominant herbaceous meadow species observed during field investigations for this report included northwest territory sedge, naked sedge, mountain sedge, American bistort, common rush, Sierra shooting star, tufted hair grass, pullup muhly, plantainleaf buttercup, alpine aster, and subalpine fleabane.

Riparian Communities

Riparian communities occur at the interface between land and riverine systems, and are thus, strongly influenced by seasonal drainage patterns. Stream corridors in Yosemite National Park support riparian scrub-woodland communities, typically dominated by willows and cottonwoods, with a variety of associated shrubs such as wild rose, white-stemmed gooseberry, and thimbleberry. Though, the presence of riparian vegetation is not necessarily indicative of wetland habitat, riverine systems often contain pockets of wetlands within and amongst riparian communities.

2.5 Previous Wetland and Aquatic Habitat Mapping

Figures in Appendix A show the occurrence of wetlands and other waters of the United States as previously mapped in the National Wetlands Inventory (NWI) and National Hydrography Dataset (NHD) in the project study area along Tioga Road. Wetland sites that were the focus of delineations and functional assessments for this report were identified by the park hydrologist, botanist, and environmental compliance specialist assigned to this project.

3 DELINEATION METHODOLOGY

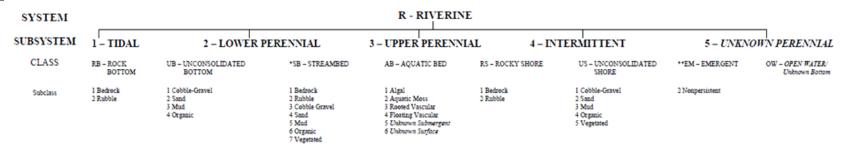
3.1 Habitat Classification (Cowardin et al. 1979)

All aquatic habitats were classified according to the Cowardin et al. (1979) classification system developed by the U.S. Fish and Wildlife Service. This classification system is used to hierarchically define wetland and deepwater habitat types by system, subsystem, class, and subclass for the purposes of inventory, evaluation, and management. The Cowardin system considers all aquatic habitats (except those with water levels at least two meters deep, which are considered "deepwater habitats") to be wetlands. However, the U.S. Army Corps of Engineers does not consider naturally unvegetated areas to be wetlands, except in problematic and/or atypical situations (USACE 1987). For purposes of compliance with Executive Order 11990, NPS Procedural Manual #77-1: Wetland Protection states that the National Park Service will use Cowardin et al. (1979) as the standard for defining, classifying, and inventorying wetlands. The hierarchical classification of the Cowardin et al. system is shown in Figure 3-1.

3.2 Section 404 Clean Water Act Jurisdiction

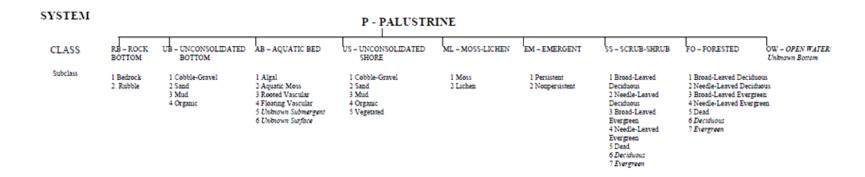
Section 404 of the Clean Water Act provides for the federal regulation of the discharge of dredged or fill material into waters of the United States, including wetlands. The term "waters of the United States" is defined by Title 40, Code of Federal Regulations (CFR), Section 230.3 as:

- 1. All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- 2. All interstate waters including interstate wetlands;
- 3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairiepotholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:
 - (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
 - (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
 - (iii) Which are used or could be used for industrial purposes by industries in interstate commerce;
- 4. All impoundments of waters otherwise defined as waters of the United States under this definition;
- 5. Tributaries of waters identified in paragraphs (1) through (4) of this section;



^{*} STREAMBED is limited to TIDAL and INTERMITTENT SUBSYSTEMS, and comprises the only CLASS in the INTERMITTENT SUBSYSTEM.

^{**} EMERGENT is limited to TIDAL and LOWER PERENNIAL SUBSYSTEMS.



	MODIFIERS In parties to more adequately describe the walland and decounted habitate one or more of the water regime, water showing								
	In order to more adequately describe the wetland and deepwater habitats one or more of the water regime, water chemistry, soil, or special modifiers may be applied at the class or lower level in the hierarchy. The farmed modifier may also be applied to the ecological system.								
	WATER RE	<u> </u>			ER CHEMISTR		SOIL	SPECIAL MO	DIFIERS
Non-Tidal Tidal Coastal Halinity		Coastal Halinity	Inland Salinity	pH Modifiers for all Fresh Water					
A Temporarily Flooded B Sanurated C Seasonally Flooded D Seasonally Flooded/ Well Drained E Seasonally Flooded/ Sanurated F Semipermanently Flooded G Intermittently Exposed	H Permanently Flooded J Intermittently Flooded K Artificially Flooded W Intermittently Flooded Temporary Y Saturated Semitpermanent Seasonal Z Intermittently Exposed Permanent U Utskown		*S Temporary-Tidal *S Seasonal-Tidal *T Semipermanent-Tidal *U Permanent-Tidal *U Unknown atter regimes are only used in usened, freshwater systems.	1 Hyperhaline 2 Euthaline 3 Mixohaline (Brackizh) 4 Polyhaline 5 Mesohaline 6 Oligohaline 0 Fresh	7 Hypersaline 8 Eusaline 9 Mixosaline 0 Fresh	a Acid t Circumneutral i Alkaline	g Organic n Mineral	b Beaver d Partially Drained/Ditched f Farmed	h Diked Impounded r Artificial Substrate s Spoil x Excavated

NOTE: Italicized terms were added for mapping by the National Wetlands Inventory program.

Figure 3-1. Wetlands and Deepwater Habitats Classification for the Tioga Pass Road Rehabilitation Project (Based on Cowardin et al. 1979 and modified for National Wetland Inventory Mapping Convention)

- 6. The territorial sea;
- 7. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (1) through (6) of this section; waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the Clean Water Act (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not waters of the United States.

For regulatory purposes, wetlands are defined as:

...areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (33CFR 328.3).

In 2007, the U.S. Environmental Protection Agency and the U.S. Army Corps of Engineers issued guidance clarifying Clean Water Act jurisdiction following the U.S. Supreme Court's decision in the consolidated cases *Rapanos v. United States* and *Carabell v. United States*.

In summary, the agencies assert jurisdiction over the following waters:

- Traditional navigable waters
- Wetlands adjacent to traditional navigable waters
- Nonnavigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months)
- Wetlands that directly abut such tributaries

The agencies decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with a traditional navigable water:

- Nonnavigable tributaries that are not relatively permanent
- Wetlands adjacent to nonnavigable tributaries that are not relatively permanent
- Wetlands adjacent to but that do not directly abut a relatively permanent nonnavigable tributary

3.3 Executive Order 11990

Executive Order 11990: *Protection of Wetlands* (42 Fed. Reg. 26961) was issued by President Carter in 1977 in order "...to avoid to the extent possible the long and short term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative...." (NPS 2002). Section 6 of Executive Order 11990 directed federal agencies to issue procedures to implement the Executive Order. Director's Order #77-1: *Wetland Protection* (issued in 1998 and reissued in 2002) and the accompanying Procedural Manual #77-1 (reissued in 2008) clarified NPS wetland policies and procedures so as to comply with Executive Order 11990.

3.4 Delineation Procedures

Wetlands were identified and delineated, per the Scope of Work, in accordance with the *Corps of Engineers Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (USACE 2010). Per U.S. Army Corps of Engineers requirements, and except for certain problematic situations, evidence of a minimum of one positive wetland indicator from each parameter (hydrophytic vegetation, hydric soil, and hydrology) had to be met in order to make a positive wetland determination. Data collected at sample plots was recorded on wetland determination data forms from the Western *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (USACE 2010).

Field investigations were focused on specific sites that were deemed of greatest potential significance as identified by the park hydrologist. The specified survey sites primarily included areas with previously mapped NWI and NHD waters of the United States, and are identified on the maps in Appendix A. Delineations, mapping, and functional assessments were completed for distinct habitat types with areas greater than 0.10 acres. Because of the variability and patchiness within and amongst habitat types, wetlands and other waters with areas less than 0.10 acres that occurred within larger habitat types were mapped as part of the dominant Cowardin type within which they occurred. Delineation boundaries extended to 160 feet from the road centerline on either side, except in the Tuolumne Meadows survey area where delineation boundaries extended to 320 feet from the road centerline on the north side of the road. Delineation involved field verification of waters of the United States previously mapped in the NWI and NHD, as well as delineation of areas that had not previously been mapped.

Within the specific survey sites, reconnaissance surveys were conducted to identify the approximate extent of wetlands and other waters based on dominant vegetation type, hydrology, topography, and landscape/geomorphic position. In areas that were deemed to contain possible wetlands, the soil, vegetation, and hydrology were evaluated in detail in representative sample plots. Sample plots were chosen both within and outside of wetland boundaries so as to establish clear boundaries between wetland and nonwetland habitats.

Recognizing the sensitivity of natural and cultural resources and aesthetic values in the project study area, the number of sample plots was minimized to the extent practicable so as to reduce the number of soil pits (see section 3.4.1). Therefore, reference plots were identified during the course of the field investigations. Determination of wetland status for certain areas was based on similarities in habitat type, dominant vegetation, hydrology, and soil samples (taken with a 2.5-inch diameter soil auger) to the reference plots. Where wetland hydrology and vegetation indicators were both clearly present, or both clearly absent, such that inspection of a soil pit would not affect the conclusions, no pit was excavated.

TEC Inc. staff conducted on-site determinations, delineations, and functional assessments of all waters of the United States within the project survey boundaries in August and September 2010. A submeter GPS was used to map determination points and wetland features within the survey sites.

3.4.1 Determination of Hydrophytic Vegetation

Hydrophytic vegetation is defined as the community of macrophytes that occurs in areas where inundation or soil saturation is either permanent or of sufficient frequency and duration to exert a controlling influence on the plant species present (USACE 1987). Hydrophytic vegetation determinations are based on assemblages of plant species, rather than the presence or absence of individual indicator species. For wetland delineation purposes, an area is considered to be vegetated if it has 5 percent or more total plant cover at the peak of the growing season (USACE 2010).

Sample plots were evaluated to determine the dominant vegetative cover in the following strata as defined by the U.S. Army Corps of Engineers (USACE 2010):

- 1. Tree stratum woody plants 3 inches or more in diameter at breast height, regardless of height
- 2. Sapling/shrub stratum woody plants less than 3 inches diameter at breast height, regardless of height.
- 3. Herb stratum all herbaceous (nonwoody) plants, including herbaceous vines, regardless of size.
- 4. Woody vines consists of all woody vines, regardless of height.

Measures of absolute percent cover for tree and sapling/shrub strata were done by visual estimate using 5-meter and 3-meter radius plots, respectively. Herb strata were measured using either 1 x 1 meter or 1 x 2 meter quadrats, depending on site conditions. No woody vine strata were encountered during surveys for this project.

Hydrophytic vegetation decisions were based on the wetland indicator status (Reed 1988) of species that composed the plant communities. Wetland indicator status is a relative measure of a plant species' potential to occur in wetlands. Hydrophytic vegetation indicator status categories are defined as follows (USACE 1987):

- Obligate (OBL) plants that occur almost always in wetlands (>99% probability);
- Facultative Wetland (FACW) plants that occur usually in wetlands (67 to 99% probability);
- Facultative (FAC) Plants with a similar likelihood of occurring in both nonwetlands or wetlands (33 to 67% probability);
- Facultative Upland (FACU) plants that usually occur in nonwetlands, but sometimes in wetlands (1 to 33% probability);
- Obligate Upland (UPL) Plants that almost always occur in nonwetlands and rarely occur in wetlands (<1% probability).

Hydrophytic vegetation determinations followed the standard procedures set forth in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (USACE 2010). All sample plots within the project survey area that were characterized by hydrophytic vegetation met at least one of the following two indicators:

1. Indicator 1 - Rapid Test for Hydrophytic Vegetation: all dominant species across all strata are rated OBL or FACW, or a combination of these two categories, based on a visual assessment. This test is intended as a quick confirmation in obvious cases that a site has hydrophytic

- vegetation, without the need for more intensive sampling. Dominant species are selected visually from each stratum of the community using the "50/20 rule" (see Indicator 2 Dominance Test below) as a general guide but without the need to gather quantitative data.
- 2. Indicator 2 Dominance Test: more than 50 percent of the dominant plant species across all strata are rated OBL, FACW, or FAC. The "50/20 rule" is the method used for determining dominant species from each stratum. In general, dominants are the most abundant species that individually or collectively account for more than 50 percent of the total coverage of vegetation in the stratum, plus any other species that, by itself, accounts for at least 20 percent of the total.

The wetland indicator status of all plant species observed within the survey sample plots, as well as the hydrophytic vegetation determination method used for each plot, are provided in the Wetland Determination Data Forms (USACE 2010) in Appendix E.

3.4.2 Determination of Hydric Soils

Hydric soils are defined as soils that formed under conditions of saturation, flooding, or ponding long

enough during the growing season to develop anaerobic conditions in the upper part (NRCS 2010d). Hydric soil indicators are formed predominantly by the accumulation or loss of iron, manganese, sulfur, or carbon compounds in a saturated and anaerobic environment (USACE 2010).

Survey teams evaluated and documented the morphological characteristics of all visible soil horizons observed in excavated soil profiles at each sample plot. Soil pits were excavated to depths of 20 to 24 inches (Figure 3-2), except in instances where positive hydric soil indicators were obtained above that depth or where excavation was met with refusal (e.g., rock or large roots). Soil profile analyses included descriptions of horizon thickness (depth); matrix color; texture; and type, location, abundance, and color of redoximorphic features (if present). These characteristics were used as the basis for determining the presence or absence of hydric soil indicators as set forth in the *Regional Supplement to the Corps of Engineers Wetland*



Figure 3-2. Representative Soil Pit

Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0) (USACE 2010).

Soil profile descriptions and hydric soil determinations from all sample plots are provided in the Wetland Determination Data Forms (USACE 2010) in Appendix E.

3.4.3 Determination of Wetland Hydrology

Wetland hydrology encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface at some time during the growing season (USACE 1987). An area has wetland hydrology if it is inundated or saturated to the surface continuously for at least 5% of the growing season in most years (50% probability of recurrence) (USACE 1987). Five percent of the growing season, as recorded at the Yosemite National Park South Entrance (171 days), equates to roughly 8.5 days of continuous saturation and/or inundation for an area in that region to have wetland hydrology. The elevation along Tioga Road is significantly higher than at the South Entrance weather station, with colder temperatures and higher snowfall. Thus, the growing season and number of continual days of saturation/inundation required for wetland hydrology is likely significantly less.

Field verification of wetland hydrology involved positive field observation by survey teams of at least one primary indicator or two secondary indicators as defined in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (USACE 2010). Commonly observed primary indicators for wetland hydrology in the sample plots were as follows:

- Surface Water (A1) direct, visual observation of surface water (flooding or ponding);
- High Water Table (A2) direct, visual observation of the water table 12 inches or less below the surface in a soil pit;
- Saturation (A3) visual observation of saturated soil conditions 12 inches or less from the soil surface as indicated by water glistening on the surfaces and broken interior faces of soil samples removed from the soil pit.

Commonly observed secondary indicators for wetland hydrology in the sample plots were as follows:

- Dry-Season Water Table (C2) visual observation of the water table between 12 and 24 inches below the surface during the normal dry season or during a drier than normal year;
- Geomorphic Position (D2) present if the area in question is located in a localized depression, swale or drainageway, concave position within a floodplain, at the toe of a slope, on an extensive flat, on the low-elevation fringe of a pond or other water body, or in an area where groundwater discharges;
- FAC-Neutral Test (D5) performed by compiling a list of dominant plant species across all strata in the community, and dropping from the list any species with a FAC indicator status. The FAC-neutral test is met if more than 50 percent of the remaining dominant species are rated FACW and/or OBL.

Wetland hydrology field observations and determinations from all sample plots are provided in the Wetland Determination Data Forms (USACE 2010) in Appendix E.

3.4.4 Other Waters of the United States

Other waters of the United States were mapped and delineated in the field based on the location of ordinary high water marks, as defined by Section 404 of the Clean Water Act and with the guidelines set forth by *Regulatory Guidance Letter No. 05-05* (USACE 2005). The lateral limits of jurisdiction over nontidal water bodies extend to the ordinary high water marks, in the absence of adjacent wetlands. When adjacent wetlands are present, Clean Water Act jurisdiction extends beyond the ordinary high water mark to the limits of the adjacent wetlands. Physical characteristics (as defined by USACE 2005) that were considered when making ordinary high water mark



Figure 3-3. Riverine Habitat with Clearly Defined Bed and Banks

determinations for this report included, but were not limited to, evidence of: a natural line impressed on the bank, scour, shelving, destruction of terrestrial vegetation, bed and banks (Figure 3-3), and deposition.

4 DELINEATION RESULTS

This section identifies the wetlands and other aquatic habitats that are present within the Tioga Road Rehabilitation Project corridor, their classifications under the Cowardin et al. (1979) system, and acreages. Table 4-1 provides a detailed summary of the delineation and mapping of Cowardin habitats within the project survey area. Descriptions of these habitat types are provided in Section 4.1. Figure 4-1 (provided at the end of this chapter) shows the results of the delineation and mapping that was completed for this report. A photographic summary of wetlands and other aquatic habitats that were mapped during field surveys is provided as Appendix F.

Table 4-1. Summary of Wetlands, Other Waters of the United States, and Other Cowardin Habitats in the Tioga Road Rehabilitation Project Area

General Location	Wetland ID ¹	Dominant Cowardin Habitat	Area (Acres)	Functional Assessment
	Wet1a	PEMA	3.96	
	Wet1b	PEMA	1.41	
	Wet1c	R4SB2	0.07	Y
	Wet1d	R4SB2	0.02	
	Wet2	PEMC	0.91	Y
	Wet3a	PEMA	0.36	
	Wet3b	PEMA	0.65	Υ
	Wet4	PSSC	0.41	
	Wet6	PEMA	0.13	
	Wet7	PEMC	0.37	
	Wet8	PEMC	0.98	
Tuolumne Meadows	Wet9a	PEMC	0.28	
	Wet9b	R4SB3	0.02	
	Wet10a	PEMC	0.24	Y
	Wet10b	R4SB7	0.07	Y
	Wet11a	PEMA	0.18	
	Wet11b	PEMA	0.61	
	Wet11c	R4SB2	0.01	Y
,	Wet11d	R4SB3	0.08	
	Wet11e	R4SB2	0.47	
	Wet12	PEMC	0.27	
	Wet13a	PEMA	0.05	
	Wet13b	PEMA	0.02	

Table 4-1. Summary of Wetlands, Other Waters of the United States, and Other Cowardin Habitats in the Tioga Road Rehabilitation Project Area

General Location	Wetland ID ¹	Dominant Cowardin Habitat	Area (Acres)	Functional Assessment
	Wet13c	R4SB2	0.04	
	Wet13d	R4SB2	0.02	
	Wet13e	R4SB2	0.04	
	Wet13g	R4SB7	0.03	
	Wet14a	PEMA	0.31	
	Wet14b	PEMA	0.24	Y
	Wet16a	PEMC	0.74	
	Wet16b	R3RB2	1.77	
	Wet16c	R4SB1	0.01	Y
	Wet16d	R4SB1	0.04	
	Wet16e	R4SB2	0.05	
	Wet17	PEMA	1.20	
	Wet18	PEMA	0.08	
	Wet19	PEMA	0.01	
East of Tenaya Lake	Wet20a	PEMF	0.16	
	Wet20b	R4SB3	0.02	
	Wet21	PUBF	0.08	Y
	Wet22	PUBF	0.08	
	Wet25	PEMC	0.98	Υ
Crane Flat	Wet26a	PEMC	0.19	Y
	Wet26b	PEMC	0.19	
	Wet27	PEMC	0.06	
	Wet28a	PEMB	0.75	
	Wet28b	PEMB	0.03	Y
	Wet28c	PEMB	1.03	
Gin Flat	Wet29	PEMB	0.96	Y
	Wet30	PEMC	0.23	
East of Gin Flat	Wet31	R4SB1	1.80	
West of Siesta Lake	Wet32a	R4SB3	0.07	
	Wet32b	R4SB3	0.10	
Siesta Lake	Wet33	PEMB	0.29	Υ

Table 4-1. Summary of Wetlands, Other Waters of the United States, and Other Cowardin Habitats in the Tioga Road Rehabilitation Project Area

Habitats in the Tioga Road Rehabilitation Project Area						
General Location	Wetland ID ¹	Dominant Cowardin Habitat	Area (Acres)	Functional Assessment		
	Wet34a	PUBH	0.96			
	Wet34b	PFOB	0.10			
	Wet34c	R4SB3	<0.01	Υ		
	Wet34d	R4SB7	0.03			
East of Siesta Lake	Wet35	PEMB	0.10			
	Wet37a	PEMB	0.11	Y		
	Wet37b	R4SB3	0.02			
Porcupine Flat	Wet37c	R4SB3	0.02			
	Wet37d	R4SB3	0.03			
West of Olmstead Point	Wet39	PEMB	0.55	Υ		
)	Wet40a	R4SB4	0.20			
West of Tenaya Lake	Wet40b	R4SB4	0.12			
East of Tenaya Lake	Wet41	R4SB3	0.27			
	Wet42a	PEMB	0.38			
McSwain Meadows	Wet42b	PFOB	0.95			
	Wet42c	PFOB	0.84	Υ		
	Wet42d	PEMA	0.01			
	Wet42e	R4SB5	0.08			
	Wet43	PEMA	0.10	Υ		
	Wet44a	PFOB	0.26			
	Wet44b	PFOC	0.45			
East of Tenaya Lake	Wet45a	R4SB2	0.03			
	Wet45b	R4SB2	0.01			
	Wet45c	R4SB3	0.03			
	Wet45d	R4SB3	0.01			
Tuolumne Meadows	Wet46	R3UB1	<0.01			
	Wet47	R4SB3	0.11			
Various Locations	Unnamed	R4SB2	0.11			
Various Locations	Unnamed	R4SB3	0.05	-		

Note: ¹ Not all riverine habitats were given a Wetland ID by the field survey teams. Those habitats have been grouped as "Unnamed" in this table. Some wetlands were mapped that occurred outside the project area, and were removed from calculations post-field survey. Therefore, some Wetland ID numbers and letters are missing from this table.

acres

4.1 Wetlands and Other Aquatic Habitat Types in the Project Corridor

Table 4-2 provides a summary of acreages by habitat type for all wetlands and other aquatic habitats mapped during field surveys. Descriptions of these specific habitat types are provided below.

Table 4-2. Acreage Summary of Wetlands and Other Aquatic Habitats in the Tioga Road Rehabilitation Project Survey Areas

Cowardin Habitat Type		Total	
Palustrine Emergent Wetland (PEM)	19.14	Palustrine Wetlands: 23.26 acres	
Palustrine Forested Wetland (PFO)	2.60		
Palustrine Scrub-Shrub Wetland (PSS)	0.41		
Palustrine Unconsolidated Bottom Wetland (PUB)	1.11		
Riverine Upper Perennial Rock Bottom (R3RB)			
Riverine Upper Perennial Unconsolidated Bottom (R3UB)		Riverine Habitat: 5.85 acres	
Riverine Intermittent Streambed (R4SB)	4.08		
		Total Waters of the U.S.: 29.11	

4.1.1 Palustrine System

The palustrine system includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean derived salts is below 0.5% (Cowardin et al. 1979). The palustrine system comprises the vegetated wetlands traditionally called by such names as marsh, swamp, bog, fen, and prairie. It also includes the small, shallow, permanent or intermittent water bodies often called ponds. Palustrine wetlands may be situated shoreward of lakes, river channels, or estuaries; on river floodplains; in isolated catchments; or on slopes. They may also occur as islands in lakes or rivers (Cowardin et al. 1979). For the purposes of this report, palustrine wetlands were identified to the level of class, and water regime modifiers (see Figure 3-1) were applied based on direct field observations. A total of 23.26 acres of palustrine habitat was mapped within the survey sites of the Tioga Road project area.

Palustrine Emergent Wetlands

Palustrine emergent wetlands (PEM) are characterized by erect, rooted, herbaceous hydrophytic vegetation. (Cowardin et al. 1979). The majority of fens, bogs, marshes, and wet meadows found in mountain habitats are classified under this system. These wetlands were the most commonly observed within the project survey area and are the dominant Cowardin habitat in the meadows along Tioga Road. Dominant and/or commonly observed plant species within PEM habitats



Figure 4-2. Palustrine Emergent Wetland

along the project corridor included: northwest territory sedge, naked sedge, mountain sedge, American bistort, common rush, Sierra shooting star, tufted hair grass, pullup muhly, plantainleaf buttercup, alpine aster, and subalpine fleabane. A total of 19.14 acres of PEM wetlands were delineated and mapped during surveys for this report. Figure 4-2 shows a typical PEM wetland found within the project survey area.

Palustrine Scrub-Shrub Wetlands

Palustrine scrub-shrub (PSS) wetlands are dominated by woody vegetation less than 20 feet tall (Cowardin et al. 1979). Component dominant species can include true shrubs, young trees, and trees or shrubs that are small or stunted because of environmental conditions. The majority of palustrine scrub-shrub habitat patches that were encountered during surveys for this report were not large enough (>10 acres) to be mapped as independent habitat types. Often, these small areas were mapped within larger palustrine emergent habitats. Palustrine scrub-shrub wetlands within the project survey area were dominated by low-lying shrub species, such as, Sierra willow and bog bilberry. A total of 0.41 acres of PSS wetlands were delineated and mapped during surveys for this report.

Palustrine Forested Wetlands

Palustrine forested wetlands (PFO) are dominated by woody vegetation that is at least 20 feet tall, and are most common in the eastern United States and in those sections of the West where moisture is relatively abundant, particularly along rivers and in the mountains (Cowardin et al. 1979). Palustrine forested wetlands occur in floodplains, springs, seeps, adjacent to running waters, and in other areas with high water tables (USACE 2010). Within the Tioga Road project area, these wetlands are dominated by large coniferous species, predominantly lodgepole pine, with herbaceous wetland



Figure 4-3. Palustrine Forested Wetland

species occupying the understory. A total of 2.60 acres of PFO wetlands were delineated and mapped during surveys for this report. Figure 4-3 shows a typical PFO wetland found within the project survey area.

Palustrine Unconsolidated Bottom Wetlands

Palustrine unconsolidated bottom (PUB) wetlands are characterized as having a vegetative cover less than 30% with at least 25% cover of particles smaller than stones (Cowardin et al. 1979). These wetlands tend to lack large stable surfaces for plant and animal attachment, and their water regimes range from permanently to semipermanently flooded. Palustrine unconsolidated bottom wetlands typically have a strong



Figure 4-4. Palustrine Unconsolidated Bottom Wetland

association with PEM wetlands, and are often fringed by herbaceous emergent vegetation. Within the project survey area, PUB wetlands often had standing, or ponded, water and were primarily dominated by bladder sedge and/or inflated sedge – two very similar obligate wetland species. A total of 1.11 acres of PUB wetlands were delineated and mapped during surveys for this report. Figure 4-4 shows a typical PUB wetland found within the project survey area.

4.1.2 Riverine System

The riverine system includes all wetlands and deepwater habitats contained within a channel, with the exception of wetlands dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens (Cowardin et al. 1979). The term "channel" can refer to an artificially or naturally created watercourse that periodically or continuously contains moving water and/or connects two bodies of standing water. The riverine system is bounded on the landward side by upland, by the channel bank (including natural and manmade levees), or by wetland dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens (Cowardin et al. 1979). Water is typically, but not always, flowing in the riverine system. Riparian and/or wetland habitats often occur adjacent to the banks of the riverine system, often on a floodplain.

The riverine system is divided into four subsystems as defined by Cowardin et al. (1979) (see Figure 3-1), of which two were used to classify all riverine habitats within the project area:

- **Upper Perennial** the gradient is high and velocity of the water is fast. There is no tidal influence and some water flows throughout the year. The substrate consists of rock, cobbles, or gravel with occasional patches of sand. The natural dissolved oxygen concentration is normally near saturation. The fauna is characteristic of running water, and there are few or no planktonic forms. There is very little floodplain development.
- **Intermittent** the channel contains flowing water for only part of the year. When the water is not flowing, it may remain in isolated pools or surface water may be absent.

For the purposes of this report, riverine habitats in the Tioga Road project study area were mapped and classified to the level of subclass (substrate material) (refer to Figure 3-1). The types of riverine habitats observed in the project study area are described below.

Riverine Upper Perennial Rock Bottom

Riverine upper perennial rock bottom (R3RB) habitat includes all riverine upper perennial habitats with substrates having an areal cover of stones, boulders, or bedrock 75% or greater and vegetative cover of less than 30% (Cowardin et al. 1979). These habitats have flowing water year-round, and are generally found in the larger riverine systems within the park. The majority of the portions of Tuolumne River that are within the project study area are classified as this habitat type. A total of 1.77 acres of R3RB habitat were mapped during surveys for this report. Figure 4-5 shows a typical R3RB habitat found within the project survey area.



Figure 4-5. Riverine Upper Perennial Rock Bottom

Riverine Upper Perennial Unconsolidated Bottom

Riverine upper perennial unconsolidated bottom (R3UB) habitat includes all riverine upper perennial habitats with at least 25% cover of particles smaller than stones, and a vegetative cover less than 30% (Cowardin et al. 1979). These habitats have bottoms that are characterized by the lack of large stable surfaces, and are usually found in areas with lower energy than rock bottom habitats. Within the project survey area, these riverine habitats are typical of the larger-sized Tuolomne River tributaries that have somewhat lower energy than the main river. Only a small area (0.003 acre) of



Figure 4-6. Riverine Upper Perennial

R3UB habitat was mapped within the study area boundaries, but it is fairly extensive along the Tuolumne River. Figure 4-6 shows a typical R3UB habitat found within the project survey area.

Riverine Intermittent Streambed

Riverine intermittent streambed (R4SB) habitat is characterized by the lack of year-round water flow and/or surface water (Cowardin et al. 1979). These systems are typically smaller than perennial riverine systems and can have a variety of bottom substrates. The majority of riverine habitat that was mapped in the project study area is classified as R4SB. Though many of these habitats lacked surface water during field investigations, they often provided evidence of connectivity and drainage between larger wetland habitats. A total of 4.08 acres of R4SB habitat were mapped during surveys for this report. Figure 4-7 shows a typical R4SB habitat found within the project survey area.



Figure 4-7. Riverine Intermittent
Streambed



5 FUNCTIONAL ASSESSMENTS

5.1 Methodology

Wetland functions and values were assessed qualitatively based on field observations and the professional judgment of the survey teams. The definitions and evaluations of wetland functions and values are consistent with NPS Procedural Manual #77-1: Wetland Protection (2008). Wetland function and value parameters were adapted from the following sources: Riparian Area Management (BLM 2003), The Highway Methodology Workbook Supplement- Wetland Functions and Values (USACE 1999), and California Rapid Assessment Method for Wetlands 5.0.2 (Collins et al. 2008). Assessments of functions and values were completed for discrete wetland sites that typically included a combination of wetlands and other waters as identified by Yosemite National Park staff along the road rehabilitation corridor. Functional assessments encompassed all wetland and deepwater habitat types as defined by Cowardin et al. (1979) within each site. Functional assessments were completed for 22 of the larger (>0.10 acre), more significant wetland sites that may be affected by the project.

The following functions and values were assessed for each wetland site, as shown on the completed functional assessment worksheets in Appendix G:

- Hydrologic Function was assessed based on the presence/absence of artificial water sources, degradation caused by upland erosion, alteration of surface or subsurface flow patterns, and any other natural or unnatural disturbance potentially affecting the hydrologic regime of the wetland site;
- **Biotic Function** was assessed in terms of vegetative structure, plant species diversity, percent cover of native species, horizontal interspersion of vegetation, and age-class distribution of wetland vegetation;
- **Sediment/Shoreline Stabilization Function** was assessed based on the levels of erosion, deposition, and/or siltation occurring within the wetland site;
- **Biological Value** was assessed in terms of the structural patch richness and topographic complexity of the wetland site. Patch richness and topographic complexity are indicators of physical surface features and their spatial arrangement. The presence of these features provides habitat for aquatic, wetland, and riparian species. Twenty-one patch types were surveyed for within each wetland site. Definitions and explanations of these patch types are included in Appendix G. Within wetland sites, positive indicators for at least 10 patch types was deemed to be indicative of high biological value; 5 to 9 indicators, of moderate biological value; and less than 5 indicators, of low biological value;
- Recreational Value was assessed based on the suitability of the wetland and associated deepwater habitats to provide recreational opportunities such as hiking, wildlife-viewing, canoeing, fishing, and other recreational activities;
- **Educational Value** was assessed in terms of the suitability of the wetland as a potential educational site or as a location for scientific study or research;

• **Uniqueness Value** was assessed in terms of the effectiveness of the wetland site to provide certain special values. These include overall health and appearance, archaeological and/or cultural sites, and relative importance in the geographic location.

Other field observations included notation of the dominant (> 0.10 acres) wetland/other water systems present, other aquatic habitats associated with wetland types, presence or absence of a contiguous undeveloped buffer zone around wetland sites, and all non-native plant species occurring within wetland sites.

5.2 Results

Table 5-1 presents a summarized version of the functional assessments that were performed for specific wetland sites within the Tioga Road project area. The qualitative analysis of function and value presented in Table 5-1 is provided as a means for summarizing and comparing field assessments that were done at each site. The functional assessment data forms that were used for field investigations are presented in Appendix G.

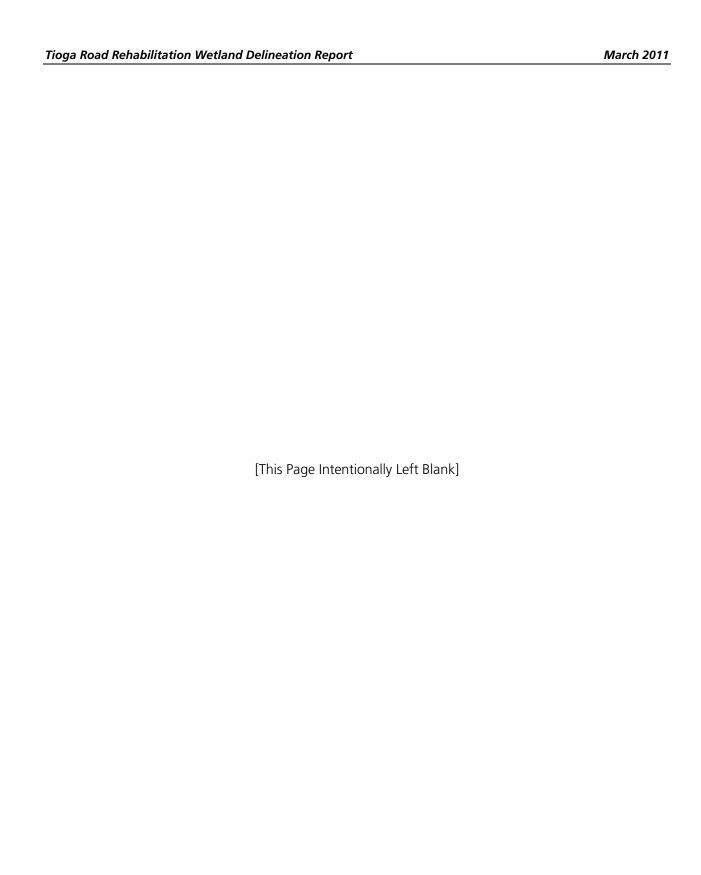
Table 5-1. Summary of Wetland Functions and Values

	Functional Value			Biological	Recreational/Educational/
Wetland	Hydrologic	Biotic	Stabilization	Value	Uniqueness Value
Wet1	high	high	high	moderate	high
Wet2	high	high	low	high	high
Wet3	high	high	high	low	high
Wet10	high	high	high	low	moderate
Wet11	high	high	high	moderate	high
Wet14	high	high	high	low	low
Wet15	high	high	high	high	high
Wet16	moderate	high	low	moderate	high
Wet21,22	high	high	high	moderate	moderate
Wet25	high	high	high	moderate	high
Wet26	moderate	high	high	low	low
Wet28	moderate	high	high	low	moderate
Wet29	high	high	high	low	low
Wet31	moderate	high	high	high	high
Wet32	moderate	high	high	moderate	low
Wet33	moderate	high	high	low	low
Wet34	high	high	high	moderate	high
Wet37	moderate	high	high	high	low
Wet39	high	high	high	low	low
Wet41	moderate	high	high	high	moderate
Wet42	moderate	high	high	moderate	low
Wet43	high	high	high	moderate	high

Overall, the functions and values of wetland habitats along the Tioga Road Rehabilitation Project corridor are rather high. Though many wetlands scored moderate hydrologic function, this was primarily due to the fact that most of these wetlands occur along the road margin and have surface or subsurface flow patterns that are altered by culverts. Biotic functional value was scored high at every wetland site, as there was evidence of high plant species diversity, age-class distribution of vegetation, and low incidence of nonnative vegetation (Wet26 was the only wetland with evidence of nonnative vegetation – a small amount of bull thistle along the roadside margins of the wetland). In terms of shoreline and/or substrate stabilization, the majority of wetland sites appear to have low erosion, and sedimentation does not seem excessive. Wet2 showed signs of heavy erosion in areas adjacent to the roadside parking area (pullout), and high amounts of bare soil that appears to be a result of heavy deposition from the culvert under Tioga Road. Wet16 occurs in a heavily trafficked area adjacent to the Tuolumne Meadows campground, and walking trails have created bare patches of soil in the wetland that appear to be increasing the levels of erosion into the main river.

Biological value was scored as described in Section 5.1. Because of the variability in habitat and structure across wetland sites, the qualification of biological value is difficult to assess. For the purpose of this report, a wetland site typically scored a high biological value if the site contained multiple wetland and/or other aquatic habitat types. Because biological value was assessed in terms of structural patch richness, a high score simply meant that the site contained high structural diversity, and thus, provided greater opportunity for biological diversity.

Recreational, educational, and uniqueness values were assessed entirely based on judgments of the onsite survey teams. Recreational and educational values were strongly associated with the accessibility of wetland sites for nonconsumptive use. Many of the wetland sites are located in areas of high tourist interest and use, and thus, are easily accessed from Tioga Road. Uniqueness value was scored primarily on a wetland site's overall appearance and relative importance in geographic location. For example, areas that contained mosaics of habitats and/or contained habitats that were unique to a certain location were deemed as having high uniqueness value.



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Re	vironmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical eport Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS. NTIS No. AD 176 912.

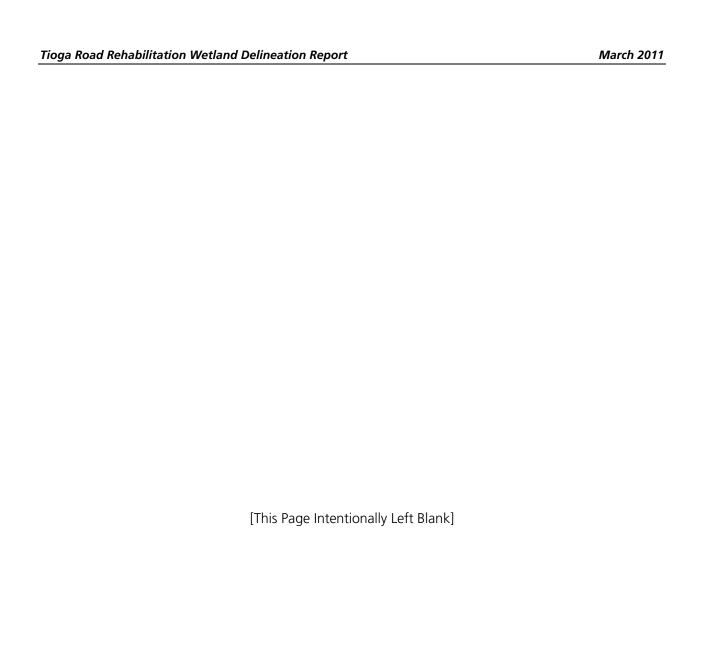
APPENDICES

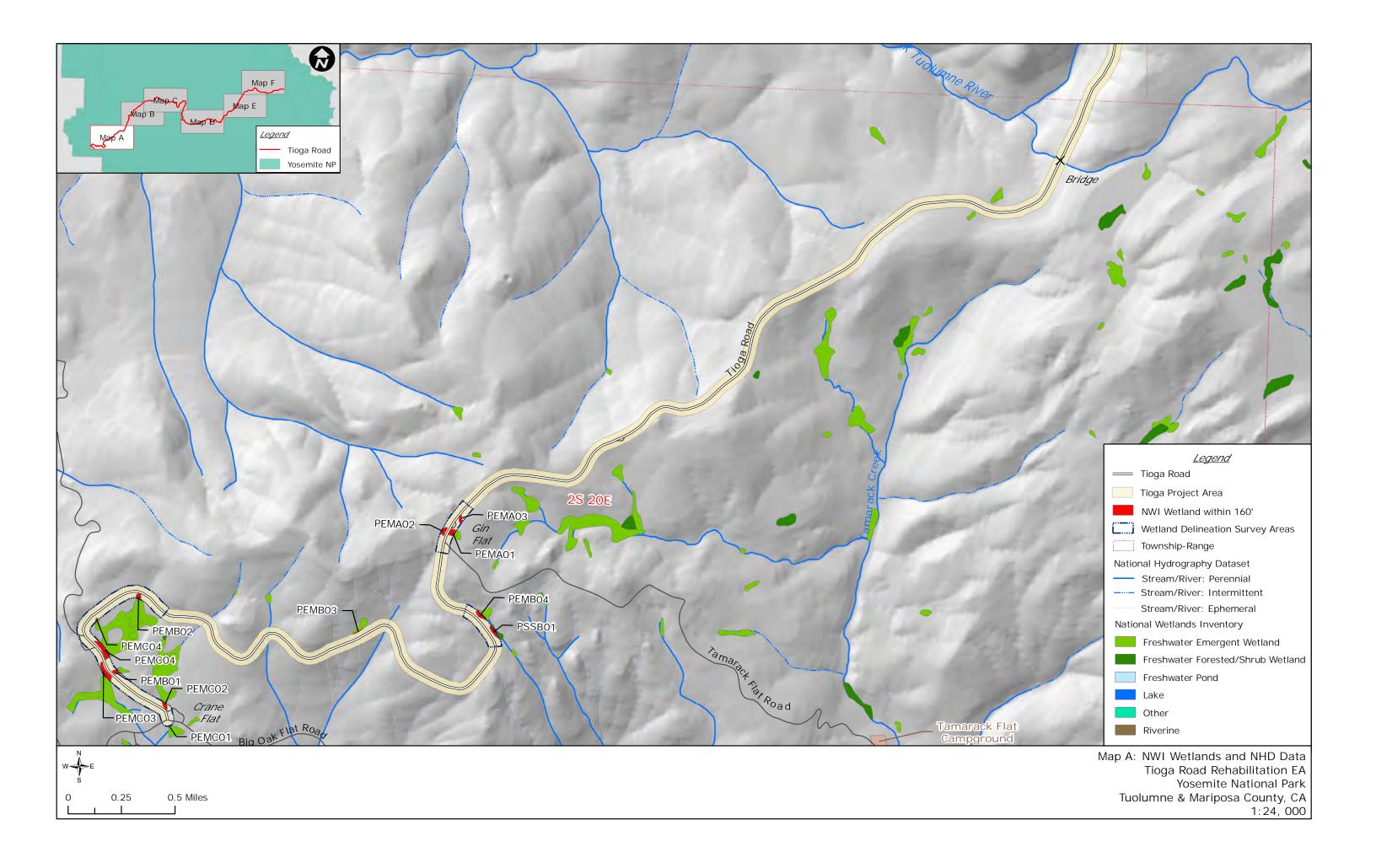


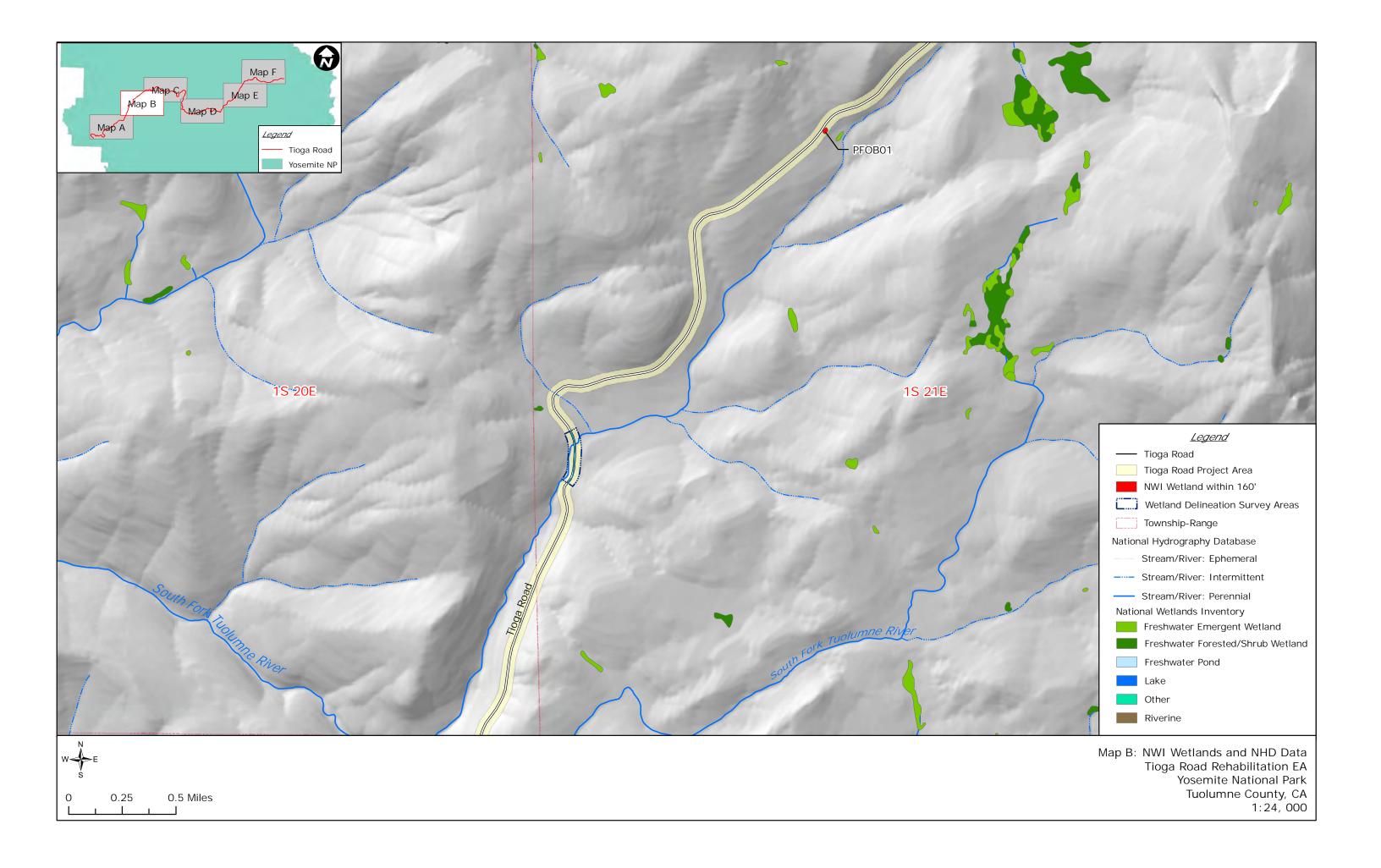
- A. NHD and NWI Mapped Waters in the Project Study Area
- B. Soils of the Project Study Area
- C. Plants Identified During Field Investigations
- D. Vegetation of the Project Study Area
- E. Wetland Delineation Determination Forms
- F. Photograph Log
- G. Functional Assessment Worksheets

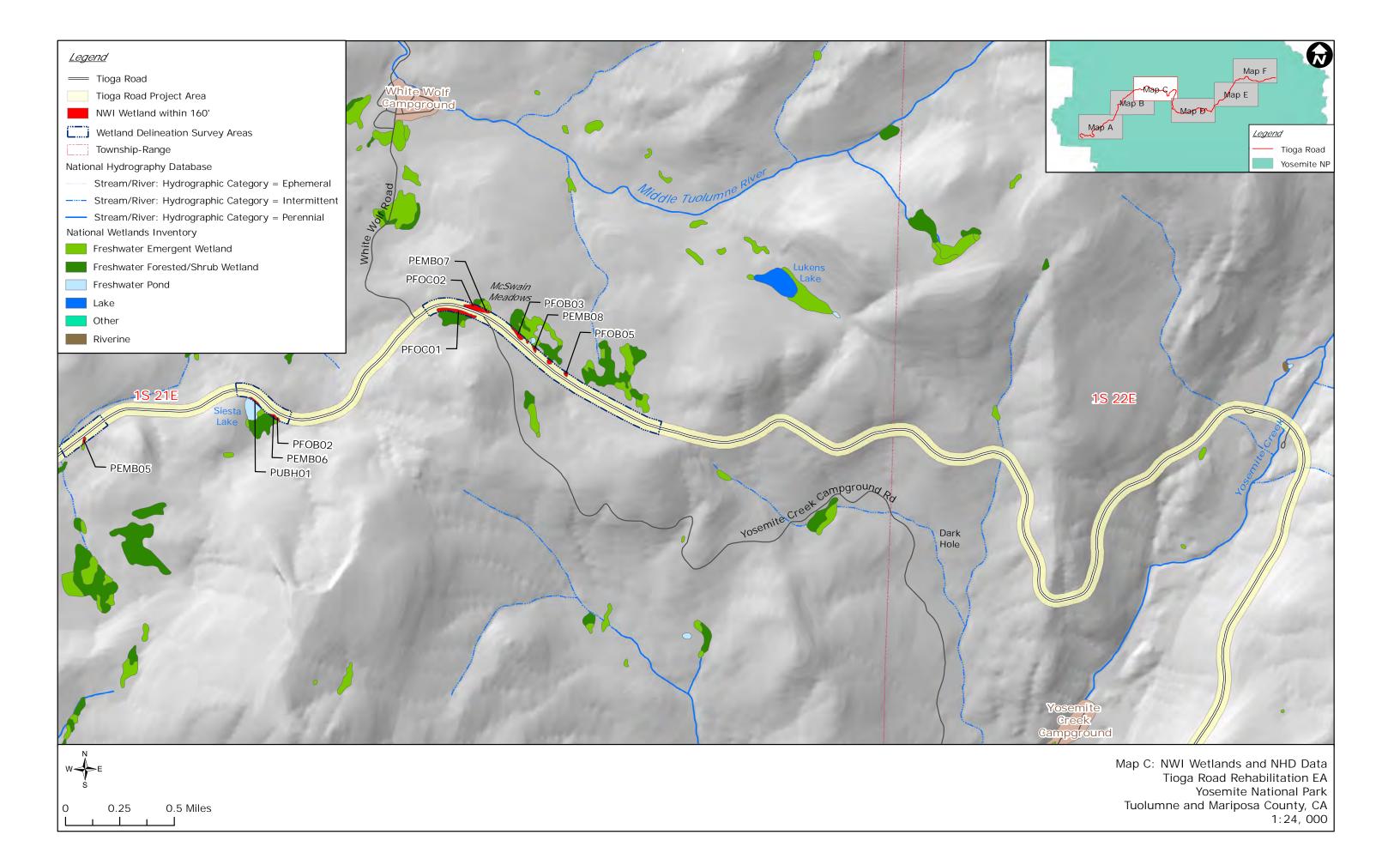


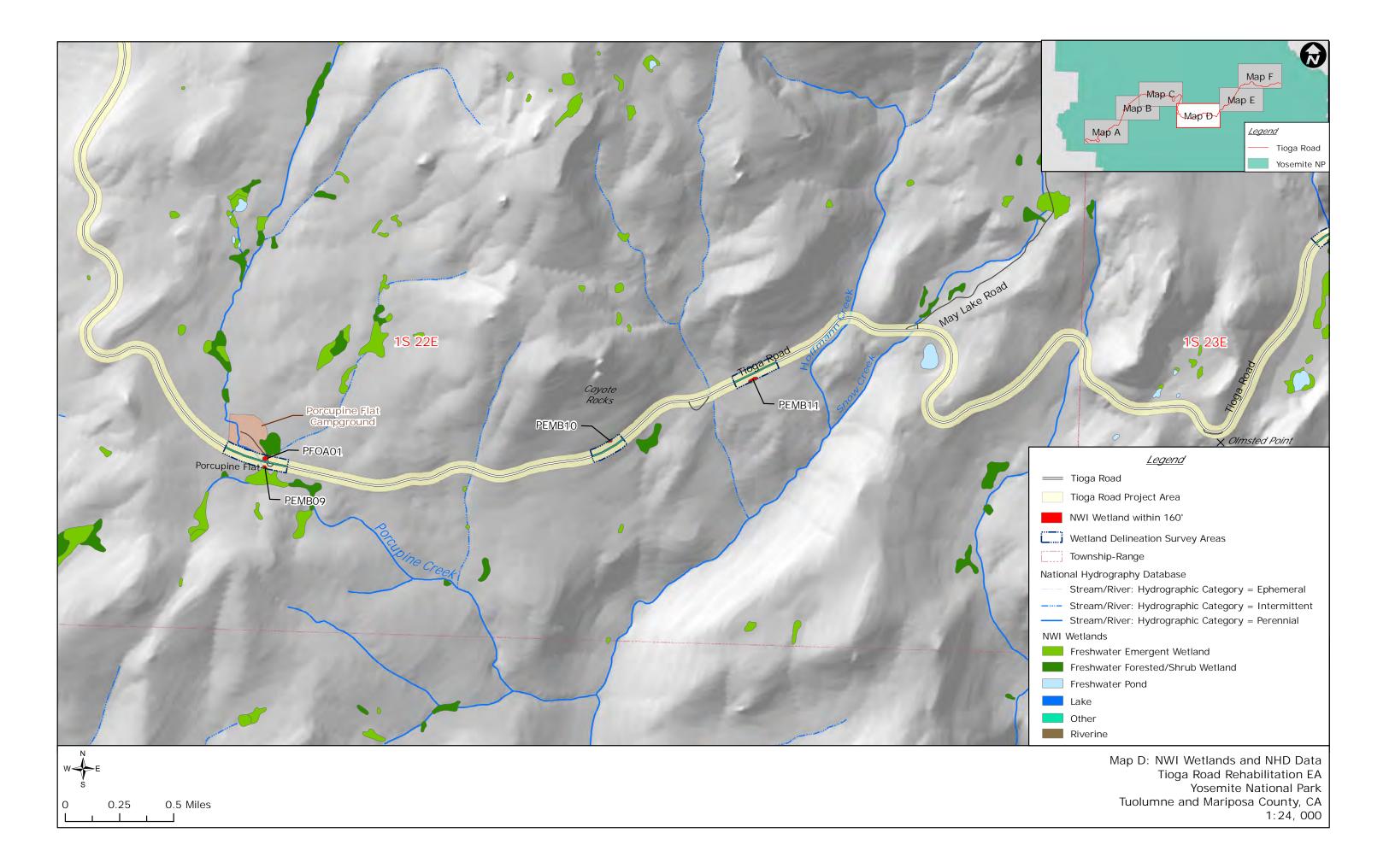
APPENDIX A NHD AND NWI MAPPED WATERS IN THE PROJECT STUDY AREA



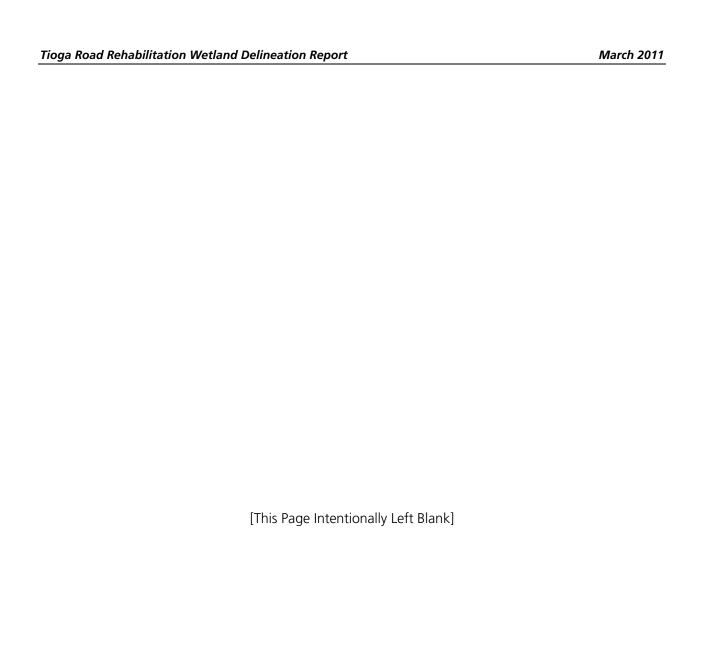


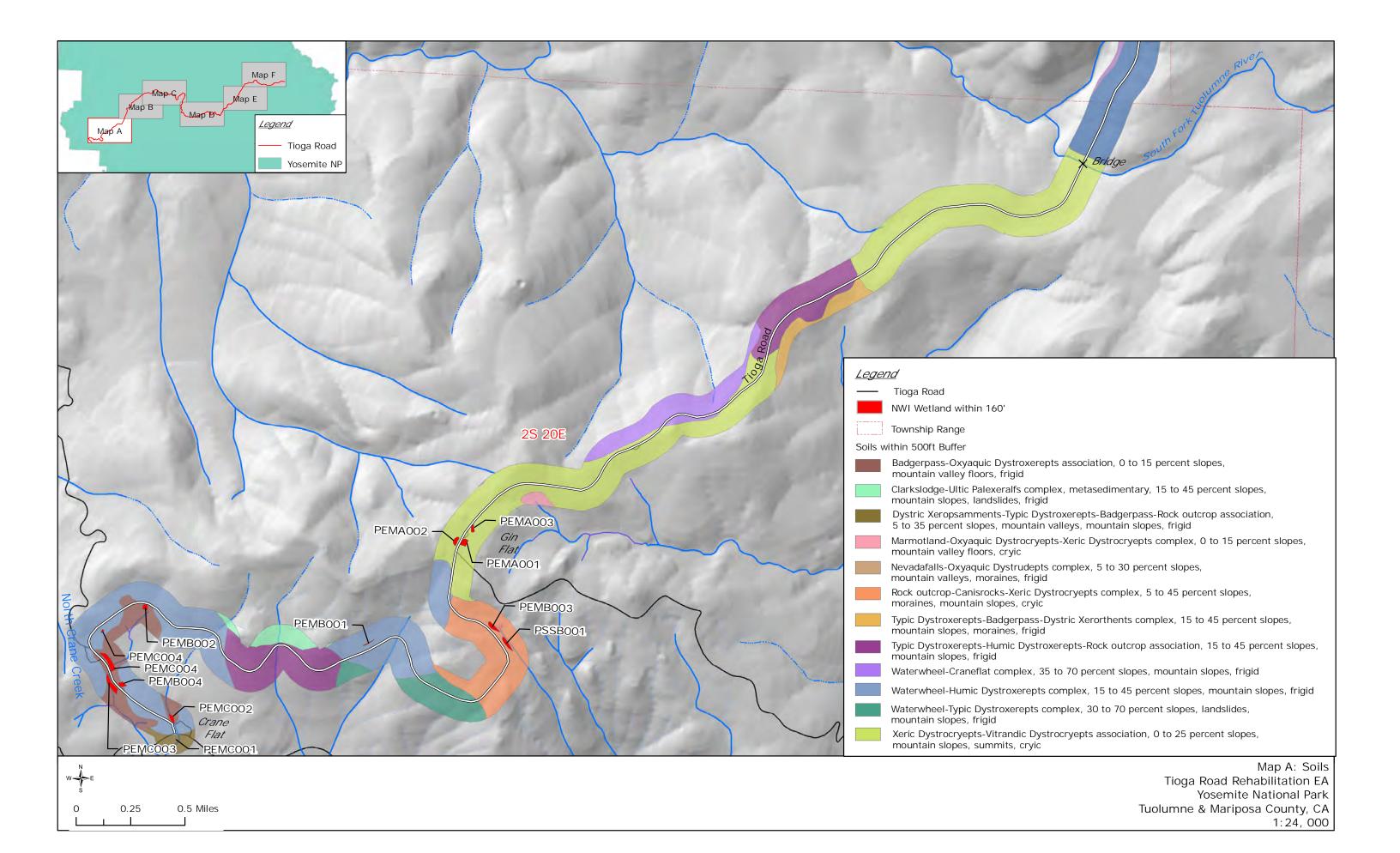


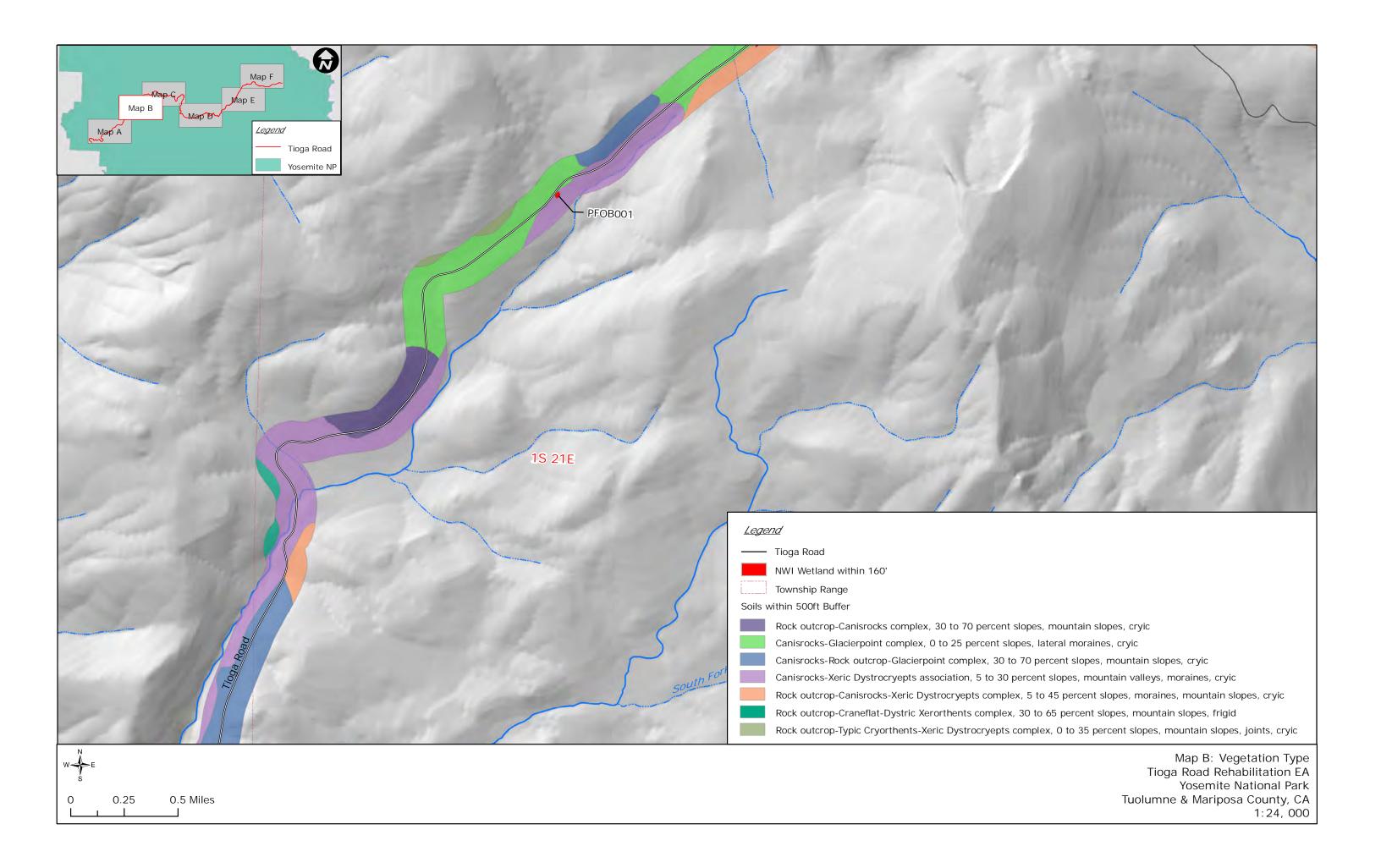


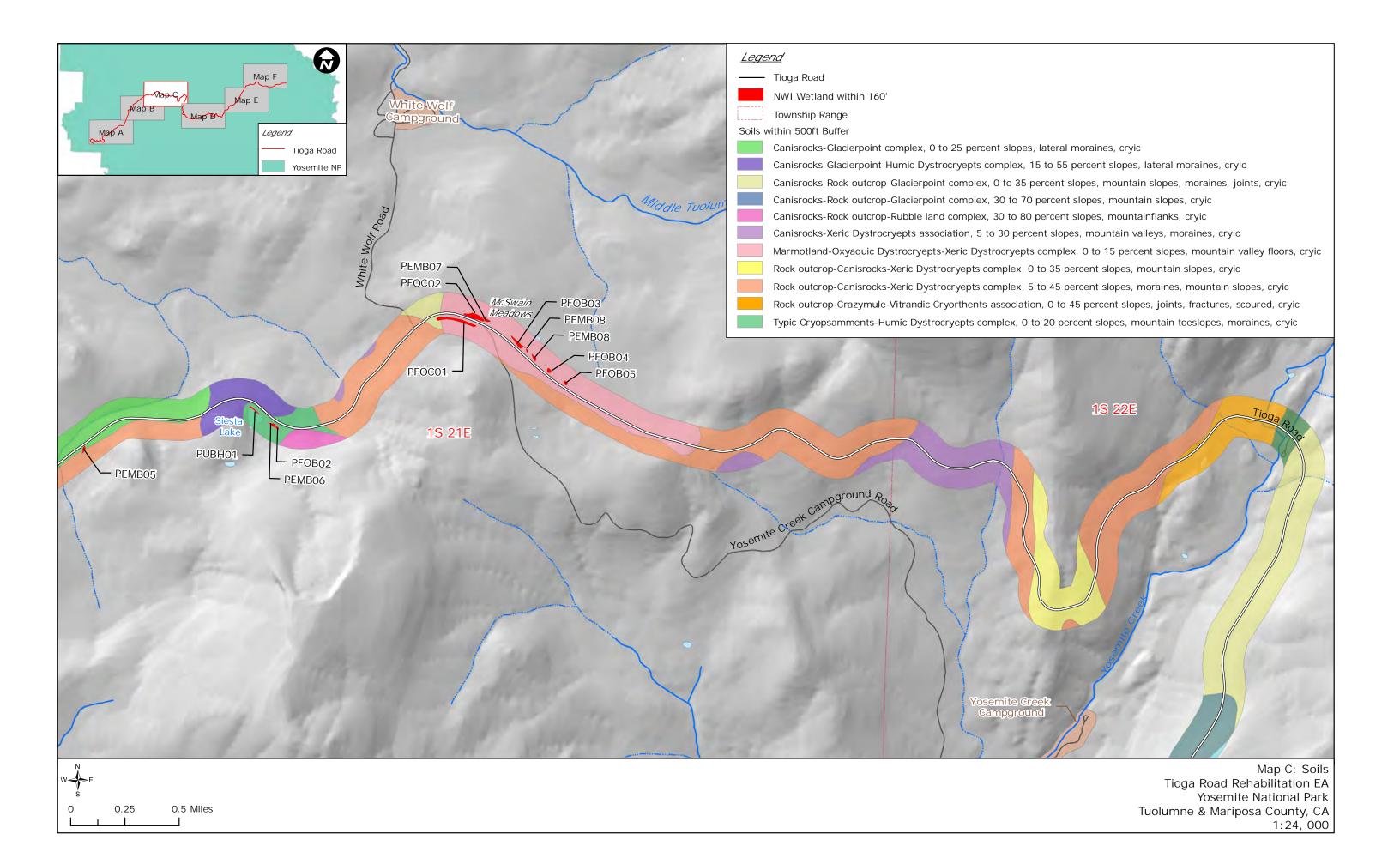


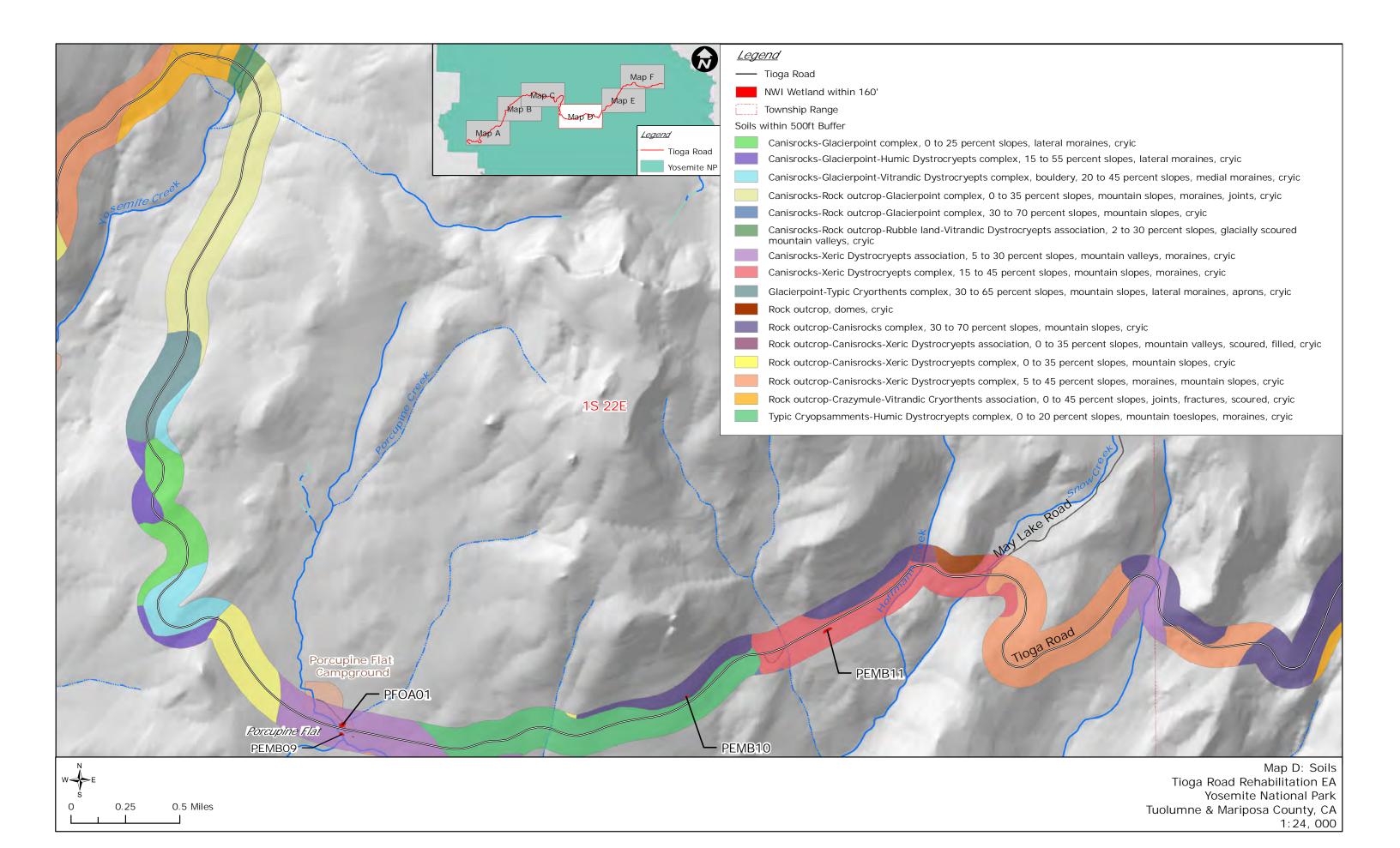
APPENDIX B SOILS OF THE PROJECT STUDY AREA

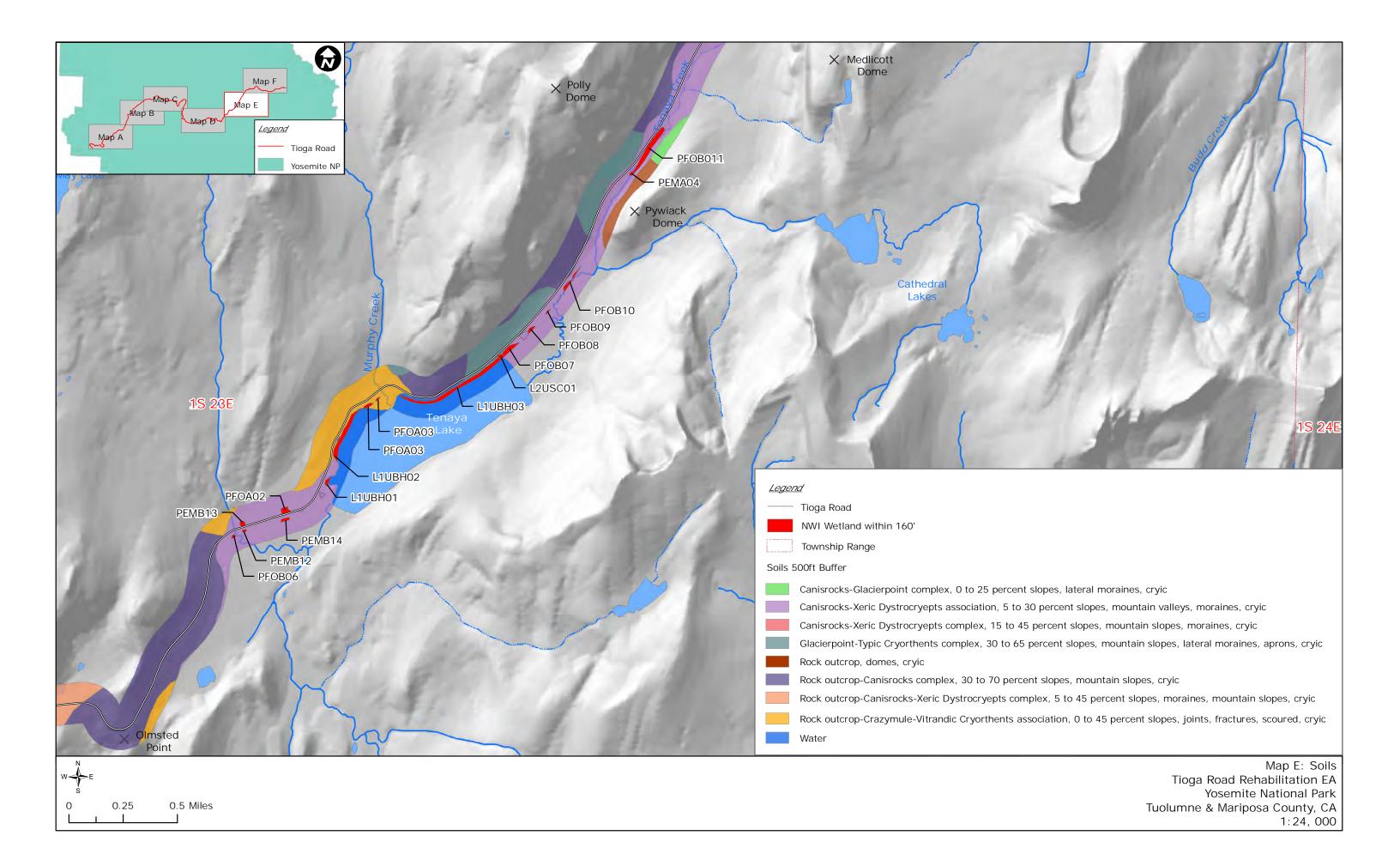


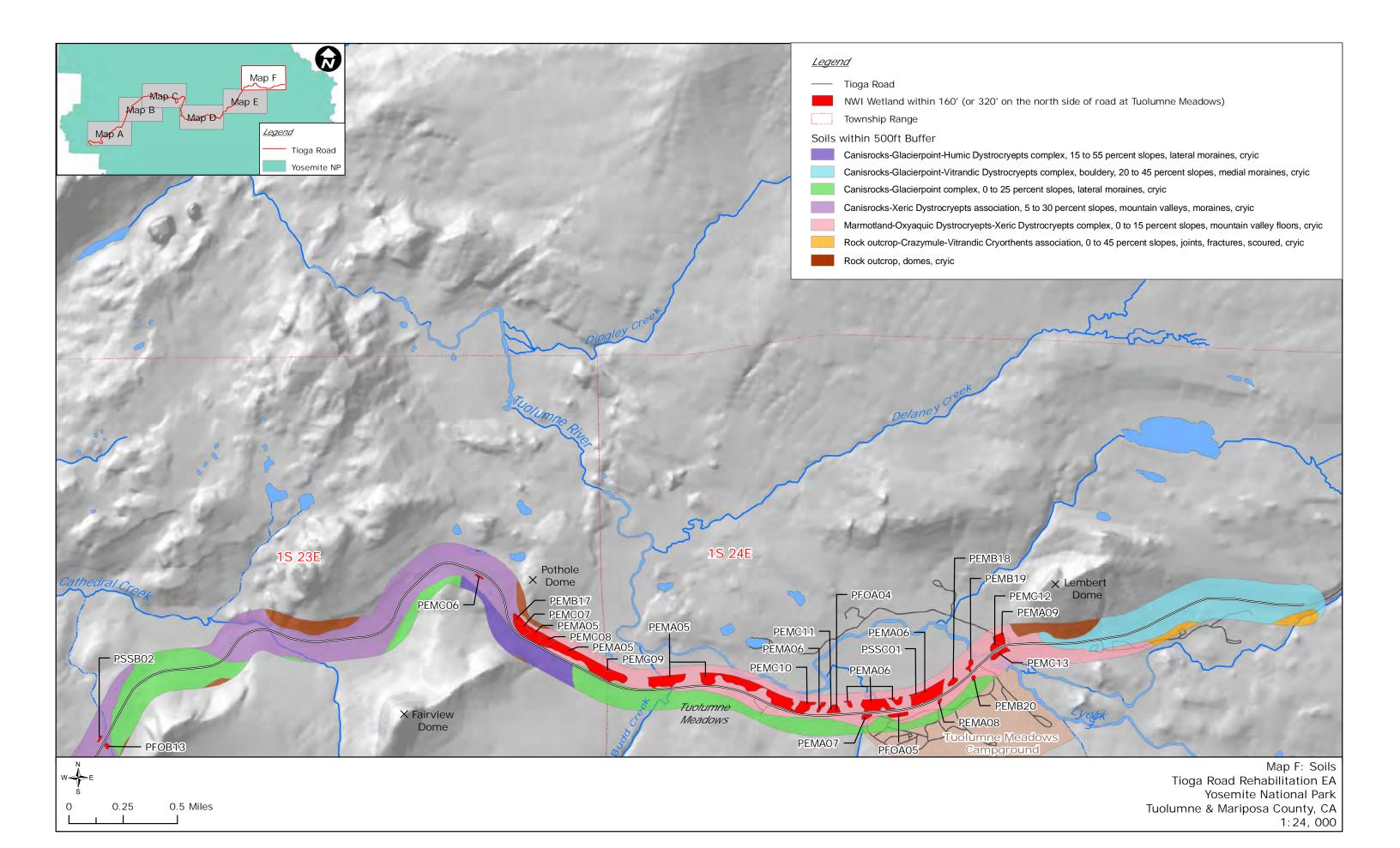




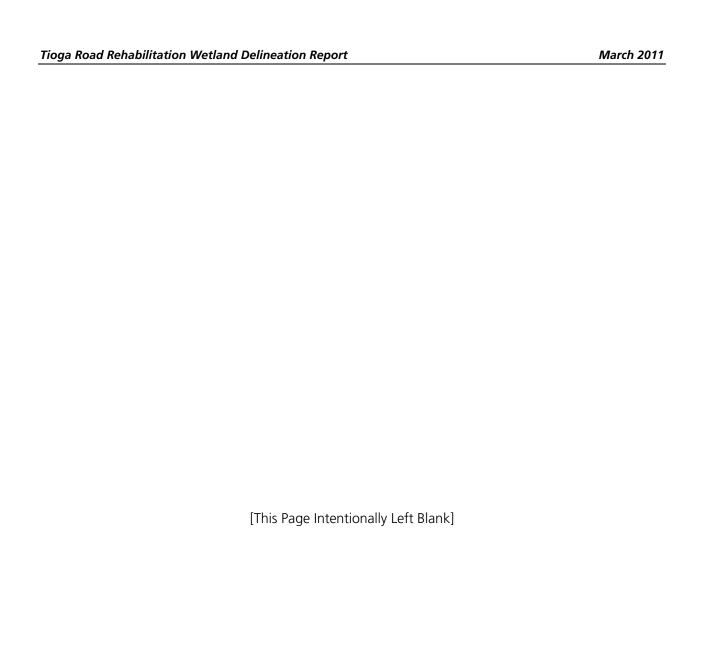








APPENDIX C PLANTS IDENTIFIED DURING FIELD INVESTIGATIONS



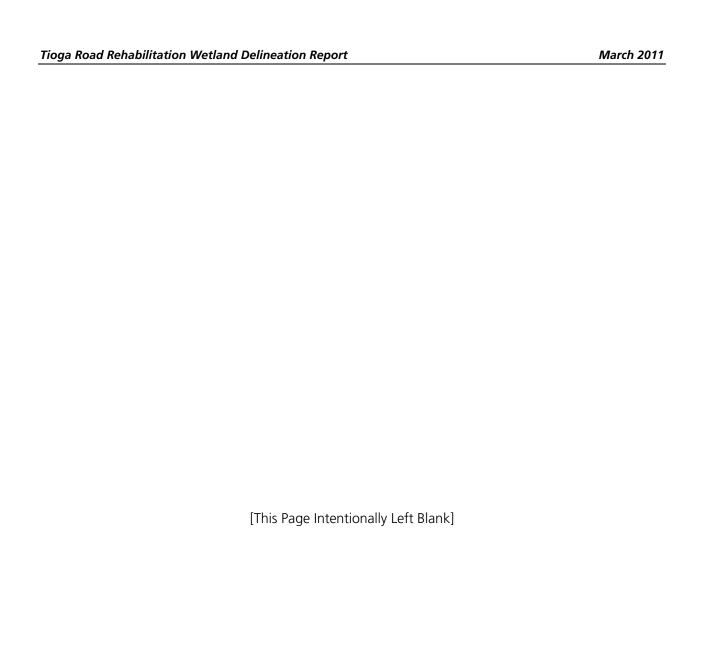
Plant Species Identified During Field Investigations

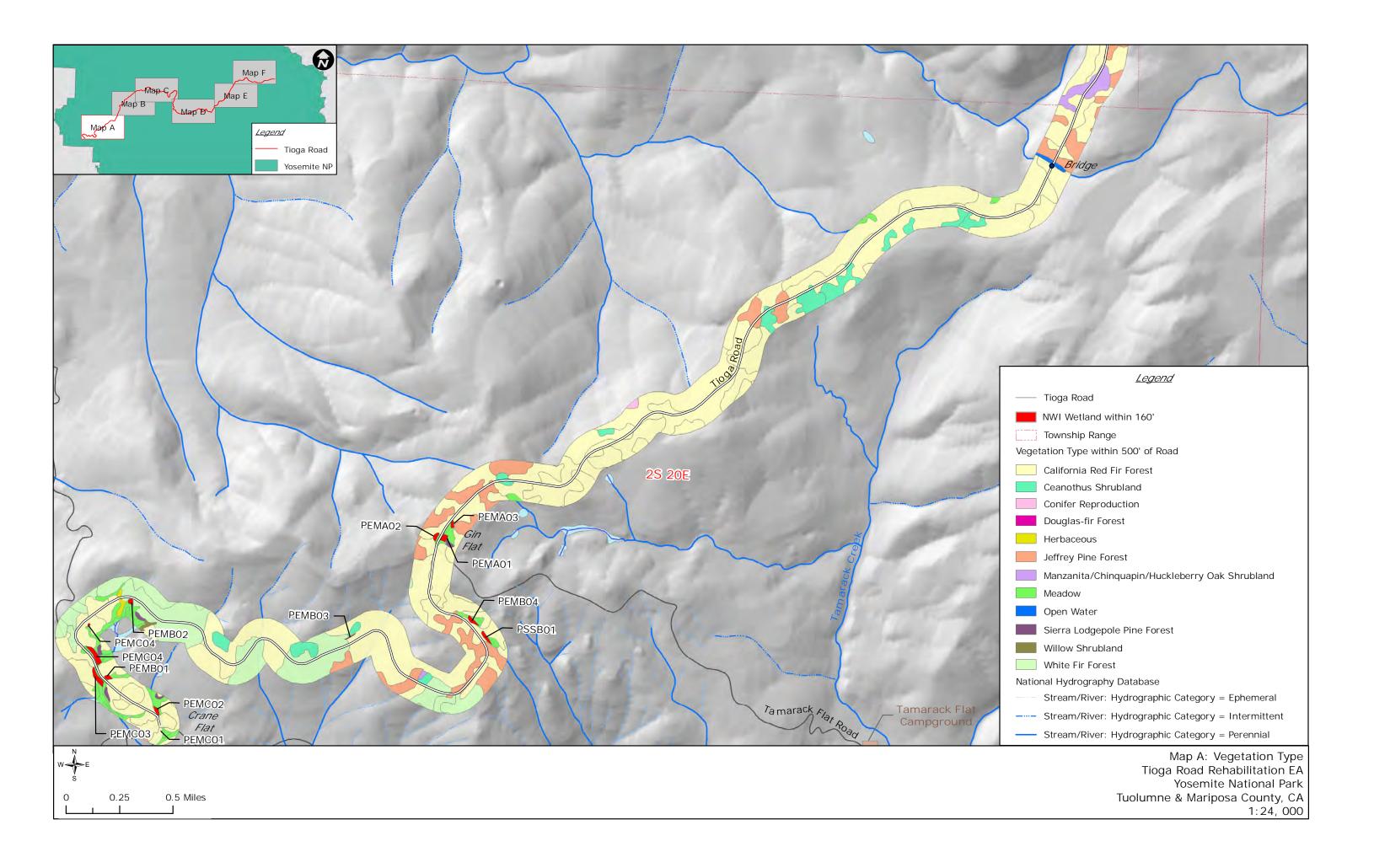
Scientific Name	Common Name	Wetland Indicator Status (Region 0) (Reed 1988)	
Abies concolor	White fir	UPL (not listed)	
Abies magnifica	Red fir	FACU	
Achillea millefolium	Yarrow	FACU	
Achnatherum lemmonii	Lemmon's needlegrass	UPL (not listed)	
Achnatherum occidentale	Western needlegrass	UPL (not listed)	
Allium validum	Pacific onion	OBL	
Antennaria corymbosa	Flat-top pussytoes	FAC	
Antennaria media	Rocky Mountain pussytoes	UPL (not listed)	
Aster alpigenus	Alpine aster	OBL	
Aster occidentalis	Western mountain aster	FAC	
Bromus suksdorfii	Suksdorf's brome	UPL (not listed)	
Calamagrostis breweri	Short hair reedgrass	UPL (not listed)	
Calamagrostis canadensis	Bluejoint	FACW	
Caltha leptosepala	White marsh marigold	OBL	
Carex athrostachya	Slenderbeak sedge	FACW	
Carex echinata	Star sedge	OBL	
Carex lanuginosa	Woolly sedge	OBL	
Carex multicostata	Many-ribbed sedge	UPL (not listed)	
Carex nudata	Torrent sedge	FACW	
Carex raynoldsii	Raynold's sedge	FAC	
Carex scopulorum	Rocky Mountain sedge	FACW	
Carex subnigricans	Carpet sedge	FAC	
Carex utriculata	Bladder sedge	OBL	
Carex vesicaria	Inflated sedge	OBL	
Chrysolepis sempervirens	Bush chinquapin	UPL (not listed)	
Cirsium vulgare	Bull thistle	FACU	
Deschampsia cespitosa	Tufted hairgrass	FACW	
Dodecatheon alpinum	Alpine shootingstar	OBL	
Dodecatheon jeffreyi	Sierra shootingstar	FACW	
Elymus elymoides	Squirreltail	FACU	
Elymus trachycaulus	Slender wheatgrass	FAC	
Epilobium ciliatum	Fringed willowherb	FACW	
Erigeron peregrinus	Subalpine fleabane	FACW	
Eriophorum crinigerum	Cotton grass	FACW	
Galium aparine	Goose grass	FACU	
Galium trifidum	Threepetal bedstraw	OBL	
Gayophytum diffusum	Spreading groundsmoke	UPL (not listed)	
Gentianopsis holopetala	Sierra gentian	OBL	
Hypericum anagalloides	Tinker's penny	OBL	
Ivesia lycopodioides	Clubmoss ivesia	UPL (not listed)	
Juncus effusus	Common rush	OBL	
Juncus mexicanus	Mexican rush	FACW	
Juncus orthophyllus	Straightleaf rush	FACW	
Juncus parryi	Parry's rush	FACU	
Juniperus occidentalis	Western juniper	UPL (not listed)	
Lomatium utriculatum	Common lomatium	UPL (not listed)	
Lotus oblongifolius	Narrow-leaved lotus	OPL (HOL HISTER) OBL	

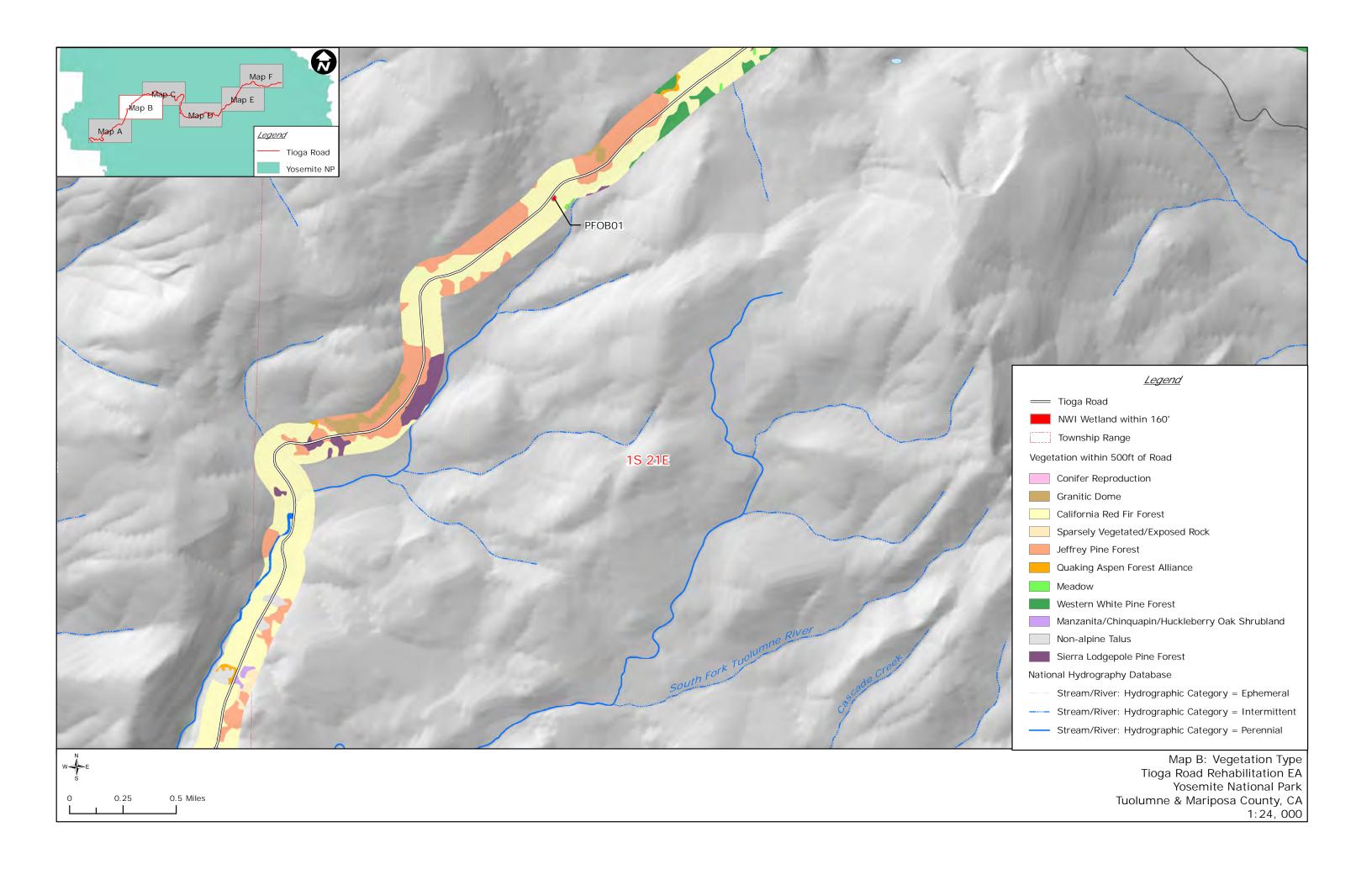
Plant Species Identified During Field Investigations

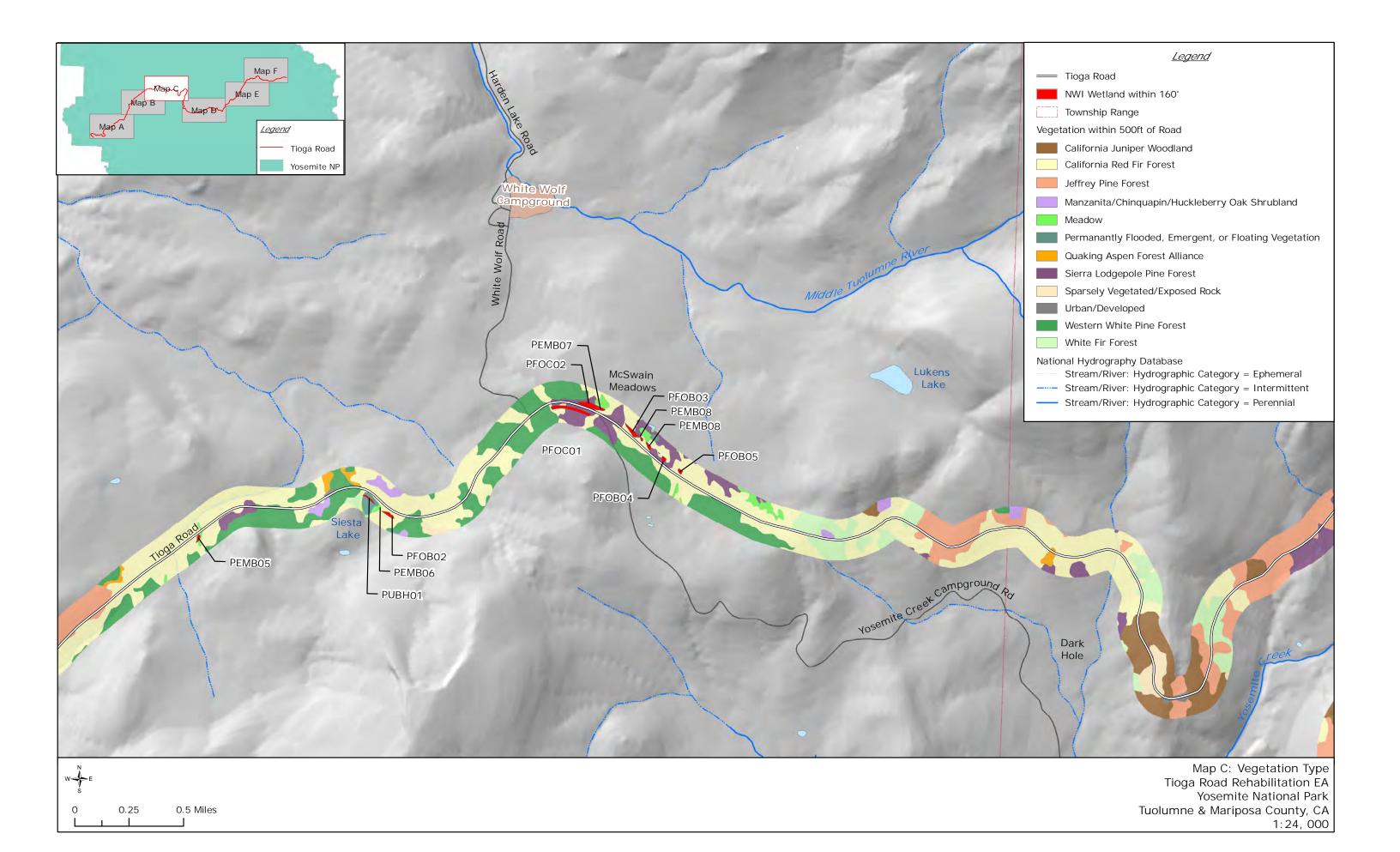
Scientific Name	Common Name	Wetland Indicator Status (Region 0) (Reed 1988)	
Lupinus polyphyllus	Large-leaved lupine	FACW	
Luzula parviflora	Smallflowered woodrush	FAC	
Mimulus primuloides	Primrose monkeyflower	OBL	
Muhlenbergia filiformis	Pullup muhly	FACW	
Osmorhiza occidentalis	Western sweetroot	UPL (not listed)	
Pedicularis attollens	Little elephant's head	FACW	
Penstemon rydbergii	Rydberg's penstemon	FAC	
Perideridia lemmonii	Lemmon's yampah	UPL (not listed)	
Perideridia parishii	Parish's yampah	FACW	
Phalacroseris bolanderi	Bolander's mock dandelion	OBL	
Pinus contorta	Lodgepole pine	FAC	
Pinus jeffreyi	Jeffrey's pine	UPL (not listed)	
Pinus lambertiana	Sugar pine	UPL (not listed)	
Pinus monticola	Western white pine	FACU	
Platanthera leucostachys	Sierra bog orchid	FACW	
Poa pratensis	Kentucky bluegrass	FACU	
Polygonum bistortoides	American bistort	OBL	
Polygonum polygaloides	Milkwort knotweed	FACW	
Populus spp.	Cottonwood species	N/A	
Potentilla gracilis	Slender cinquefoil	FACW	
Pseudotsuga menziesii	Douglas-fir	UPL	
Pteridium aquilinum	Bracken fern	FACU	
Pyrrocoma apargioides	Alpineflames	UPL	
Ranunculus alismifolius	Plantainleaf buttercup	FACW	
Ribes inerme	White-stemmed gooseberry	FAC	
Ribes roezlii	Sierra gooseberry	UPL (not listed)	
Rosa woodsii	Wild rose	FAC	
Rubus parviflorus	Thimbleberry	FAC	
Rumex crispus	Curly dock	FACW	
Salix orestera	Sierra willow	FACW	
Salix spp.	Willow species	≥ FACW	
Scirpus clementis	Yosemite bulrush	FAC	
Senecio scorzonella	Sierra ragwort	UPL (not listed)	
Senecio triangularis	Arrowleaf ragwort	OBL	
Sidalcea reptans	Creeping sidalcea	OBL	
Solidago canadensis	Canada goldenrod	FACU	
Trifolium monanthum	Carpet clover	FACW	
Trifolium wormskioldii	Sierra clover	FACW	
Tsuga mertensiana	Mountain hemlock	FACU	
Vaccinium caespitosum	Dwarf bilberry	FACW	
Vaccinium uliginosum	Bog bilberry	FACW	
Veratrum californicum	California corn lily	OBL	

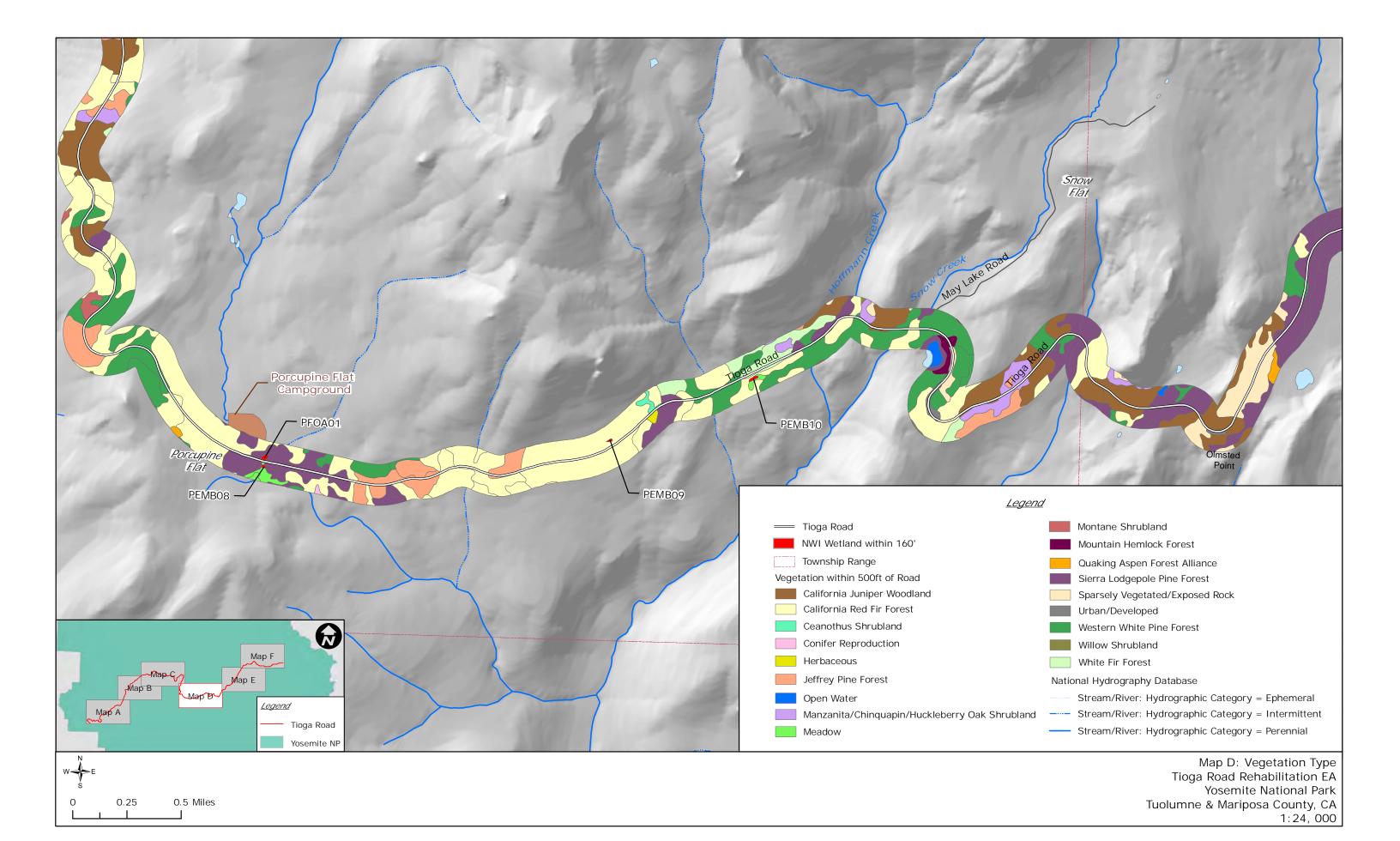
APPENDIX D
VEGETATION OF THE PROJECT STUDY AREA

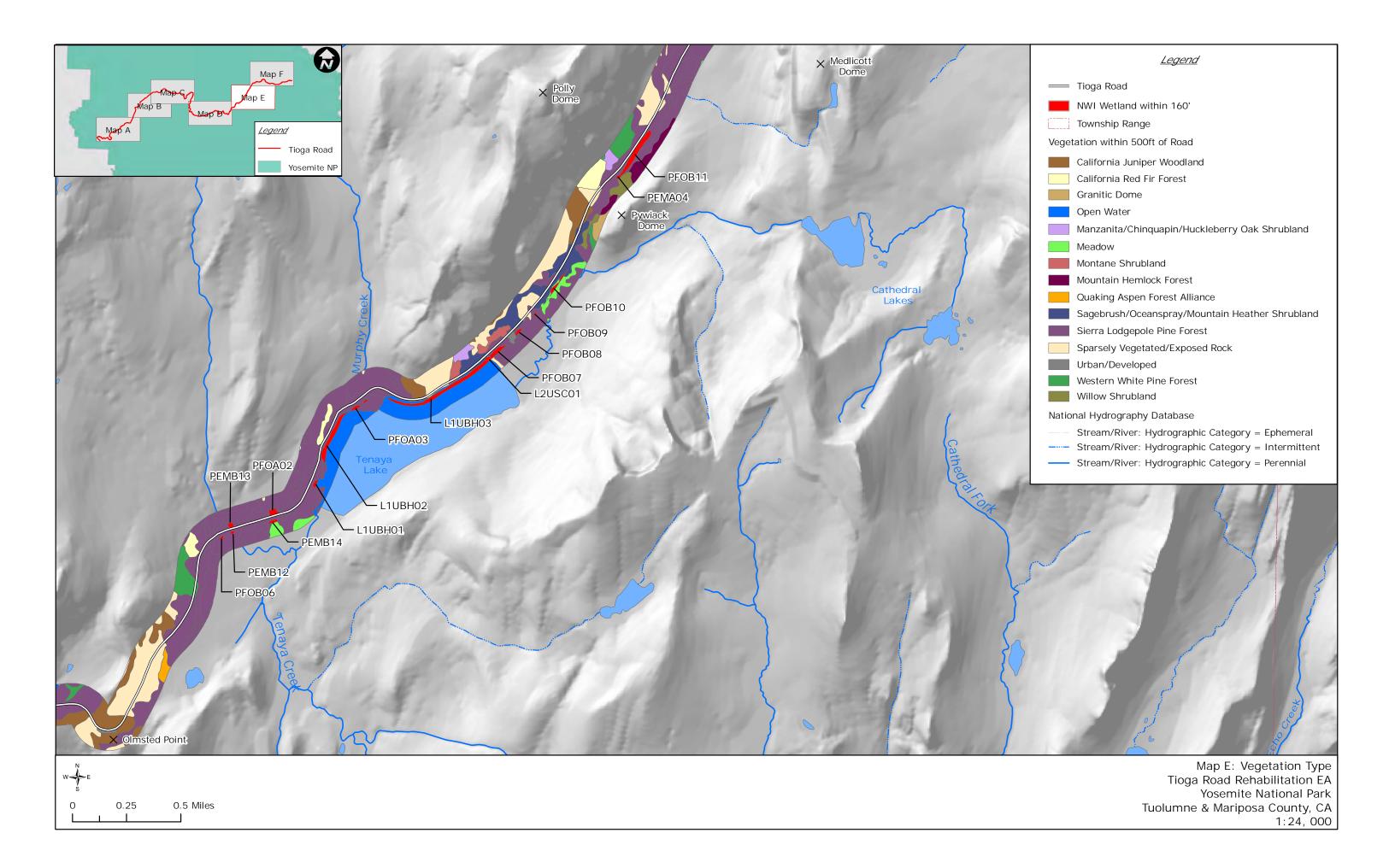


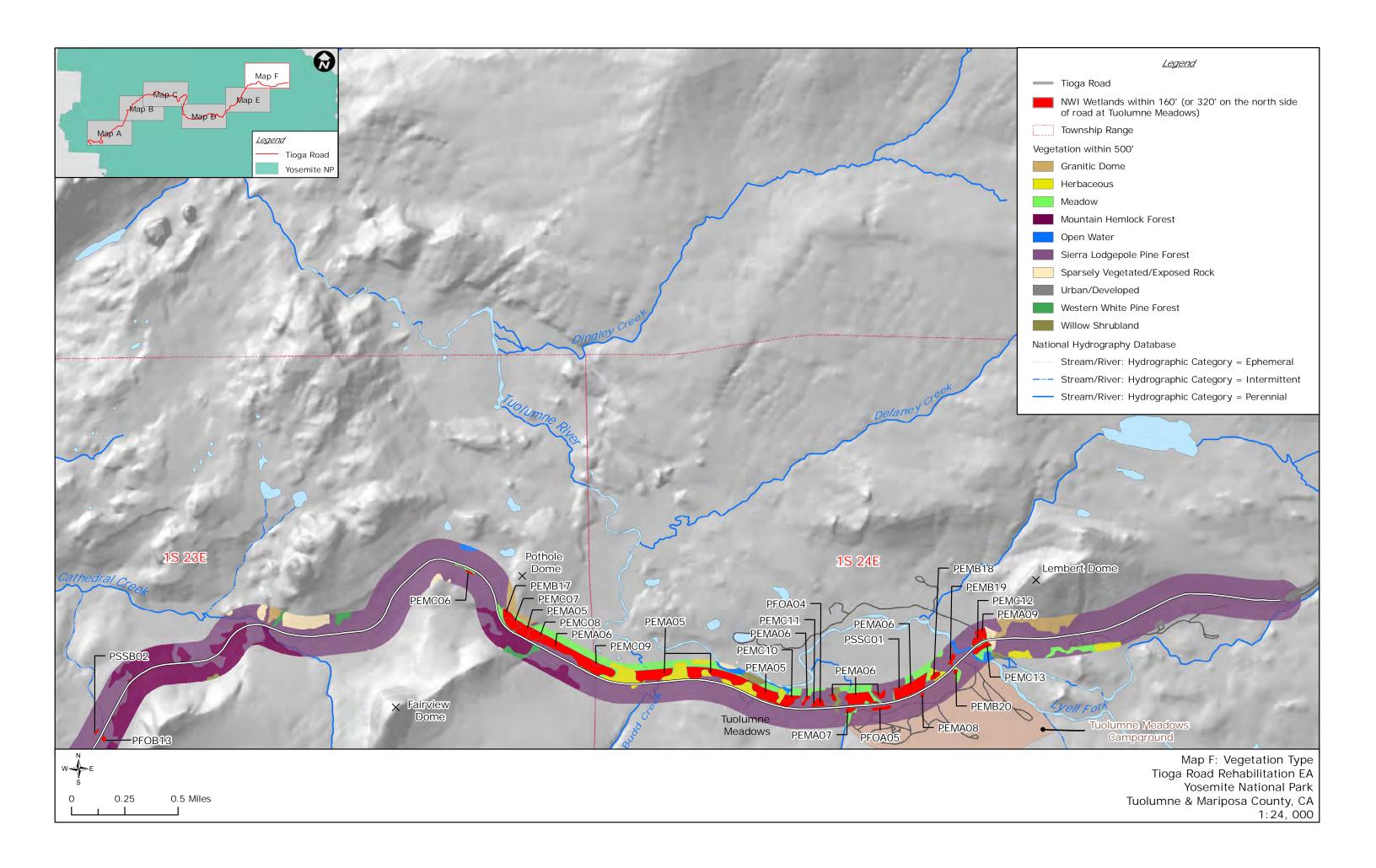






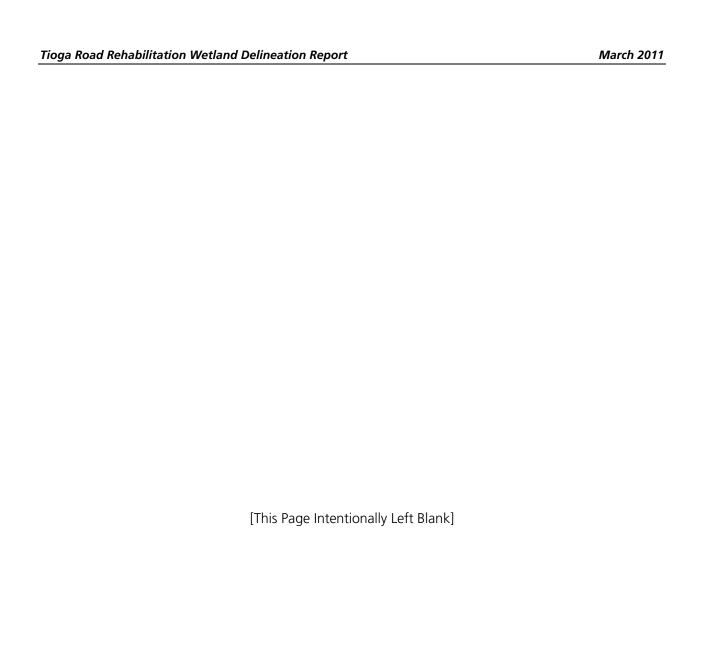






APPENDIX E

WETLAND DELINEATION DETERMINATION FORMS



Project/Site: Yosemite National Park - Tuolumne Meadows		City/County	Tuolumne	County	Sampling Date: 8/24/10
Applicant/Owner: National Park Service				State: CA	
Clauses Dungen Cahausenan		Section, To	wnship, Ra	nge:	
Landform (hillslope, terrace, etc.): terrace		Local relief	f (concave,	convex, none): none	Slope (%): 2
Subregion (LRR): MLRA 22A	_ Lat: 37 5	52 37.32 N		Long: 119 23 32.43 W	Datum: NAD83
Soil Map Unit Name: Marmotland-Oxyaquic Dystrocryepts-Xeric Dystrocrye					
Are climatic / hydrologic conditions on the site typical for this	s time of ye	ar? Yes X	No_	(If no, explain in R	Remarks.)
Are Vegetation N , Soil N , or Hydrology N s	ignificantly	disturbed?	Are "	'Normal Circumstances"	present? Yes X No
Are Vegetation N Soil N or Hydrology N n	aturally pro	blematic?	(If ne	eded, explain any answe	ers in Remarks.)
SUMMARY OF FINDINGS – Attach site map	showing	samplin	g point l	ocations, transects	, important features, etc.
Hydrophytic Vegetation Present? Yes X N	o				
Hydric Soil Present? Yes N	o <u>X</u>		ne Sampled nin a Wetlar		No X
Wetland Hydrology Present? Yes N	• <u>×</u>	With	iii a vvetiai	iur res	
Remarks:					NA 4 4
Photos: MD3 west and M	/ID4 s	south	ı. Up	land pit foi	r VVet1.
VEGETATION – Use scientific names of plan	ts.				
Trac Obstance (Districts		Dominant		Dominance Test work	sheet:
Tree Stratum (Plot size:) 1.	% Cover	Species?	Status	Number of Dominant S That Are OBL, FACW,	
2.					
3.				Total Number of Domin Species Across All Stra	
4				Percent of Dominant S	necies
Sapling/Shrub Stratum (Plot size: 3 m radius		_= Total Co	ver	That Are OBL, FACW,	
1 Vaccinium caespitosum	40	Υ	FACW	Prevalence Index wor	to permitted the control of the cont
2.		·			Multiply by:
2				I .	x 1 =
4.				Account to the second s	x 2 =
5				(7)	x 3 = x 4 =
Herb Stratum (Plot size: 2 x 1m	40	= Total Co	ver		x 5 =
1. Scirpus clementis	40	Υ	FAC		(A) (B)
2. Muhlenbergia filiformis	15	Y	FACW	Prevalence Index	: = B/A =
3. Aster alpigenus	15	Υ	OBL	Hydrophytic Vegetation	
4. Calamagrostris breweri	1	N	UPL	1 - Rapid Test for	Hydrophytic Vegetation
5				2 - Dominance Tes	
6			0	3 - Prevalence Ind	
7					Adaptations ¹ (Provide supporting s or on a separate sheet)
9.				5 - Wetland Non-V	
10					phytic Vegetation¹ (Explain)
11				the second of the second in the second secon	il and wetland hydrology must
Washing Chatter (Balaise	71	= Total Co	ver	be present, unless dist	urbed or problematic.
Woody Vine Stratum (Plot size:) 1					
2.				Hydrophytic Vegetation	
		= Total Co	ver	Present? Ye	s X No
% Bare Ground in Herb Stratum 10	-				
Remarks:					
				Markey Marriage	

US Army Corps of Engineers

Depth	Matrix		oth needed to docu	ox Feature				
inches)	Color (moist)	- %	Color (moist)	<u>%</u>	Type	Loc ²	Texture	Remarks
)-3	10YR 2/1	100					SaL	Dense roots
3-20	10YR 2/2	100	-				LoSa	Less roots
20-24	10 YR 5/6	98	5 YR 3/4	2	C	M	LoSa	
				_				-
					_			
	-	_						
			I=Reduced Matrix, C			ed Sand G	rains. ² L	ocation: PL=Pore Lining, M=Matrix.
ydric Soil	Indicators: (App	licable to all	I LRRs, unless othe	rwise not	ted.)		Indica	ators for Problematic Hydric Soils ³ :
_ Histoso			Sandy Redox (_	cm Muck (A10)
	Epipedon (A2)		Stripped Matrix		1) (avaan	MIDAA	_	ed Parent Material (TF2)
100000000000000000000000000000000000000	listic (A3) en Sulfide (A4)		Loamy Mucky I Loamy Gleyed	The second second		(WLKA1)	_	ery Shallow Dark Surface (TF12) ther (Explain in Remarks)
	ed Below Dark Surf	ace (A11)	Depleted Matri		-,		_ ~	ther (Explain in Kelliaks)
_	ark Surface (A12)		Redox Dark Su)		3Indica	ators of hydrophytic vegetation and
	Mucky Mineral (S1)	(i	Depleted Dark					tland hydrology must be present,
_ Sandy	Gleyed Matrix (S4)		Redox Depress	sions (F8)	0		unl	ess disturbed or problematic.
estrictive	Layer (if present)							
Туре:								
Depth (ir	nches):						Hydric Se	oll Present? Yes No X
Depth (ir emarks:							Hydric Se	oll Present? Yes No X
Depth (ir emarks:		s;	_				Hydric So	oli Present? Yes No X_
Depth (ir	DGY ydrology Indicator		ed; check all that app	ly)				oll Present? Yes No X
Depth (in permarks:	DGY ydrology Indicator		ed; check all that app		ves (B9) (e	xcept	Sec	
Depth (ir emarks: /DROLO /etland Hy rimary India Surface	OGY ydrology Indicator icators (minimum o		Water-Sta			xcept	Sec	condary Indicators (2 or more required)
Depth (ir emarks: /DROLO /etland Hy rimary India Surface	OGY ydrology Indicator icators (minimum o e Water (A1) later Table (A2)		Water-Sta	ined Leav 1, 2, 4A,		xcept	Sec	condary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1,
Depth (ir lemarks: /DROLC /etland Hy rimary Indi Surface High W Saturat Water I	OGY ydrology Indicator icators (minimum o e Water (A1) fater Table (A2) ion (A3) Marks (B1)		Water-Sta MLRA Salt Crust Aquatic In	nined Leav 1, 2, 4A, (B11) (vertebrate	and 4B)	xcept	Sec	condary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2)
Depth (ir lemarks: /DROLC /etland Hy rimary Indi Surface High W Saturat Water P Sedime	ody vdrology Indicator icators (minimum of water (A1) (ater Table (A2) ion (A3) (Marks (B1) ent Deposits (B2)		Water-Sta MLRA Salt Crust Aquatic In Hydrogen	nined Leav 1, 2, 4A, (B11) overtebrate Sulfide O	and 4B) es (B13) dor (C1)		Sec	condary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (
Depth (internal control of the contr	ogy ydrology Indicator icators (minimum o be Water (A1) later Table (A2) ion (A3) Marks (B1) ent Deposits (B2) eposits (B3)		Water-Sta	nined Leav 1, 2, 4A, (B11) evertebrate Sulfide O Rhizosphe	and 4B) es (B13) dor (C1) eres along	Living Roo	Sec	condary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2)
Depth (in emarks: /DROLC /etland Hyrimary Indi _ Surface _ High W _ Saturat _ Water I _ Sedime _ Drift De _ Algal M	or Crust (B4) Jord of Court (B4)		Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized I Presence	nined Leave 1, 2, 4A, 1 (B11) avertebrate Sulfide O Rhizosphe of Reduce	and 4B) es (B13) edor (C1) eres along ed Iron (C	Living Roo 4)	Sec	condary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3)
Depth (in emarks: "DROLC detland Hyrimary Indi — Surface — High W — Saturat — Water N — Sedime — Drift De — Algal M — Iron De	ydrology Indicator icators (minimum o e Water (A1) dater Table (A2) icion (A3) Marks (B1) ent Deposits (B2) eposits (B3) lat or Crust (B4) eposits (B5)		Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized I Presence Recent Ind	ined Leave 1, 2, 4A, (B11) evertebrate Sulfide O Rhizosphe of Reduct	es (B13) dor (C1) eres along ed Iron (C- ion in Tille	Living Roo 4) d Soils (C6	Sec	condary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5)
Depth (in temarks: POROLC Vetland Hyrimary Indi Surface High W Saturat Water N Sedime Drift De Algal M Iron De Surface	ydrology Indicator icators (minimum o e Water (A1) (ater Table (A2) icin (A3) Marks (B1) ent Deposits (B2) eposits (B3) lat or Crust (B4) eposits (B5) e Soil Cracks (B6)	f one require	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized I Presence Recent Inc	nined Leav 1, 2, 4A, (B11) evertebrate Sulfide O Rhizosphe of Reduct or Stressed	es (B13) dor (C1) eres along ed Iron (Ci ion in Tille	Living Roo 4)	Sec — — — — — — — — — — — — — — — — — — —	condary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Depth (in emarks: "DROLC Vetland Hyrimary Indi Surface High W Saturat Water N Sedime Drift De Algal M Iron De Surface Inundat	ydrology Indicator icators (minimum o e Water (A1) /der Table (A2) ion (A3) Marks (B1) ent Deposits (B2) eposits (B3) flat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Aeria	one require	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized I Presence Recent Inc Stunted or Other (Ex	nined Leav 1, 2, 4A, (B11) evertebrate Sulfide O Rhizosphe of Reduct or Stressed	es (B13) dor (C1) eres along ed Iron (Ci ion in Tille	Living Roo 4) d Soils (C6	Sec — — — — — — — — — — — — — — — — — — —	condary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5)
Depth (in emarks: //DROLC/ //etland Hyrimary Indi Surface High W Saturat Water I Sedime Drift De Algal M Iron De Surface Inundat Sparsel	pogy ydrology Indicator icators (minimum o water (A1) fater Table (A2) ion (A3) Marks (B1) ent Deposits (B2) eposits (B3) fat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Aeria ly Vegetated Conca	one require	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized I Presence Recent Inc Stunted or Other (Ex	nined Leav 1, 2, 4A, (B11) evertebrate Sulfide O Rhizosphe of Reduct or Stressed	es (B13) dor (C1) eres along ed Iron (Ci ion in Tille	Living Roo 4) d Soils (C6	Sec — — — — — — — — — — — — — — — — — — —	condary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Depth (in emarks: "DROLC Vetland Hyrimary Indi Surface High W Saturat Water N Sedime Drift De Algal M Iron De Surface Inundat Sparsel	pogy ydrology Indicator icators (minimum o w Water (A1) //ater Table (A2) ion (A3) Marks (B1) ent Deposits (B2) eposits (B3) lat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Aeria ly Vegetated Conca rvations:	al Imagery (E ave Surface	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized I Presence Recent Inc Stunted or Other (Ex	ained Leav 1, 2, 4A, 1 (B11) Sulfide O Rhizosphe of Reduct on Reduct r Stressed plain in Re	es (B13) dor (C1) eres along ed Iron (Ci ion in Tille	Living Roo 4) d Soils (C6	Sec — — — — — — — — — — — — — — — — — — —	condary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Depth (in temarks: "OROLC Vetland Hyrimary Indi Surface High Water N Sedime Drift De Algal M Iron De Surface Inundat Sparsel ield Obse	pogy ydrology Indicator icators (minimum o e Water (A1) //ater Table (A2) ion (A3) Marks (B1) ent Deposits (B2) eposits (B3) flat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Aeria ly Vegetated Conca rvations: ter Present?	al Imagery (E ave Surface	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized Presence Recent Inc Stunted or Other (Ex (B8) No X Depth (in Depth X Depth (in Depth X Depth (in Depth X Depth (in Depth X Depth (in Depth X Depth (in Depth Depth (in Depth Depth Depth (in Depth Depth Depth (in Depth De	ained Leavanne (1, 2, 4A, 1) (B11) avertebrate Sulfide O Rhizosphe of Reduction Reduct or Stressed plain in Reductor (1, 2) (B12) (B	es (B13) dor (C1) eres along ed Iron (Ci ion in Tille	Living Roo 4) d Soils (C6	Sec — — — — — — — — — — — — — — — — — — —	condary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Depth (in emarks: //DROLC/ //etland Hyrimary Indi Surface High W Saturat Water N Sedime Algal M Iron De Surface Inundat Sparsel ield Obse urface Wa //ater Table	pogy ydrology Indicator icators (minimum o w Water (A1) //ater Table (A2) //ion (A3) //warks (B1) //ent Deposits (B2) //eposits (B3) //later or Crust (B4) //eposits (B5) //eposits (B5) //eposits (B6) //etion Visible on Aeria //ely Vegetated Conca //rations: //enter Present? //enter Present? //enter Present?	al Imagery (E ave Surface Yes Yes	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized Presence Recent Inc Stunted or Other (Ex (B8) No X Depth (in No X Depth (in Mo No No Male MI No No Male MI No Male MI No Male Ma	ained Leavanne Leavan	es (B13) dor (C1) eres along ed Iron (Ci ion in Tille	Living Roo 4) d Soils (C6 11) (LRR A	<u>Sec</u>	Condary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Popth (in Remarks: YDROLC Yetland Hy Primary Indi Surface High W Saturat Vater I Sedime Drift De Surface Inundat Sparsel Geld Obse Surface Wa Vater Table Facturation F Encludes ca	pogy ydrology Indicator icators (minimum o e Water (A1) ion (A3) Marks (B1) ent Deposits (B2) eposits (B3) lat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Aeria ly Vegetated Concarvations: ter Present? epresent? epresent?	al Imagery (Eave Surface Yes Yes Yes	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized Presence Recent Inc Stunted or Other (Ex (B8) No X Depth (in No X Depth (in Mo No No Male MI No No Male MI No Male MI No Male Ma	ained Leaven 1, 2, 4A, 1 (B11) evertebrate Sulfide O Rhizosphe of Reduction Reduct or Stressec plain in Reducter Stressec plain i	and 4B) es (B13) idor (C1) eres along ed Iron (C ion in Tille d Plants (C emarks)	Living Roo 4) d Soils (Ct 1) (LRR A	Sec	condary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Popth (in Remarks: YDROLC Yetland Hy Primary Indi Surface High W Saturat Vater I Sedime Drift De Surface Inundat Sparsel Geld Obse Surface Wa Vater Table Facturation F Encludes ca	pogy ydrology Indicator icators (minimum o e Water (A1) ion (A3) Marks (B1) ent Deposits (B2) eposits (B3) lat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Aeria ly Vegetated Concarvations: ter Present? epresent? epresent?	al Imagery (Eave Surface Yes Yes Yes	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized Presence Recent Irc Stunted or Other (Ext (B8) No X Depth (in No X De	ained Leaven 1, 2, 4A, 1 (B11) evertebrate Sulfide O Rhizosphe of Reduction Reduct or Stressec plain in Reducter Stressec plain i	and 4B) es (B13) idor (C1) eres along ed Iron (C ion in Tille d Plants (C emarks)	Living Roo 4) d Soils (Ct 1) (LRR A	Sec	Condary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Popth (in Remarks: YDROLC Yetland Hy Primary Indi Surface High W Saturat Vater I Sedime Drift De Surface Inundat Sparsel Geld Obse Surface Wa Vater Table Facturation F Encludes ca	pogy ydrology Indicator icators (minimum o e Water (A1) ion (A3) Marks (B1) ent Deposits (B2) eposits (B3) lat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Aeria ly Vegetated Concarvations: ter Present? epresent? epresent?	al Imagery (Eave Surface Yes Yes Yes	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized Presence Recent Irc Stunted or Other (Ext (B8) No X Depth (in No X De	ained Leaven 1, 2, 4A, 1 (B11) evertebrate Sulfide O Rhizosphe of Reduction Reduct or Stressec plain in Reducter Stressec plain i	and 4B) es (B13) idor (C1) eres along ed Iron (C ion in Tille d Plants (C emarks)	Living Roo 4) d Soils (Ct 1) (LRR A	Sec	Condary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)

Project/Site: Yosemite National Park - Tu	Jolumne Meadows		City/Co	ounty: Tuolumi	ne County	Sampling Date: 8/24/10
Applicant/Owner: National Park Service						Sampling Point: SP3 Wet2
Investigator(s): Stevens, Dungan, Scheu	erman		Section	n, Township, R		
Landform (hillslope, terrace, etc.): terrace			Local	relief (concave	, convex, none): none	Slope (%): 0
Subregion (LRR): MLRA 22A						Datum: NAD83
Soil Map Unit Name: Marmotland-Oxyaquic Dys						
Are climatic / hydrologic conditions on th						
Are Vegetation N, Soil N, or H						present? Yes X No
Are Vegetation N, Soil N, or I					needed, explain any answe	
SUMMARY OF FINDINGS - At						
Hydrophytic Vegetation Present?	Yes X	No				
Hydric Soil Present?	Yes X			Is the Sample within a Wetl		No
Wetland Hydrology Present?	Yes X	No		within a woth	unu: 103	
Remarks:						
Photos: MD6-12						
VEGETATION – Use scientific	names of plan	nts.				
Tree Stratum (Plot size:	v	Absolute % Caver		nant Indicator ies? Status	Dominance Test work	ksheet:
1		- % Cover	орес	les: Status	 Number of Dominant S That Are OBL, FACW, 	
2			_		Total Number of Domin	nant
3		-	_		Species Across All Str	
4			- Total	al Cover	Percent of Dominant S	
Sapling/Shrub Stratum (Plot size:			100	ai Covci	That Are OBL, FACW, Prevalence Index wo	011A0 (AB)
1		-,			TO THE RESIDENCE OF THE PROPERTY OF THE PROPER	Multiply by:
2						x 1 =
3					1	x 2 =
4		-				x 3 =
5					10	x 4 =
Herb Stratum (Plot size: 2 x 1 meter)		= Tota	al Cover		x 5 =
1. Deschampsia cespitosa		70	Υ	FACW		(A)(B)
2. Aster alpigenus		5	N	OBL	-	
3. Polygonum bistortoides		15	N	OBL	- Hydrophytic Vegetati	x = B/A =
4. Antennaria media		20	N	UPL		Hydrophytic Vegetation
5					2 - Dominance Te	
6					3 - Prevalence Inc	
7					4 - Morphological	Adaptations ¹ (Provide supporting
8			-		_ data in Remark	(s or on a separate sheet)
9					5 - Wetland Non-\	
10						ophytic Vegetation¹ (Explain)
11			_		be present, unless dist	oil and wetland hydrology must turbed or problematic.
Woody Vine Stratum (Plot size:	Š.	110	= Tota	I Cover		
1					- Hydrophytic	
2.					Vegetation	v
			= Tota	I Cover	Present? Ye	es X No
% Bare Ground in Herb Stratum 0		*				
Remarks:						
1						

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SOIL								Sampling Point: SP3 Wet2
Profile Desc	cription: (Describe	to the de	oth needed to docu	ment the	indicator	or confirm	m the absence	e of indicators.)
Depth	Matrix			ox Feature				
(inches)	Color (moist)		Color (moist)	%	Type'	Loc²	Texture	Remarks
0-4	7.5 YR 2.5/2	100		-	-	-	LoSa	Thick Roots, Moist
4-9	7.5 YR 2.5/2	95	10R 3/4	_ 5	<u> </u>	_ M	Lo	Mucky, some roots, moist
9-11	10 YR 4/4	70	2.5 YR 3/6	30	C	М	Sa	Moist
11-24	7/5 YR 3/2	90	2.5 YR 3/6	10	С	M	SiLo	Moist
1T 00			=Reduced Matrix. C				21 -	- Disposition M. Matrix
-21			I LRRs, unless othe			ea Sana G		cation: PL=Pore Lining, M=Matrix. ors for Problematic Hydric Soils ³ :
Histosol			Sandy Redox		,			m Muck (A10)
	oipedon (A2)		Stripped Matrix					d Parent Material (TF2)
Black Hi	istic (A3)		Loamy Mucky	Mineral (F	1) (excep	t MLRA 1	Ver	ry Shallow Dark Surface (TF12)
	en Sulfide (A4)		Loamy Gleyed		2)		Oth	ner (Explain in Remarks)
	d Below Dark Surfac ark Surface (A12)	e (A11)	Depleted Matri X Redox Dark St				31241224	ors of hydrophytic vegetation and
	Mucky Mineral (S1)		Depleted Dark		-			and hydrology must be present,
	Gleyed Matrix (S4)		Redox Depres					ss disturbed or problematic.
Restrictive	Layer (if present):							
Type:								
Depth (in	ches):						Hydric Soi	I Present? Yes X No
HYDROLO	GV							
to the same of the	drology Indicators:							
100	The second second		ed; check all that app	olv)			Seco	andary Indicators (2 or more required)
	Water (A1)	no roquire	Water-Sta		ves (R9) (excent		Water-Stained Leaves (B9) (MLRA 1, 2,
_	ater Table (A2)			1, 2, 4A,		oxoopt	_	4A, and 4B)
X Saturation			Salt Crus	and the same of th			_ 1	Orainage Patterns (B10)
Water N	larks (B1)		Aquatic Ir	nvertebrat	es (B13)			Dry-Season Water Table (C2)
Sedimer	nt Deposits (B2)		Hydrogen	Sulfide C	Odor (C1)		_ 3	Saturation Visible on Aerial Imagery (C9)
Drift Dep						_		Geomorphic Position (D2)
	at or Crust (B4)		Presence					Shallow Aquitard (D3)
Iron Dep						ed Soils (C	_	FAC-Neutral Test (D5)
	Soil Cracks (B6) on Visible on Aerial	lmagan//E				01) (LRR A		Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
_	Vegetated Concav			cpiaiii iii ix	ciliaiks)			Tost-Heave Hullimocks (D7)
Field Obser	-	0 0011000	(55)					
Surface Wat		'es	No_X Depth (in	nches):				
Water Table			No X Depth (in	_				
Saturation P			No Depth (ir			Wet	land Hydrolog	gy Present? Yes X No
	pillary fringe)			(8)				
Describe Re	corded Data (stream	n gauge, m	onitoring well, aerial	pnotos, p	revious in	spections)	, if available:	
Remarks:								
1								

Project/Site: Yosemite National Park - Tuolumne Meadows	•	City/County	Tuolumne	County	Sampling Date: 8/2	24/10
Applicant/Owner: National Park Service				State: CA	Sampling Point: S	P3 Wet2
Investigator(s): Stevens, Dungan, Scheuerman		Section, To	wnship, Ra	nge:		
Landform (hillslope, terrace, etc.): terrace		Local relief	(concave,	convex, none): none	Slope	(%): 0
				Long: 119 22 56.66 W		
Soil Map Unit Name: Marmotland-Oxyaquic Dystrocryepts-Xeric Dystroc						
Are climatic / hydrologic conditions on the site typical for the		200				
Are Vegetation N, Soil N, or Hydrology N						Ne
Are Vegetation N , Soil N , or Hydrology N				'Normal Circumstances" p		NO
Are vegetation, Soil, or Hydrology	_naturally pro	blematic?	(IT NE	eded, explain any answer	s in Remarks.)	
SUMMARY OF FINDINGS – Attach site map	showing	samplin	g point l	ocations, transects	, important feat	tures, etc.
Hydrophytic Vegetation Present? Yes X	No					
Hydric Soil Present? Yes X	No		e Sampled	Area	N	
Wetland Hydrology Present? Yes X	No	With	in a Wetlar	10? Yes //	No	
Remarks:						
Photos: MD6-12.						
	-					
VEGETATION – Use scientific names of pla						
Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?		Dominance Test work		
1	70 COVCI	<u>Opedies</u> :	Gratus	Number of Dominant Sp That Are OBL, FACW, of		(A)
2						(//
3.				Total Number of Domini Species Across All Stra		(B)
4.						
		= Total Co	ver	Percent of Dominant Sp That Are OBL, FACW, of		(A/B)
Sapling/Shrub Stratum (Plot size:)				Prevalence Index work		
1				Total % Cover of:	Multiply b	oy:
2				OBL species	x 1 =	
3				FACW species	x 2 =	
4				FAC species	x 3 =	
5		= Total Co		FACU species	x 4 =	
Herb Stratum (Plot size: 2 x 1 meter)		_ Total Co	VCI	UPL species		
1. Deschampsia cespitosa	70	Y	FACW	Column Totals:	(A)	(B)
2. Aster alpigenus	_ 5	<u>N</u>	OBL	Prevalence Index	= B/A =	
3. Polygonum bistortoides	15	N	OBL	Hydrophytic Vegetation		
4. Antennaria media		<u>N</u>	UPL	X 1 - Rapid Test for H		on
5				2 - Dominance Tes	t is >50%	
6				3 - Prevalence Inde		
7				4 - Morphological A	Adaptations ¹ (Provide s or on a separate sh	e supporting
8				5 - Wetland Non-Va		ieet)
9				Problematic Hydron		Explain)
10				¹Indicators of hydric soil		
11	110	= Total Cov		be present, unless distu		
Woody Vine Stratum (Plot size:)						
1				Hydrophytic		
2				Vegetation Present? Yes	s X No	
0/ Bara Crawnd in Hash Stratum 0		= Total Cov	rer	LIASAIII. AG	s <u>X</u> No	_
% Bare Ground in Herb Stratum 0 Remarks:				l		
Tronging.						

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Profile Descri							iii tiio absoiio	
Depth _ (inches) _	Matrix Color (moist)	%	Color (moist)	lox Featur %	Type ¹	Loc ²	Texture	Remarks
	7.5 YR 2.5/2	100	Coldi (Illoist)	70	Туре	LOC	LoSa	Thick Roots, Moist
	7.5 YR 2.5/2	95	10R 3/4	5	<u>c</u>	M	Lo	A
			Out I was a way to be a second	The second	-	71070	0.12	Mucky, some roots, moist
37.30.0	10 YR 4/4	70	2.5 YR 3/6	30	<u> </u>	M	Sa	Moist
11-24	7/5 YR 3/2	90	2.5 YR 3/6	10	<u>c</u>	М	SiLo	Moist
		_			_			
			=Reduced Matrix, C			ed Sand G		ocation: PL=Pore Lining, M=Matrix.
	131.31.4	able to all	LRRs, unless oth		ted.)			ors for Problematic Hydric Soils ³ :
Histosol (A			Sandy Redox					em Muck (A10)
Histic Epip			Stripped Matri		4.			d Parent Material (TF2)
Black Histi			Loamy Mucky			TWILKAT		ry Shallow Dark Surface (TF12)
Hydrogen	Below Dark Surfac	o (A11)	Loamy Gleyed Depleted Matr		2)		_ 01	her (Explain in Remarks)
	k Surface (A12)	e (ATT)	X Redox Dark S		١.		3Indica	tors of hydrophytic vegetation and
	icky Mineral (S1)		Depleted Dark					and hydrology must be present.
	eyed Matrix (S4)		Redox Depres					ess disturbed or problematic.
	yer (if present):						1	and an analysis of the property of the propert
Туре:	, (
, jpo							NO 15500 10	X
Depth (inch	ies):						Hydric So	Il Present? Yes ^ No
Depth (inch	es):						Hydric So	Il Present? Yes X No
Depth (inch Remarks:			_				Hydric So	II Present? Yes A No
Remarks: YDROLOG Wetland Hydro	i Y ology Indicators:		d: check all that ap	ply)				
Remarks: YDROLOG Wetland Hydro	sY rology Indicators: tors (minimum of c		id; check all that app		ves (R9) (e	vent	Seco	ondary indicators (2 or more required)
YDROLOG Wetland Hydromary Indicat Surface W	ology Indicators: tors (minimum of o		Water-St	ained Lea	ves (B9) (€	except	Seco	ondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1 ,
YDROLOG Vetland Hydro Primary Indicat Surface W High Wate	ology Indicators: tors (minimum of o Jater (A1) er Table (A2)		Water-St	ained Lea A 1, 2, 4A,		xcept	Sec.	ondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B)
YDROLOG Wetland Hydro Primary Indicat Surface W High Wate X Saturation	ology Indicators: tors (minimum of o /ater (A1) er Table (A2)		Water-St MLRA Salt Crus	ained Lea A 1, 2, 4A, st (B11)	and 4B)	except	Sec.	ondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10)
YDROLOG Wetland Hydro Primary Indicat Surface W High Wate X Saturation Water Mar	ology Indicators: tors (minimum of c later (A1) er Table (A2) 1 (A3) rks (B1)		Water-St MLRA Salt Crus Aquatic I	ained Lea A 1, 2, 4A, st (B11) nvertebrat	and 4B) es (B13)	except	Sec.	ondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2)
YDROLOG Vetland Hydri Surface W High Wate X Saturation Water Mar Sediment	ology Indicators: tors (minimum of colorer (A1) er Table (A2) 1 (A3) rks (B1) Deposits (B2)		Water-St MLRA Salt Crus Aquatic I Hydrogel	ained Lea A 1, 2, 4A, st (B11) nvertebrat n Sulfide (and 4B) es (B13) odor (C1)		Sec.	ondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (
YDROLOG Vetland Hydri Surface W High Wate X Saturation Water Mar Sediment Drift Depor	ology Indicators: tors (minimum of colors) dater (A1) er Table (A2) (A3) rks (B1) Deposits (B2) ssits (B3)		Water-St MLRA Salt Crus Aquatic I Hydrogei	ained Lea A 1, 2, 4A, st (B11) nvertebrat n Sulfide (Rhizosph	es (B13) Odor (C1) eres along	Living Ro	Secondary Second	ondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2)
YDROLOG Wetland Hydri Primary Indicat Surface W High Wate X Saturation Water Mar Sediment Drift Depo	fology Indicators: tors (minimum of color table (A2) for Table (A2) for (A3) frks (B1) Deposits (B2) for Crust (B4)		Water-St MLRA Salt Crus Aquatic I Hydrogei Oxidized Presence	rained Lea A 1, 2, 4A, st (B11) nvertebrat n Sulfide C Rhizosph e of Reduc	es (B13) odor (C1) eres along ed Iron (C	Living Ro 4)	Secondary Second	ondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3)
YDROLOG Vetland Hydri Primary Indical Surface W High Wate X Saturation Water Mar Sediment Drift Depo- Algal Mate	follogy Indicators: tors (minimum of control		Water-St MLRA Salt Crus Aquatic I Hydrogei Oxidized Presence Recent Ii	rained Lea A 1, 2, 4A, st (B11) nvertebrat n Sulfide (Rhizosph e of Reduction Reduction	es (B13) Odor (C1) eres along ed Iron (C-	Living Ro 4) d Soils (C	Sec. — — — — — — — — — — — — — — — — — — —	ondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5)
YDROLOG Wetland Hydri Primary Indicat Surface W High Wate X Saturation Water Mar Sediment Drift Depo	tors (minimum of coloresters) are Table (A2) (A3) re Table (A2) (A3) rests (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6)	ne require	Water-St MLRA Salt Crus Aquatic I Hydrogei Oxidized Presence Recent Ii	ained Lea A 1, 2, 4A, st (B11) nvertebrat n Sulfide (Rhizosph e of Reduc on Reduc or Stresse	es (B13) Odor (C1) eres along ed Iron (Cition in Tille d Plants (D	Living Ro 4) d Soils (C	Sec. — — — — — — — — — — — — — — — — — — —	ondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
YDROLOG Vetland Hydri Primary Indicat Surface W High Water X Saturation Water Mar Sediment Drift Depo Algal Mate Iron Depos Surface Se Inundation	rology Indicators: tors (minimum of o /ater (A1) er Table (A2) i (A3) riks (B1) Deposits (B2) sists (B3) or Crust (B4) sits (B5) oil Cracks (B6) in Visible on Aerial	ne require		rained Lea A 1, 2, 4A, st (B11) nvertebrat n Sulfide (Rhizosph e of Reduction Reduction	es (B13) Odor (C1) eres along ed Iron (Cition in Tille d Plants (D	Living Ro 4) d Soils (C	Sec. — — — — — — — — — — — — — — — — — — —	ondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5)
YDROLOG Vetland Hydri Primary Indicat Surface W High Wate X Saturation Water Mar Sediment Drift Depo Algal Mat Iron Depos Surface Se Inundation Sparsely N	rology Indicators: tors (minimum of of /ater (A1) er Table (A2) i (A3) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) in Visible on Aerial Vegetated Concave	ne require		ained Lea A 1, 2, 4A, st (B11) nvertebrat n Sulfide (Rhizosph e of Reduc on Reduc or Stresse	es (B13) Odor (C1) eres along ed Iron (Cition in Tille d Plants (D	Living Ro 4) d Soils (C	Sec. — — — — — — — — — — — — — — — — — — —	ondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
YDROLOG Wetland Hydri Primary Indicat Surface W High Water X Saturation Water Mar Sediment Drift Depor Algal Mat of Iron Depor Surface So Inundation Sparsely N	rology Indicators: tors (minimum of o /ater (A1) er Table (A2) i (A3) The (B3) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) i Visible on Aerial Vegetated Concaviations:	one require Imagery (B e Surface (Water-St MLRA Salt Crus Aquatic I Hydrogei Oxidized Presence Recent II Stunted 6 77 Other (E:	ained Lea A 1, 2, 4A, st (B11) nvertebrat n Sulfide C Rhizosph e of Reduc ron Reduc or Stresse xplain in R	es (B13) Odor (C1) eres along ed Iron (Cition in Tille d Plants (D	Living Ro 4) d Soils (C	Sec. — — — — — — — — — — — — — — — — — — —	ondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
YDROLOG Wetland Hydri Primary Indicat Surface W High Water X Saturation Water Mar Sediment Drift Depor Algal Mat of Iron Depor Surface So Inundation Sparsely N	rology Indicators: tors (minimum of or /ater (A1) er Table (A2) f (A3) rks (B1) Deposits (B2) sists (B3) or Crust (B4) sits (B5) oil Cracks (B6) f Visible on Aerial vegetated Concave ations:	imagery (B e Surface (ained Lea A 1, 2, 4A, st (B11) nvertebrat n Sulfide (Rhizosph e of Reduc ron Reduc or Stresse xplain in R	es (B13) Odor (C1) eres along ed Iron (Cition in Tille d Plants (D	Living Ro 4) d Soils (C	Sec. — — — — — — — — — — — — — — — — — — —	ondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
YDROLOG Wetland Hydro Primary Indical Surface W High Water X Saturation Water Mar Sediment Drift Depo Algal Mat of Iron Depois Surface So Inundation Sparsely N Field Observa	ology Indicators: tors (minimum of colors) dater (A1) er Table (A2) (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) n Visible on Aerial vegetated Concavitations: Present? Y	one require		ained Lea A 1, 2, 4A, st (B11) nvertebrat in Sulfide (Rhizosph e of Reduc ron Reduc or Stresse xplain in R	and 4B) es (B13) Odor (C1) eres along ed Iron (C tion in Tille d Plants (C emarks)	Living Ro 4) d Soils (C I1) (LRR A	Section	ondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
YDROLOG Wetland Hydri Primary Indical Surface W High Wate X Saturation Water Mar Sediment I Drift Depo Algal Mate Iron Depos Surface Se Inundation Sparsely \text{V} Field Observa Surface Water Water Table Presentudes capill	rology Indicators: tors (minimum of colors (minimum of colors (minimum of colors (Mater (A1)) per Table (A2) per (A3) per (A3) per (A3) per (A3) per (A3) per (B4) pe	Imagery (B e Surface (es es X	Water-St MLRA Salt Crus Aquatic Hydroger Oxidized Presence Recent Stunted Other (Estate Stunted No X Depth (in No Depth (in Mo Depth (in Mercent Depth (in Mo No No No No Depth (in Mercent No No No Depth (in Mercent No No No No No No No N	ained Lea A 1, 2, 4A, st (B11) nvertebrat n Sulfide (Rhizosph e of Reduc ron Reduc or Stresse xplain in R nches): nches): nches): nches):	es (B13) bdor (C1) eres along ed Iron (C tion in Tille d Plants (C emarks)	Living Ro 4) d Soils (C n) (LRR A	Second Se	ondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
YDROLOG Wetland Hydri Primary Indical Surface W High Wate X Saturation Water Mar Sediment I Drift Depo Algal Mate Iron Depos Surface Se Inundation Sparsely \text{V} Field Observa Surface Water Water Table Presentudes capill	rology Indicators: tors (minimum of colors (minimum of colors (minimum of colors (Mater (A1)) per Table (A2) per (A3) per (A3) per (A3) per (A3) per (A3) per (B4) pe	Imagery (B e Surface (es es X		ained Lea A 1, 2, 4A, st (B11) nvertebrat n Sulfide (Rhizosph e of Reduc ron Reduc or Stresse xplain in R nches): nches): nches): nches):	es (B13) bdor (C1) eres along ed Iron (C tion in Tille d Plants (C emarks)	Living Ro 4) d Soils (C n) (LRR A	Second Se	ondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
YDROLOG Wetland Hydri Primary Indical Surface W High Wate X Saturation Water Mar Sediment I Drift Depo Algal Mate Iron Depos Surface Se Inundation Sparsely \text{V} Field Observa Surface Water Water Table Presentudes capill	rology Indicators: tors (minimum of colors (minimum of colors (minimum of colors (Mater (A1)) per Table (A2) per (A3) per (A3) per (A3) per (A3) per (A3) per (B4) pe	Imagery (B e Surface (es es X	Water-St MLRA Salt Crus Aquatic Hydroger Oxidized Presence Recent Stunted Other (Estate Stunted No X Depth (in No Depth (in Mo Depth (in Mercent Depth (in Mo No No No No Depth (in Mercent No No No Depth (in Mercent No No No No No No No N	ained Lea A 1, 2, 4A, st (B11) nvertebrat n Sulfide (Rhizosph e of Reduc ron Reduc or Stresse xplain in R nches): nches): nches): nches):	es (B13) bdor (C1) eres along ed Iron (C tion in Tille d Plants (C emarks)	Living Ro 4) d Soils (C n) (LRR A	Second Se	ondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
YDROLOG Wetland Hydri Primary Indical Surface W High Wate X Saturation Water Mar Sediment i Drift Depo Algal Mate Iron Depo: Surface Si Inundation Surface Water Water Table Presincludes capill Describe Reco	rology Indicators: tors (minimum of colors (minimum of colors (minimum of colors (Mater (A1)) per Table (A2) per (A3) per (A3) per (A3) per (A3) per (A3) per (B4) pe	Imagery (B e Surface (es es X	Water-St MLRA Salt Crus Aquatic Hydroger Oxidized Presence Recent Stunted Other (Estate Stunted No X Depth (in No Depth (in Mo Depth (in Mercent Depth (in Mo No No No No Depth (in Mercent No No No Depth (in Mercent No No No No No No No N	ained Lea A 1, 2, 4A, st (B11) nvertebrat n Sulfide (Rhizosph e of Reduc ron Reduc or Stresse xplain in R nches): nches): nches): nches):	es (B13) bdor (C1) eres along ed Iron (C tion in Tille d Plants (C emarks)	Living Ro 4) d Soils (C n) (LRR A	Second Se	ondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)

Project/Site: Yosemite National Park - Tuolumne Meadows		City/County	y: Tuolumne	County s	Sampling Date: 8/24/10
Applicant/Owner: National Park Service				State: CA S	
Investigator(s): Stevens, Dungan, Scheuerman		Section, To		nge:	
Landform (hillslope, terrace, etc.): terrace		Local relie	f (concave.	convex, none): none	Slope (%): 0
				Long: 119 22 56.85 W	
Soil Map Unit Name: Marmotland-Oxyaquic Dystrocryepts-Xeric Dystrocryep					
Are climatic / hydrologic conditions on the site typical for this		-			
Are Vegetation N, Soil N, or Hydrology N si					esent? Yes_X No
Are Vegetation N, Soil N, or Hydrology N n				eeded, explain any answers	
SUMMARY OF FINDINGS – Attach site map		sampiir	ig point i	ocations, transects,	important reatures, etc.
Hydrophytic Vegetation Present? Yes X No Hydric Soil Present? Yes	°	Is th	he Sampled	l Area	
Wetland Hydrology Present? Yes No	X	with	nin a Wetla	nd? Yes	No X
Remarks:					
Upland pit for Wet2.					
VEGETATION – Use scientific names of plant					
Tree Stratum (Plot size:)		Dominant Species?		Dominance Test worksh	
1	70 00101	орескоз.	<u> Cautus</u>	Number of Dominant Spe That Are OBL, FACW, or	
2.				10 1 4 W 10 1 1 1 1 1	
3.				Total Number of Dominar Species Across All Strata	
4.				D	
6 m on the		= Total Co	over	Percent of Dominant Spe That Are OBL, FACW, or	
Sapling/Shrub Stratum (Plot size: 5 m radius	30	V	FACIAL	Prevalence Index works	
1. Vaccinium caespitosum	30	<u>Y</u>	FACW	Total % Cover of:	Multiply by:
2	3			OBL species	x 1 =
3		-		FACW species	x 2 =
4				FAC species	x 3 =
5	30	= Total Co	over.	FACU species	x 4 =
Herb Stratum (Plot size: 2 x 1 meter)		= Total Co	over	UPL species	x 5 =
1. Scirpus clementis	40	Υ	FAC	Column Totals:	(A) (B)
2. Senecio scorzonella	10	N	UPL	Prevalence Index =	= B/A =
3. Aster alpigenus	2	N	OBL	Hydrophytic Vegetation	10110
Ivesia lycopodioides	3	N	UPL	1 - Rapid Test for Hy	drophytic Vegetation
5. Calamagrostris breweri	2	N	UPL	X 2 - Dominance Test i	s >50%
6. Carex subnigricans	15	Y	FAC	3 - Prevalence Index	is ≤3.0 ¹
7					laptations (Provide supporting
8					or on a separate sheet)
9		0		5 - Wetland Non-Vas	nytic Vegetation¹ (Explain)
10				3	and wetland hydrology must
11	72	= Total Co		be present, unless disturb	
Woody Vine Stratum (Plot size:)		_ Total Co	ivei		
1				Hydrophytic	
2				Vegetation	X No.
% Bare Ground in Herb Stratum 2		= Total Co	ver	Present? Yes	X No
Remarks:				-	

US Army Corps of Engineers

SOIL				Sampling Point: SP4
Profile Description: (D	escribe to the depth	n needed to document the indicator or co	nfirm the absence	
	Matrix	Redox Features		
(inches) Color (n		Color (moist) % Type Loc	² Texture	Remarks
0-4 10 YR 2/	2 100		silty loam	Thick roots
4-7 7/5 YR 3	3 100		sandy loam	
7-8 2.5 YR 5	3 100		sand	
8-20 5YR 3/4	100		sand	Refusal at 20" due to rock
				5
Type: C=Concentration	, D=Depletion, RM=f	Reduced Matrix, CS=Covered or Coated San		cation: PL=Pore Lining, M=Matrix.
Hydric Soil Indicators:	(Applicable to all L	RRs, unless otherwise noted.)	Indicate	ors for Problematic Hydric Soils ³ :
Histosol (A1)	-	Sandy Redox (S5)		m Muck (A10)
Histic Epipedon (A2)	_	_ Stripped Matrix (S6)		d Parent Material (TF2)
Black Histic (A3) Hydrogen Sulfide (A	4)	 Loamy Mucky Mineral (F1) (except MLR Loamy Gleyed Matrix (F2) 		y Shallow Dark Surface (TF12) er (Explain in Remarks)
Depleted Below Dar	_	Depleted Matrix (F3)	_ 0	(Explain in Kemarks)
Thick Dark Surface (Redox Dark Surface (F6)	3Indicate	ors of hydrophytic vegetation and
Sandy Mucky Minera	al (S1)	Depleted Dark Surface (F7)	wetla	and hydrology must be present,
Sandy Gleyed Matrix		Redox Depressions (F8)	unles	ss disturbed or problematic.
Restrictive Layer (if pre	sent):			
Туре:		_		
Depth (inches):		_	Hydric Soil	I Present? Yes No X
YDROLOGY				
Wetland Hydrology Ind	lcators:			
Primary Indicators (minin	num of one required;	check all that apply)	Seco	ndary Indicators (2 or more required)
Surface Water (A1)		Water-Stained Leaves (B9) (except	v	Vater-Stained Leaves (B9) (MLRA 1, 2,
High Water Table (A	2)	MLRA 1, 2, 4A, and 4B)		4A, and 4B)
Saturation (A3)		Salt Crust (B11)		Orainage Patterns (B10)
Water Marks (B1)		Aquatic Invertebrates (B13)	_ [Dry-Season Water Table (C2)
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)	_	Saturation Visible on Aerial Imagery (C9
Drift Deposits (B3)		Oxidized Rhizospheres along Living		
Algal Mat or Crust (E	34)	Presence of Reduced Iron (C4)		Shallow Aquitard (D3)
Iron Deposits (B5)	(DC)	Recent Iron Reduction in Tilled Soils		FAC-Neutral Test (D5)
 Surface Soil Cracks Inundation Visible or 		Stunted or Stressed Plants (D1) (LF Other (Explain in Remarks)		Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Sparsely Vegetated				Tost-neave Huminocks (D7)
Field Observations:	(-	-,		
Surface Water Present?	Yes N	o X Depth (inches):		
Water Table Present?		o X Depth (inches):		
Saturation Present?			Wetland Hydrolog	y Present? YesNo_X
(includes capillary fringe) Describe Recorded Data		itoring well, aerial photos, previous inspection		
200	9-3-, 1101	was a series of the series of	,,	
Remarks:				

Project/Site: Yosemite National Park - Tuolumne Meadows	City/County	y. Tuolumne	County	Sampling Date: 8/25/10	
Applicant/Owner: National Park Service				State: CA	Sampling Point: SP5 Wet3
Ot D O-1		Section, To	ownship, Ra	nge:	
Landform (hillslope, terrace, etc.): terrace		Local relie	f (concave,	convex, none): none	Slope (%): 2
					Datum: NAD83
Soil Map Unit Name: Marmotland-Oxyaquic Dystrocryepts-Xeric Dystrocry					
Are climatic / hydrologic conditions on the site typical for th					
Are Vegetation N, Soil N, or Hydrology N					
Are Vegetation N, Soil N, or Hydrology N					
SUMMARY OF FINDINGS – Attach site map	15,111				
Hydrophytic Vegetation Present? Yes X 1					
Hydric Soil Present? Yes X			ne Sampled		No
Wetland Hydrology Present? Yes X	No	With	nin a Wetlar	id? Tes	
Photos: MD13,14					
VEGETATION – Use scientific names of plan	nts.				
Tree Stratum (Plot size:)		Dominant Species?		Dominance Test works	
1	75 0070.	0,00000	Status	Number of Dominant Sp That Are OBL, FACW, o	
2.				Total Number of Demine	
3.				Total Number of Domina Species Across All Strat	
4				Percent of Dominant Sp	ecies
3 m radius		= Total Co	over	That Are OBL, FACW, o	
Sapling/Shrub Stratum (Plot size: 3 m radius 1 Salix orestera	60	V	FACW	Prevalence Index work	sheet:
		· -		Total % Cover of:	Multiply by:
2		-		OBL species	x 1 =
4				FACW species	x 2 =
5				FAC species	x 3 =
	60	= Total Co	over	10000000	x 4 =
Herb Stratum (Plot size: 2 x 1 meter)	-				x 5 =
1. Deschampsia cespitosa	20	Y	FACW	Column Totals:	(A) (B)
2. Aster alpigenus	15	Y	OBL	Prevalence Index	= B/A =
3. Antennaria corymbosa	2 =	N	FAC	Hydrophytic Vegetatio	n Indicators:
4. Senecio scorzonella	- ⁵	N Y	OBL	X 1 - Rapid Test for H	
5, Carex utriculata	15	1	OBL	2 - Dominance Test	
6				3 - Prevalence Inde	
7				4 - Morphological A	daptations ¹ (Provide supporting or on a separate sheet)
8				5 - Wetland Non-Va	
9		-			hytic Vegetation¹ (Explain)
11				T	and wetland hydrology must
112	57	= Total Co	ver	be present, unless distu	
Woody Vine Stratum (Plot size:)		rotar oc			
1	-			Hydrophytic	
2				Vegetation Present? Yes	X No
% Bare Ground in Herb Stratum 25	_	_= Total Co	ver	FIGSHILL 168	NO
Remarks:					

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SOIL						Sampling Point: SP5 Wet3
Profile Des	cription: (Describ	e to the depth	needed to document the indicator or c	onfirm the	absence	of indicators.)
Depth	Matrix		Redox Features			
(inches)	Color (moist)	%	Color (moist) % Type L		exture	Remarks
0-7	10 YR 2/2	100		silty	/ loam	Heavy roots - moist
7-20	10 YR 3/3	100		san	d	Heavy gravel
				_	_	· · · · · · · · · · · · · · · · · · ·
¹Type: C=C	Concentration D=D	enletion RM=Re	educed Matrix, CS=Covered or Coated Sa	and Grains	21.0	cation: PL=Pore Lining, M=Matrix.
			Rs, unless otherwise noted.)	and Orams.		ors for Problematic Hydric Soils ³ :
Histoso	121.7		Sandy Redox (S5)			m Muck (A10)
Histic E	pipedon (A2)		Stripped Matrix (S6)		_	d Parent Material (TF2)
Black H	listic (A3)	X	Loamy Mucky Mineral (F1) (except ML	RA 1)	Ver	y Shallow Dark Surface (TF12)
_	en Sulfide (A4)	_	Loamy Gleyed Matrix (F2)		Oth	er (Explain in Remarks)
	d Below Dark Surf	ace (A11)	_ Depleted Matrix (F3)		3	
	ark Surface (A12)	_	Redox Dark Surface (F6)			ors of hydrophytic vegetation and
	Mucky Mineral (S1) Gleyed Matrix (S4)	_	Depleted Dark Surface (F7) Redox Depressions (F8)			and hydrology must be present, as disturbed or problematic.
	Layer (if present)		_ Nedox Baptessions (1.5)		dillo	or distalbed of problematic.
Туре:						
2000	nches):		_	Hv	dric Soil	Present? Yes X No
Remarks:			-	,		
HYDROLC	OGY					
	drology Indicator					
Primary Indi	icators (minimum o	f one required; c	heck all that apply)		Seco	ndary Indicators (2 or more required)
_	Water (A1)		Water-Stained Leaves (B9) (exception)	pt	_ v	Vater-Stained Leaves (B9) (MLRA 1, 2,
	ater Table (A2)		MLRA 1, 2, 4A, and 4B)			4A, and 4B)
X Saturat	14 15		Salt Crust (B11)			Orainage Patterns (B10)
_	Vlarks (B1)		Aquatic Invertebrates (B13)		_	Ory-Season Water Table (C2)
	nt Deposits (B2)		Hydrogen Sulfide Odor (C1)	Dt- (O		Saturation Visible on Aerial Imagery (C9)
	posits (B3)		Oxidized Rhizospheres along Livin Presence of Reduced Iron (C4)	ng Roots (Co	_	
Iron De	at or Crust (B4)		Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled So	ile (CG)		Shallow Aquitard (D3) FAC-Neutral Test (D5)
	Soil Cracks (B6)		Stunted or Stressed Plants (D1) (L			Raised Ant Mounds (D6) (LRR A)
	ion Visible on Aeria	I Imagery (B7)	Other (Explain in Remarks)			rost-Heave Hummocks (D7)
_	y Vegetated Conca				_	(2.7)
Field Obser	5 T	1 2				
Surface Wa	ter Present?	Yes No	X Depth (inches):			
Water Table	Present?		Depth (inches): 17"			
Saturation F			Depth (inches): 7"	Wetland H	lydrolog	y Present? Yes X No
(includes ca	pillary fringe)		oring well, aerial photos, previous inspect			,
Demodia						
Remarks:						
1						

Project/Site: Yosemite National Park - Tuolumne Meadows		City/Count	y: Tuolumne	County	Sampling Date: 8/25/10
Applicant/Owner: National Park Service		101		State: CA	
Investigator(s): Stevens, Dungan, Scheuerman	:		ownship, Rar		
Landform (hillslope, terrace, etc.): terrace		Local relie	ef (concave, o	convex, none): none	Slope (%): 0
	Lat: 375	2 27.36 N		Long: 119 22 49.64 W	Datum: NAD83
Soil Map Unit Name: Marmotland-Oxyaquic Dystrocryepts-Xeric Dystrocryep					
Are climatic / hydrologic conditions on the site typical for this	time of year	ar? Yes	X No	(If no, explain in R	emarks.)
Are Vegetation N, Soil N, or Hydrology N si					present? Yes X No
Are Vegetation N, Soil N, or Hydrology N na				eded, explain any answe	rs in Remarks.)
SUMMARY OF FINDINGS – Attach site map s	showing	sampli	ng point le	ocations, transects	, important features, etc.
Hydrophytic Vegetation Present? Yes X No	·				
Hydric Soil Present? Yes No	× ×		he Sampled hin a Wetlan		No X
Wetland Hydrology Present? Yes No			ann a vvotian	100	
Upland pit for Wet3.					
VEGETATION – Use scientific names of plant	s.				
Tree Stratum (Plot size:)	Absolute % Cover		nt Indicator	Dominance Test work	sheet:
1	78 COVE	Opecies	: Ctatus	Number of Dominant S That Are OBL, FACW.	
2.					
3.				Total Number of Domin Species Across All Stra	
4				Percent of Dominant S	necies
Sapling/Shrub Stratum (Plot size:)		= Total C	over	That Are OBL, FACW,	
1				Prevalence Index wor	ksheet:
2.					Multiply by:
3.				1	x 1 =
4.				FACW species	x 2 = x 3 =
5.					x 3 = x 4 =
Herb Stratum (Plot size: 2 x 1 meter)		= Total C	over	- CO	x 5 =
1 Antennaria corymbosa	40	Υ	FAC	Column Totals:	(A) (B)
2. Carex subnigricans	5	N	FAC		= B/A =
3. Aster alpigenus	7	N	OBL	Hydrophytic Vegetation	1 (01)00 (1
4. Juncus mexicanus	30	Y	FACW	1 - Rapid Test for I	
5. Calamagrostis breweri	7	N	UPL	X 2 - Dominance Tes	
6. Scirpus clementis	30	Υ	FAC	3 - Prevalence Inde	
7. Dodecatheon alpinum	1	N	OBL	4 - Morphological A	Adaptations ¹ (Provide supporting
8			-	5 - Wetland Non-V	s or on a separate sheet)
9					phytic Vegetation¹ (Explain)
10					I and wetland hydrology must
	120	= Total Co	over	be present, unless distu	
Woody Vine Stratum (Plot size:)					
1				Hydrophytic	
2				Vegetation Present? Ye	s X No
% Bare Ground in Herb Stratum 0		= lotalCo	over		
Remarks:				•	

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SOIL								Sampling Point: SP6
Profile Desc	cription: (Describ	e to the dep	th needed to docu	ment the	indicator	or confirm	n the absence	
Depth	Matrix		Rede	ox Feature	es			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc2	Texture	Remarks
0-3	10 YR 2/2	100					loamy sand	Thick Roots
3-12	7.5 YR 3/3	98	7.5 YR 4/6	2	С	М	loamy sand	
12-24	10 YR 3/4	100					sand	Moist
								-
				-				18
	-							
l								
¹Type: C=C	oncentration D=De	enletion RM:	=Reduced Matrix. C	S=Covere	ed or Coate	ed Sand Gr	rains ² Lo	cation: PL=Pore Lining, M=Matrix.
- 7			LRRs, unless other			o Guila Gi		ors for Problematic Hydric Soils ³ :
Histosol	(A1)		Sandy Redox	(S5)			2 c	m Muck (A10)
Histic E	pipedon (A2)		Stripped Matrix					d Parent Material (TF2)
Black H	istic (A3)		Loamy Mucky	Mineral (F	1) (excep	(MLRA 1	Ver	y Shallow Dark Surface (TF12)
	en Sulfide (A4)		Loamy Gleyed		2)		Oth	er (Explain in Remarks)
1	d Below Dark Surfa	ace (A11)	Depleted Matri				3	
	ark Surface (A12) Mucky Mineral (S1)		Redox Dark St					ors of hydrophytic vegetation and
	Gleyed Matrix (S4)		Depleted Dark Redox Depres					and hydrology must be present, ss disturbed or problematic.
	Layer (if present):		redox bepres	510115 (1 0)	,			os distarboa or problematio.
Type:								
Depth (in	ches):		_				Hydric Soi	I Present? Yes No X
Remarks:	unus).						nyane con	
HYDROLO	GY							
Wetland Hy	drology Indicator	s:						
Primary India	cators (minimum of	fone required	d; check all that app	ly)			Seco	ndary Indicators (2 or more required)
Surface	Water (A1)		Water-Sta	ained Lea	ves (B9) (e	xcept	_ '	Water-Stained Leaves (B9) (MLRA 1, 2,
High Wa	ater Table (A2)		MLRA	1, 2, 4A,	and 4B)			4A, and 4B)
Saturati	on (A3)		Salt Crus	t (B11)			_ [Orainage Patterns (B10)
Water N	1.5		Aquatic Ir		100		_	Dry-Season Water Table (C2)
_	nt Deposits (B2)		Hydrogen					Saturation Visible on Aerial Imagery (C9)
	posits (B3)			December 199	20.00			Geomorphic Position (D2)
	at or Crust (B4)				ed Iron (C			Shallow Aquitard (D3)
Iron Dep						d Soils (C6	_	FAC-Neutral Test (D5)
	Soil Cracks (B6) on Visible on Aeria	I Imagen//P				1) (LRR A		Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
_	y Vegetated Conca			piaiii iii K	ciliaiks)			riost-neave nullilliocks (D7)
Field Obser		ve odnace (50)					
Surface Wat		Yes	No X Depth (ir	oches):				
Water Table		Vec Vec	No X Depth (ir	_		-		
Saturation P			No X Depth (ir				and Hydrolog	gy Present? Yes No X
	pillary fringe)	Tes	No X Depth (ir	iches)		- VVEII	anu nyurulug	gy Present? Tes No
Describe Re	corded Data (strea	m gauge, mo	onitoring well, aerial	photos, p	revious ins	pections),	if available:	
Remarks:								

Project/Site: Yosemite National Park - Tuolumne Meadows	(City/Count	y: Tuolumne	County	Sampling Date: 8/25/10		
Applicant/Owner: National Park Service				State: CA	Sampling Point: SP7		
Investigator(s): Stevens, Dungan, Scheuerman		Section, To	ownship, Rai	nge:			
Landform (hillslope, terrace, etc.): hillslope		Local relie	f (concave,	ve, convex, none): none Slope (%): 1			
					Datum: NAD83		
Soil Map Unit Name: Marmotland-Oxyaquic Dystrocryepts-Xeric Dystrocryept							
Are climatic / hydrologic conditions on the site typical for this							
Are Vegetation N , Soil N , or Hydrology N si							
Are Vegetation N , Soil N , or Hydrology N na							
SUMMARY OF FINDINGS – Attach site map s	1500						
Hydrophytic Vegetation Present? Yes X No		1		,,	,		
Hydric Soil Present? Yes No	x	Is t	he Sampled		v		
Wetland Hydrology Present? Yes No		with	hin a Wetlar	nd? Yes	No X		
Remarks:							
Animal burrows, old strea	am c	hanr	rel				
VEGETATION – Use scientific names of plant	s.						
Tree Stratum (Plot size:)	Absolute % Cover		t Indicator	Dominance Test works			
1	70 COVCI	Орестез	Cratus	Number of Dominant Sp That Are OBL, FACW, o			
2.							
0				Total Number of Domina Species Across All Strat			
4.							
		= Total C	over	Percent of Dominant Sp That Are OBL, FACW, o			
Sapling/Shrub Stratum (Plot size:)				Prevalence Index work			
1				Total % Cover of:	Multiply by:		
2				OBL species	x 1 =		
3				FACW species	x 2 =		
4				FAC species	x 3 =		
J		= Total C	over	FACU species	x 4 =		
Herb Stratum (Plot size: 2 x 1 meter)		20			x 5 =		
1. Deschampsia cespitosa	40	Y	FACW	Column Totals:	(A) (B)		
2. Aster alpigenus	10	N	OBL	Prevalence Index	= B/A =		
3. Gentianopsis holopetala	4	N	OBL	Hydrophytic Vegetation	n Indicators:		
Mimulus primuloides Muhlenbergia filiformis	7 10	N N	FACW	1 - Rapid Test for H	1 1 1 15		
6. Polygonum bistortoides	2	N	OBL	X 2 - Dominance Test			
7. Polygonum polygaloides	1	N	FACW	3 - Prevalence Inde			
8. Scirpus clementis	14	Y	FAC	4 - Morphological A	daptations ¹ (Provide supporting or on a separate sheet)		
9		<u> </u>		5 - Wetland Non-Va			
10.					hytic Vegetation¹ (Explain)		
11				¹ Indicators of hydric soil	and wetland hydrology must		
	88	= Total Co	over	be present, unless distu	rbed or problematic.		
Woody Vine Stratum (Plot size:)							
1				Hydrophytic			
2				Vegetation Present? Yes	X No		
% Bare Ground in Herb Stratum 15		= Total Co	over				
Remarks:				I.			

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SOIL Sampling Point: SP7											
Profile Des	cription: (Describ	e to the dep	th needed to docur	nent the	indicator	or confirm	n the absence	of indicators.)			
Depth	Matrix			x Feature				_			
(inches)	Color (moist)		Color (moist)	%	Type ¹	_Loc ² _	Texture	Remarks			
0-6	7.5 YR 2.5/2	100					loam	Dense roots			
6-10	7.5 YR 2.5/2	100					sandy loam	fine sand			
10-12	10 YR 3/3	90	7/5 YR 4/6	10	<u>C</u>	M	sandy loam				
12-21	10 YR 3/4	100					sandy loam	Heavy gravel with cobble			
		- 2									
	-							-			
			=Reduced Matrix, CS			d Sand Gr		cation: PL=Pore Lining, M=Matrix.			
(6)		icable to all	LRRs, unless other		(ed.)			ors for Problematic Hydric Solls ³ :			
— Histoso	pipedon (A2)		Sandy Redox (3 Stripped Matrix				_	m Muck (A10) d Parent Material (TF2)			
_	listic (A3)		Loamy Mucky N		1) (except	MLRA1)		y Shallow Dark Surface (TF12)			
	en Sulfide (A4)		Loamy Gleyed			,		er (Explain in Remarks)			
Deplete	d Below Dark Surfa	ice (A11)	Depleted Matrix	(F3)							
	ark Surface (A12)		Redox Dark Su	er er er er				ors of hydrophytic vegetation and			
	Mucky Mineral (S1) Gleyed Matrix (S4)		Depleted Dark : Redox Depress					and hydrology must be present, ss disturbed or problematic.			
	Layer (if present):		Redox Depress	ions (Fo)			unies	ss disturbed or problematic.			
Type:	, (,-										
Depth (in	iches):						Hydric Soi	Present? Yes No X			
Remarks:							ya.io				
	at 21" due to	cobble									
Kelusai	at ZT due to	CODDIE.									
10/00010											
HYDROLO	Charles to										
020000000000000000000000000000000000000	drology Indicator										
		one require	d; check all that appl					ndary Indicators (2 or more required)			
_	Water (A1)		Water-Sta			xcept	_ v	Vater-Stained Leaves (B9) (MLRA 1, 2,			
High Wi	ater Table (A2)		Salt Crust	1, 2, 4A,	and 4B)		4A, and 4B)				
	Marks (B1)		Aquatic In	2	e (B13)		Drainage Patterns (B10) Dry-Season Water Table (C2)				
1-	nt Deposits (B2)		Hydrogen		100		_	Saturation Visible on Aerial Imagery (C9)			
_	posits (B3)		_			Living Roo		Geomorphic Position (D2)			
	at or Crust (B4)		Presence	December 199				Shallow Aquitard (D3)			
Iron De	0.0		Recent Iro					AC-Neutral Test (D5)			
Surface	Soil Cracks (B6)		Stunted or	Stressed	d Plants (D	1) (LRR A	_ F	Raised Ant Mounds (D6) (LRR A)			
Inundat	ion Visible on Aeria	I Imagery (B	7) Other (Exp	olain in R	emarks)		_ F	Frost-Heave Hummocks (D7)			
Sparsel	y Vegetated Conca	ve Surface (B8)								
Field Obser	rvations:		~								
Surface Wat	ter Present?	Yes	No A Depth (in			-					
Water Table	Present?		No X Depth (in					V			
Saturation F	resent? pillary fringe)	Yes	No X Depth (in	ches):		_ Wetl	and Hydrolog	y Present? Yes No X			
		m gauge, me	onitoring well, aerial	photos, p	revious ins	pections),	if available:				
Treat translation believes	Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:										
Remarks:											
	Soil profile dry all the way through.										
and the state of t											
1											

Project/Site: Yosemite National Park - Tuolumne Meadows		City/County	Tuolumne	County	Sampling Date: 8/25/10	0			
Applicant/Owner: National Park Service				State: CA Sampling Point: SP8					
Investigator(s): Stevens, Dungan, Scheuerman		Section, To	wnship, Ra	p, Range:					
Landform (hillslope, terrace, etc.): terrace		Local relief	(concave,	ve, convex, none): none Slope (%): 2					
				Long: 119 22 05.56 W					
Soil Map Unit Name: Marmotland-Oxyaquic Dystrocryepts-Xeric Dystrocryep									
Are climatic / hydrologic conditions on the site typical for this									
Are Vegetation N, Soil N, or Hydrology N, si						No.			
Are Vegetation N, Soil N, or Hydrology N, n				eded, explain any answe					
SUMMARY OF FINDINGS – Attach site map					*	es, etc.			
Hydrophytic Vegetation Present? Yes X No	·								
Hydric Soil Present? Yes	0 <u>X</u>		e Sampled		No X				
	°	With	in a Wetlar	10? Yes	NO				
Photos - MD 21 (soil) and	d ME	24							
VEGETATION – Use scientific names of plant									
	Absolute			Dominance Test work	sheet:				
Tree Stratum (Plot size:)	% Cover	Species?	Status	Number of Dominant S		/A)			
1				That Are OBL, FACW,	br FAC.	_ (A)			
2				Total Number of Domin Species Across All Stra		(B)			
4.						. (0)			
		= Total Co	ver	Percent of Dominant Sp That Are OBL, FACW,		(A/B)			
Sapling/Shrub Stratum (Plot size:)				Prevalence Index wor					
1				10 The Conference of the Confe	Multiply by:				
2				OBL species	x 1 =	_			
3				FACW species	x 2 =				
4					x 3 =				
ō				FACU species	x 4 =	_			
Herb Stratum (Plot size: 2 x 1 meter		= Total Co	ver		x 5 =				
1. Pedicularis attolens	10	N	FACW	Column Totals:	(A)	(B)			
2. Gentianopsis holopetala	5	N	OBL	Prevalence Index	= B/A =				
3. Scirpus clementis	30	Υ	FAC	Hydrophytic Vegetation					
4. Deschampsia cespitosa	30	Υ	FACW	1 - Rapid Test for I	Hydrophytic Vegetation				
5. Aster alpigenus	20	<u>Y</u>	OBL	X 2 - Dominance Tes	st is >50%				
6	0			3 - Prevalence Inde	ex is ≤3.0 ¹				
7				4 - Morphological A	Adaptations ¹ (Provide su	pporting			
8					s or on a separate sheet)			
9				5 - Wetland Non-V					
10				7	phytic Vegetation¹ (Expla				
11	95			be present, unless distu	il and wetland hydrology urbed or problematic.	must			
Woody Vine Stratum (Plot size:)	95	= Total Co	/er	,					
1.				Hydrophytic					
2.				Vegetation	V				
% Bare Ground in Herb Stratum 10	_	= Total Co	/er	Present? Ye	s X No				
Remarks:				-					
and the second s				AND THE RESERVE AND THE PARTY OF THE PARTY O	and the second s	and the same of th			

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SOIL								Sampling Point: SP8
Profile Desc	cription: (Describe	to the dep	th needed to docur	ment the i	ndicator o	or confirn	n the absence	e of indicators.)
Depth	Matrix			x Features				
(inches)	Color (moist)	- %_	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-2	10 YR 2/2	100					loam	Thick roots
2-17	2.5 YR 4/4	95	7.5 YR 4/6	5			loamy sand	
17-24	10 YR 5/8	85	7/5 YR 5/8	15			loamy sand	
				-				·
	-							· ———
			Reduced Matrix, CS			d Sand G		ocation: PL=Pore Lining, M=Matrix. ors for Problematic Hydric Soils ³ :
	121.2	cable to all	LRRs, unless other		;u.)			
Histosol	pipedon (A2)		Sandy Redox (Stripped Matrix				_	m Muck (A10) d Parent Material (TF2)
_	istic (A3)		Loamy Mucky N) (except	MLRA 1)		ry Shallow Dark Surface (TF12)
Hydroge	en Sulfide (A4)		Loamy Gleyed					ner (Explain in Remarks)
	d Below Dark Surfac	ce (A11)	Depleted Matrix					
	ark Surface (A12)		Redox Dark Su		70			ors of hydrophytic vegetation and
	Mucky Mineral (S1) Gleyed Matrix (S4)		Depleted Dark Redox Depress	to to the second	7)			and hydrology must be present, ss disturbed or problematic.
	Layer (if present):		Nedox Depress	10113 (1 0)				33 distarbed of problematic.
Туре:	, , , , , , , , , , , , , , , , , , , ,							
Depth (in	ches):						Hydric Soi	I Present? Yes No X
Remarks:								
LIVEROLO	OV							
HYDROLO	37-2 Li							
275 12	drology Indicators							
		one require	d; check all that appl					ondary Indicators (2 or more required)
	Water (A1)		Water-Sta			cept	_ '	Water-Stained Leaves (B9) (MLRA 1, 2,
High Wa	ater Table (A2)			1, 2, 4A, a	ina 4B)			4A, and 4B)
1	farks (B1)		Salt Crust Aquatic In		e (B13)			Drainage Patterns (B10) Dry-Season Water Table (C2)
1-	nt Deposits (B2)		Hydrogen				_	Saturation Visible on Aerial Imagery (C9)
	posits (B3)		Oxidized F			Living Roo	ots (C3) X	Geomorphic Position (D2)
	at or Crust (B4)		Presence		_	_		Shallow Aquitard (D3)
Iron Dep	oosits (B5)		Recent Iro	n Reductio	on in Tilled	Soils (C	6) <u>X</u> 1	FAC-Neutral Test (D5)
Surface	Soil Cracks (B6)		Stunted or	Stressed	Plants (D1	1) (LRR A	(Raised Ant Mounds (D6) (LRR A)
Inundati	on Visible on Aerial	Imagery (B	7) Other (Exp	olain in Re	marks)			Frost-Heave Hummocks (D7)
Sparsely	y Vegetated Concav	e Surface (B8)					
Field Obser			×					
Surface Wat		Yes	No A Depth (in			-		
Water Table			No X Depth (in					×
Saturation P	resent? ` pillary fringe)	Yes	No X Depth (in	ches):		_ Wetl	and Hydrolog	gy Present? Yes X No
		n gauge, mo	onitoring well, aerial	photos, pre	evious insp	pections),	if available:	
					o Tribalandon II e e i i e			
Remarks:								
Isolated	near forest ed	ige.						

Project/Site: Yosemite National Park - Tuolumne Meadows		City/County	Tuolumne	County	Sampling Date: 8/25/10			
Applicant/Owner: National Park Service				State: CA	Sampling Point: SP9 Wet10			
Investigator(s): Stevens, Dungan, Scheuerman		Section, To	wnship, Ra	nge:				
Landform (hillslope, terrace, etc.): terrace		Local relief	Local relief (concave, convex, none): none Slope (%): 1					
					Datum: NAD83			
Soil Map Unit Name: Marmotland-Oxyaquic Dystrocryepts-Xeric Dystrocrye	pts complex, 0 to	o 15 percent slop	ies, mountain va	lley floors, cryic NWI classifica	ation: PEMC			
Are climatic / hydrologic conditions on the site typical for this	s time of ye	ar? Yes X	No_	(If no, explain in Re	emarks.)			
Are Vegetation N, Soil N, or Hydrology N,								
Are Vegetation N, Soil N, or Hydrology N, r				eded, explain any answer				
SUMMARY OF FINDINGS – Attach site map	1500.50				,			
Hydrophytic Vegetation Present? Yes X N	o							
Hydric Soil Present? Yes X N			e Sampled in a Wetlar		No			
Wetland Hydrology Present? Yes X N	°	With	iii a vvetiai	103	_ ***			
Remarks:								
VEGETATION – Use scientific names of plan								
Tree Stratum (Plot size:)		Dominant Species?		Dominance Test works				
1				Number of Dominant Sp That Are OBL, FACW, o				
2				Total Number of Domina				
3				Species Across All Strat				
4				Percent of Dominant Sp	ecies			
Sapling/Shrub Stratum (Plot size:)		_= Total Co	ver	That Are OBL, FACW, o				
1				Prevalence Index work	sheet:			
2.	0.			1.	Multiply by:			
3.					x 1 =			
4.			_		x 2 =			
5					x 3 =			
2 x 1 motor		= Total Co	ver	1000000	x 4 = x 5 =			
Herb Stratum (Plot size: 2 x 1 meter) 1. Carex scopulorum	75	Υ	FACW		(A) (B)			
2. Senecio scorzonella	10	N	UPL	Countil Totals.	(A) (D)			
3. Perideridia parishii	7	N	FACW		= B/A =			
4. Senecio triangularis	5	N	OBL	Hydrophytic Vegetation				
5. Agrostis sp.	20	N		X 1 - Rapid Test for H 2 - Dominance Test				
6. Hypericum anagalloides	10	N	OBL	3 - Prevalence Inde:				
7.					daptations ¹ (Provide supporting			
8.				data in Remarks	or on a separate sheet)			
9				5 - Wetland Non-Va	scular Plants ¹			
10				T	hytic Vegetation¹ (Explain)			
11	407			Indicators of hydric soil be present, unless distur	and wetland hydrology must			
Woody Vine Stratum (Plot size:)	127	= Total Co	/er	Do prosont, amoso aista	and of problematic.			
1				Hydrophytic				
2.				Vegetation	V			
% Bare Ground in Herb Stratum ⁰		= Total Co	/er	Present? Yes	X No			
Remarks:				I.				

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SOIL Sampling Point: SP9 Wet10										
Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)										
Depth	Matrix		Redox Features							
(inches)	Color (moist)		Color (moist) % Type L		ture Remarks					
0-3	10 YR 2/2	100		silty I						
3-5	10 YR 3/4	100		loamy	r sand					
5-8	10 YR 2/2	100		sandy	loam					
8-12	10 YR 3/3	100		loamy	sand cobble, refusal at 12" due to cobble					
¹Type: C=C	oncentration D=De	enletion. RM=F	Reduced Matrix, CS=Covered or Coated Sa	and Grains.	² Location: PL=Pore Lining, M=Matrix.					
			RRs, unless otherwise noted.)		ndicators for Problematic Hydric Soils ³ :					
Histosol	(A1)		_ Sandy Redox (S5)	_	_ 2 cm Muck (A10)					
Histic Ep	pipedon (A2)		Stripped Matrix (S6)		Red Parent Material (TF2)					
Black Hi	istic (A3)	_	Loamy Mucky Mineral (F1) (except ML	.RA 1) _	Very Shallow Dark Surface (TF12)					
	en Sulfide (A4)	-	Loamy Gleyed Matrix (F2)	_	_ Other (Explain in Remarks)					
	d Below Dark Surfa	ace (A11)	Depleted Matrix (F3)							
	ark Surface (A12)	_	Redox Dark Surface (F6)	5	Indicators of hydrophytic vegetation and					
	Mucky Mineral (S1)	-	Depleted Dark Surface (F7) Redox Depressions (F8)		wetland hydrology must be present,					
	Gleyed Matrix (S4) Layer (if present):		Redox Depressions (Fo)		unless disturbed or problematic.					
Type:	,,,-									
Depth (in	ches):		<u>_</u>	Hydr	ric Soil Present? Yes X No					
Remarks:			_							
Soil does	e not meet et	andard ed	oil indicators, however area is	e epaenn	ally ponded and in accordance					
with vves	stern Mounta	in Supple	ment believe soil is hydric du	ue to proi	onged nyaric conditions.					
	narra .									
HYDROLO	GY									
275 12	drology Indicator									
Primary India	cators (minimum of	fone required;	check all that apply)		Secondary Indicators (2 or more required)					
	Water (A1)		Water-Stained Leaves (B9) (except	pt	Water-Stained Leaves (B9) (MLRA 1, 2,					
	ater Table (A2)		MLRA 1, 2, 4A, and 4B)		4A, and 4B)					
X Saturation	on (A3)		Salt Crust (B11)		Drainage Patterns (B10)					
Water N	farks (B1)		Aquatic Invertebrates (B13)		Dry-Season Water Table (C2)					
Sedimer	nt Deposits (B2)		— Hydrogen Sulfide Odor (C1)		Saturation Visible on Aerial Imagery (C9)					
Drift Dep	posits (B3)		Oxidized Rhizospheres along Living	ng Roots (C3)	Geomorphic Position (D2)					
Algal Ma	at or Crust (B4)		Presence of Reduced Iron (C4)		Shallow Aquitard (D3)					
Iron Dep	oosits (B5)		Recent Iron Reduction in Tilled So	oils (C6)	FAC-Neutral Test (D5)					
Surface	Soil Cracks (B6)		Stunted or Stressed Plants (D1) (L	LRR A)	Raised Ant Mounds (D6) (LRR A)					
_	on Visible on Aeria				Frost-Heave Hummocks (D7)					
	y Vegetated Conca	ve Surface (B	8)							
Field Obser		Y								
Surface Wat			o Depth (inches):							
Water Table	Present?	Yes X N	o Depth (inches): 11"	W 7	Y					
Saturation P	resent? pillary fringe)	Yes X N	o Depth (inches): 1"	Wetland Hy	drology Present? Yes X No					
		m gauge, mor	ا nitoring well, aerial photos, previous inspect	tions), if availa	able:					
	•									
Remarks:										
Near roa	d and outfall	channel	on edge of lodgepole forest.	Sphagni	ım present.					
	a and oddan	J. 101 11 101 1	an eagle of loagepoid foreot.	- priagric	p. 5-5-110					
1										

Project/Site: Yosemite National Park - Tuolumne Meadows		City/County	ty: Tuolumne County Sampling Date: 8/25/10					
Applicant/Owner: National Park Service		1.01		State: CA Sampling Point: SP10				
	8	Section, To		nge:				
Landform (hillslope, terrace, etc.): terrace		Local relief (concave, convex, none): none Slope (%): 0						
	Lat: 37 5	2 20.00 N		Long: 119 21 59.30 W	Datum: NAD83			
Soil Map Unit Name: Marmotland-Oxyaquic Dystrocryepts-Xeric Dystrocryep								
Are climatic / hydrologic conditions on the site typical for this	time of yea	r? Yes X	No	(If no, explain in R	emarks.)			
Are Vegetation $\frac{N}{}$, Soil $\frac{N}{}$, or Hydrology $\frac{N}{}$ si	ignificantly o	disturbed?	Are "	Normal Circumstances" p	oresent? Yes X No No No			
Are Vegetation \underline{N} , Soil \underline{N} , or Hydrology \underline{N} n			(If ne	eded, explain any answe	rs in Remarks.)			
SUMMARY OF FINDINGS - Attach site map	showing	samplin	g point le	ocations, transects	, important features, etc.			
Hydrophytic Vegetation Present? Yes No	X							
Hydric Soil Present? Yes No. Wetland Hydrology Present? Yes No.	× X		e Sampled in a Wetlan		No X			
Wetland Hydrology Present? Yes No Remarks:	<u>^</u>		iii a watai	100				
(MC)(M2)(4) (M2)(M2)(M2)(M2)(M2)(M2)(M2)(M2)(M2)(M2)								
Upland pit for Wet10								
VEGETATION – Use scientific names of plant	ts.							
Tree Stratum (Plot size: 5 m radius)	Absolute	Dominant		Dominance Test work	sheet:			
1. Pinus contorta	<u>% Cover</u> 40	Y Species?	FAC Status	Number of Dominant S				
2.		<u> </u>		That Are OBL, FACW,	or FAC (A)			
3				Total Number of Domin Species Across All Stra				
4.								
	40	= Total Co	ver	Percent of Dominant Sp That Are OBL, FACW,				
Sapling/Shrub Stratum (Plot size:)				Prevalence Index wor				
1				TO THE OWNER OF THE PARTY OF TH	Multiply by:			
2					x 1 =			
3					x 2 =			
4				FAC species	x 3 =			
5		= Total Co		FACU species	x 4 =			
Herb Stratum (Plot size: 2 x 1 meter)		- rotar co	vei		x 5 =			
1. Elymus elymoides	5	<u>Y</u>	FACU	Column Totals:	(A) (B)			
2. Achnatherum occidentale	15	Y	UPL	Prevalence Index	= B/A =			
3. Gayophytum diffusum	1	N N	UPL	Hydrophytic Vegetation	on Indicators:			
4. Penstemon rydbergii	- 1	<u>N</u>	FAC	1 - Rapid Test for H	0 1 0 0			
5				2 - Dominance Tes				
6				3 - Prevalence Inde	S.			
7					Adaptations ¹ (Provide supporting s or on a separate sheet)			
9.				5 - Wetland Non-V	The same of the sa			
10					phytic Vegetation¹ (Explain)			
11					I and wetland hydrology must			
	24	= Total Cov	/er	be present, unless distu	urbed or problematic.			
Woody Vine Stratum (Plot size:)								
1				Hydrophytic				
2				Vegetation Present? Ye	s No_X			
% Bare Ground in Herb Stratum 60		= Total Cov	/er					
Remarks:								
High amount of pine litter/duff on the gre	ound.							
,								

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SOIL						Sampling Point: SP10
Profile Des	cription: (Describ	e to the depth	needed to document the indicator or c	onfirm the	absence	
Depth	Matrix		Redox Features			
(inches)	Color (moist)	%	Color (moist) % Type L	.oc²	Texture	Remarks
0-5	10 YR 2/1	100		loa	amy sand	Roots/fibers
5-20	10 YR 2/2	100		los	amy sand	Heavy gravel/cobble, very dry
						·
17. may 0 - 0					20 -	
			educed Matrix, CS=Covered or Coated Sa Rs, unless otherwise noted.)	and Grains		cation: PL=Pore Lining, M=Matrix. prs for Problematic Hydric Soils ³ :
Histoso						
_	Epipedon (A2)	_	Sandy Redox (S5) Stripped Matrix (S6)		_	n Muck (A10) I Parent Material (TF2)
_	Histic (A3)	_	Loamy Mucky Mineral (F1) (except ML	RA 1)		y Shallow Dark Surface (TF12)
	en Sulfide (A4)		Loamy Gleyed Matrix (F2)	,		er (Explain in Remarks)
Deplete	ed Below Dark Surf	ace (A11)	Depleted Matrix (F3)			
Thick D	ark Surface (A12)	_	Redox Dark Surface (F6)		3Indicate	ors of hydrophytic vegetation and
	Mucky Mineral (S1)		Depleted Dark Surface (F7)			nd hydrology must be present,
	Gleyed Matrix (S4)		Redox Depressions (F8)		unles	s disturbed or problematic.
	Layer (if present)	:				
Type:			-		1070 12 13	Y
Depth (ir	nches):		_	н	ydric Soil	Present? Yes No X
HYDROLO	OGY					
Carolina Charles Co	ydrology Indicator	s:				
775 15 1000 1000	The second second		heck all that apply)		Seco	ndary Indicators (2 or more required)
	Water (A1)		Water-Stained Leaves (B9) (except	nf		Vater-Stained Leaves (B9) (MLRA 1, 2,
	ater Table (A2)		MLRA 1, 2, 4A, and 4B)	P.		4A, and 4B)
Saturat			Salt Crust (B11)		D	Prainage Patterns (B10)
_	Marks (B1)		Aquatic Invertebrates (B13)			Pry-Season Water Table (C2)
_	ent Deposits (B2)		Hydrogen Sulfide Odor (C1)		_	saturation Visible on Aerial Imagery (C9)
Drift De	eposits (B3)		Oxidized Rhizospheres along Livir	ng Roots (0	C3) G	Seomorphic Position (D2)
Algal M	lat or Crust (B4)		Presence of Reduced Iron (C4)		_ s	hallow Aquitard (D3)
Iron De	posits (B5)		Recent Iron Reduction in Tilled So	oils (C6)		AC-Neutral Test (D5)
Surface	Soil Cracks (B6)		Stunted or Stressed Plants (D1) (L	LRR A)	R	aised Ant Mounds (D6) (LRR A)
Inundat	tion Visible on Aeria	al Imagery (B7)	Other (Explain in Remarks)		F	rost-Heave Hummocks (D7)
Sparsel	ly Vegetated Conce	ave Surface (B8)				
Field Obse	rvations:		~			
Surface Wa	ter Present?	Yes No	X Depth (inches):			
Water Table	e Present?	Yes No	X Depth (inches):			
Saturation F		Yes No	X Depth (inches):	Wetland	Hydrolog	y Present? YesNo X
	apillary fringe) ecorded Data (strea	am gauge, monit	oring well, aerial photos, previous inspect	tions), if av	ailable:	
_						
Remarks:						

Project/Site: Yosemite National Park - Tuolumne Meadow	WS	City/County	Tuolumne	County	Sampling Date: 8/26/10
Applicant/Owner: National Park Service				State: CA	Sampling Point: SP11
Investigator(s): Stevens, Dungan, Scheuerman		Section, To	wnship, Ra	nge:	
Landform (hillslope, terrace, etc.): terrace		Local relief	(concave,	convex, none): none	Slope (%): 0
					Datum: NAD83
Soil Map Unit Name: Marmotland-Oxyaquic Dystrocryepts-Xeric Dystro					
101					
Are climatic / hydrologic conditions on the site typical for					
Are Vegetation N, Soil N, or Hydrology N					oresent? Yes X No
Are Vegetation N, Soil N, or Hydrology N	naturally pro	oblematic?	(If ne	eeded, explain any answe	rs in Remarks.)
SUMMARY OF FINDINGS – Attach site ma	ap showing	samplin	g point l	ocations, transects	, important features, etc.
Hydrophytic Vegetation Present? Yes X	No	T			
Hydric Soil Present? Yes	No X		e Sampled		V
Wetland Hydrology Present? Yes	No X	with	in a Wetlar	nd? Yes	No X
Remarks:					
Photo: MD38					
T HOLO. IVIDOO					
VEGETATION – Use scientific names of p	lants.				
	Absolute			Dominance Test work	sheet:
Tree Stratum (Plot size:)	% Cover	Species?	Status	Number of Dominant Sp	
1	_			That Are OBL, FACW,	or FAC: (A)
2				Total Number of Domin	
3				Species Across All Stra	ta: (B)
4				Percent of Dominant Sp	
Sapling/Shrub Stratum (Plot size: 3 m radius)		_= Total Co	ver	That Are OBL, FACW,	
1. Vaccinium caespitosum	50	Υ	FACW	Prevalence Index work	
2. Pinus contorta	3	N	FAC		Multiply by:
3.					x 1 =
4.					x 2 =
5				(1)	x 3 =
21	53	= Total Co	ver		x 4 =
Herb Stratum (Plot size: 2 x 1 meter)	40	V	OBL		x 5 = (B)
1. Dodecatheon alpinum 2. Trifolium monanthum	20	· '	FACW	Column Totals.	(A) (B)
3. Calamagrostis breweri	$-\frac{20}{3}$	<u>'</u>	UPL		= B/A =
4. Senecio scorzonella	10	N	UPL	Hydrophytic Vegetation	
5. Scirpus clementis	12	N	FAC	X 1 - Rapid Test for H	
6. Pedicularis attolens		N	FACW	2 - Dominance Tes	
7. Aster occidentalis		N	FAC	3 - Prevalence Inde	
				data in Remarks	Adaptations ¹ (Provide supporting s or on a separate sheet)
8				5 - Wetland Non-Va	
10				treat contains that while to	phytic Vegetation ¹ (Explain)
11				¹ Indicators of hydric soi	I and wetland hydrology must
	89	= Total Cov		be present, unless distu	urbed or problematic.
Woody Vine Stratum (Plot size:)					
1				Hydrophytic	
2				Vegetation Present? Yes	s X No
% Bare Ground in Herb Stratum 10		= Total Cov	/er	11030111: 10:	
Remarks:					
1.100.0000.0000					

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SOIL								Sampling Point: SP11
Profile Descr	ription: (Descri	oe to the de	pth needed to doo	cument the	indicator	or confirn	n the absence	of indicators.)
Depth	Matrix			dox Feature				
(inches)	Color (moist)		Color (moist)	%	Type ¹	Loc²	Texture	Remarks
0-6	10 YR 2/2	100					sandy loam	Dense Roots
6-12	10 YR 2/2	100					sandy loam	-
12-18	10 YR 3/3	95	7.5 YR 4/6	_ 5	C	М	sandy loam	
18-24	7/5 YR 4/6	80	7/5 YR 5/8	20	C	M	loamy sand	
			-					
			-					
			-					-
							- 2-	E
			1=Reduced Matrix, I LRRs, unless ot			ed Sand G		cation: PL=Pore Lining, M=Matrix. ors for Problematic Hydric Soils ³ :
		licable to al			iteu.)			•
Histosol (ipedon (A2)		Sandy Redox Stripped Mat				_	m Muck (A10) d Parent Material (TF2)
Black His			Loamy Muck		F1) (excep	t MLRA 1)		y Shallow Dark Surface (TF12)
Hydroger	Sulfide (A4)		Loamy Gleye	_				er (Explain in Remarks)
	Below Dark Surf	face (A11)	Depleted Ma	0.00				
	rk Surface (A12)		Redox Dark					ors of hydrophytic vegetation and
	ucky Mineral (S1 leyed Matrix (S4)		Depleted Da					and hydrology must be present, ss disturbed or problematic.
	ayer (if present)		Redox Depre	23310113 (1-0)	,		unie	ss disturbed of problematic.
Type:	, , , , , , , , , , , , , , , , , , , ,							
Depth (incl	hes):						Hydric Soi	Present? YesNo_X
Remarks:								
YDROLOG	3Y							
Wetland Hyd	rology Indicato	rs:						
Primary Indica	ators (minimum o	of one require	ed; check all that a	oply)			Seco	ndary Indicators (2 or more required)
Surface V	Nater (A1)		Water-S	Stained Lea	ves (B9) (e	except	v	Vater-Stained Leaves (B9) (MLRA 1, 2,
High Wat	er Table (A2)		MLR	RA 1, 2, 4A,	and 4B)			4A, and 4B)
Saturation	n (A3)		Salt Cru	ıst (B11)			_ [Orainage Patterns (B10)
Water Ma	12 12		_	Invertebrat	120		_	Dry-Season Water Table (C2)
	t Deposits (B2)		Hydroge				_	Saturation Visible on Aerial Imagery (C9)
Drift Depo				d Rhizosph	20.00			Geomorphic Position (D2)
Algai Mat	t or Crust (B4)			ce of Reduc			- X	Shallow Aquitard (D3) FAC-Neutral Test (D5)
	Soil Cracks (B6)			or Stresse				Raised Ant Mounds (D6) (LRR A)
_	n Visible on Aeri	al Imagery (F				/I) (EKK A		Frost-Heave Hummocks (D7)
	Vegetated Conc						_	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Field Observ	rations:		1 0					
Surface Wate	r Present?	Yes	No X Depth	(inches):		_		
Water Table F	Present?	Yes	No X Depth	(inches):				
Saturation Pre	esent?		No_X Depth				and Hydrolog	y Present? YesNo∑X
(includes capi Describe Rec		am gauge, m	nonitoring well, aeri	al photos, p	revious ins	spections),	if available:	
Remarks:								

Project/Site: Yosemite National Park - Tuolumne Meadows		City/County	Tuolumne	County	Sampling D	ate: 8/26/10		
Applicant/Owner: National Park Service	State: CA	Sampling P	oint: SP12 W	/et14				
Investigator(s): Stevens, Dungan, Scheuerman		Section, To	wnship, Ra	nge:				
Landform (hillslope, terrace, etc.): terrace		Local relief	(concave,	convex, none): none		Slope (%):	2	
				Long: 119 21 24.65 W Datum: NAD83				
Soil Map Unit Name: Marmotland-Oxyaquic Dystrocryepts-Xeric Dystrocry								
Are climatic / hydrologic conditions on the site typical for th								
Are Vegetation N, Soil N, or Hydrology N				"Normal Circumstances"		. X N		
Are Vegetation N , Soil N , or Hydrology N							,——	
				eded, explain any answe				
SUMMARY OF FINDINGS – Attach site map	showing	samplin	g point l	ocations, transects	, importa	nt features	s, etc.	
Hydrophytic Vegetation Present? Yes X 1	No							
Hydric Soil Present? Yes X	No		e Sampled in a Wetlar		No			
Wetland Hydrology Present? Yes X	No		iii a vvotiai	100		_		
Remarks:								
VECETATION . He a cointific names of plan	-4-							
VEGETATION – Use scientific names of plan		Danningant	la dia atau	Dominous Tost word	bt-			
Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?		Dominance Test work				
1				Number of Dominant S That Are OBL, FACW,	or FAC: 2		(A)	
2				Total Number of Domir	ant			
3				Species Across All Str			(B)	
4				Percent of Dominant S	necies			
5 m radius		= Total Co	ver	That Are OBL, FACW,		00	(A/B)	
Sapling/Shrub Stratum (Plot size: 5 m radius				Prevalence Index wo	ksheet:			
1				Total % Cover of:	N	fultiply by:	_	
2 3				OBL species	x 1 =		_	
J				FACW species	x 2 =		-	
5				FAC species	x 3 =		-1	
-		= Total Co	ver	FACU species				
Herb Stratum (Plot size: 2 x 1 meter)				UPL species				
1. Erigeron peregrinus	40	<u>Y</u>	FACW	Column Totals:	(A)		_ (B)	
2. Juncus mexicanus	_ 5	N	FACW	Prevalence Index	= B/A =		_	
3. Juncus orthophyllus	- 8 3	N	FACW	Hydrophytic Vegetati	on Indicator	s:		
4. Carex athrostachya 5. Bromus suksdorfii	- 3	N	UPL	1 - Rapid Test for		/egetation		
5. Bromus suksdorfii Antennaria corymbosa	20	Y	FAC	X 2 - Dominance Te				
7. Carex lanuginosa	5	N	OBL	3 - Prevalence Ind				
8. Unk. dicot herb (no flowers or fruits)	15	N		4 - Morphological data in Remark	Adaptations'	(Provide supparate sheet)	porting	
9.				5 - Wetland Non-V				
10				Problematic Hydro			n)	
11.				Indicators of hydric so	il and wetland	d hydrology m	nust	
	100	= Total Cov	/er	be present, unless dist	urbed or prob	lematic.		
Woody Vine Stratum (Plot size:)								
1				Hydrophytic				
2				Vegetation Present? Ye	s X	Vα		
% Bare Ground in Herb Stratum 0	-	= Total Cov	/er					
Remarks:								
Surrounded by Pinus contorta.								
Canada by Finds Contona.								

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SOIL								Sampling Point: SP12 Wet14
Profile Des	cription: (Describ	e to the dep	oth needed to docu	ment the	indicator	or confirm	n the absen	
Depth	Matrix			ox Featur	es			
(inches)	Color (moist)	%	Color (moist)	%_	Type ¹		Texture	Remarks
0-6	10YR 2/2	98	10 YR 4/6	2	<u> </u>		sandy loan	<u> </u>
6-24	5Y 6/2	80	7/5 YR 5/8	20	С	M	loamy sand	d
	-	_		*				-
-				-				- -
							_	
¹Type: C=C	Concentration D=D	enletion RM	=Reduced Matrix. C	S=Cover	ed or Coat	ed Sand Gr	rains ² I	Location: PL=Pore Lining, M=Matrix.
- 71			LRRs, unless othe			ou ound or		ators for Problematic Hydric Soils ³ :
Histoso	25.5		Sandy Redox (cm Muck (A10)
_	pipedon (A2)		Stripped Matrix				_	ed Parent Material (TF2)
Black H	listic (A3)		Loamy Mucky	Mineral (I	F1) (excep	t MLRA 1)		ery Shallow Dark Surface (TF12)
	en Sulfide (A4)		Loamy Gleyed		2)		_ °	ther (Explain in Remarks)
1 —	d Below Dark Surf	ace (A11)	Depleted Matri	0.00			3	
	ark Surface (A12)		Redox Dark Su					ators of hydrophytic vegetation and
	Mucky Mineral (S1) Gleyed Matrix (S4)		Depleted Dark Redox Depres					tland hydrology must be present, less disturbed or problematic.
	Layer (if present)	:	Nodox Bopros	010110 (1 0	,		T	is a starbed of problematic.
Type:								
2000	nches):		_				Hydric Se	oil Present? Yes X No
Remarks:							,	
HYDROLO	ACTION IN							
775 15 170 170	drology Indicator							
		f one require	d; check all that app					condary Indicators (2 or more required)
_	Water (A1)				ves (B9) (except	_	Water-Stained Leaves (B9) (MLRA 1, 2,
	ater Table (A2)				and 4B)			4A, and 4B)
Saturat			Salt Crust		(D42)		_	Drainage Patterns (B10)
_	Marks (B1)		Aquatic In				_	Dry-Season Water Table (C2)
	ent Deposits (B2) eposits (B3)		Hydrogen			Living Poo	te (C3) V	Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2)
	lat or Crust (B4)		Oxidized Presence	December 199			AS (CS) A	Shallow Aquitard (D3)
Iron De						d Soils (Ce	3) X	FAC-Neutral Test (D5)
	Soil Cracks (B6)					01) (LRR A		Raised Ant Mounds (D6) (LRR A)
_	ion Visible on Aeria	I Imagery (B				, (=		Frost-Heave Hummocks (D7)
_	ly Vegetated Conce						_	
Field Obse	rvations:							
Surface Wa	ter Present?	Yes	No X Depth (in	nches):		_		
Water Table	Present?	Yes	No X Depth (in	nches):		_		
Saturation F	Present?		No X Depth (in				and Hydrold	ogy Present? Yes X No
	pillary fringe) ecorded Data (strea	m gauge, m	onitoring well, aerial	photos, p	revious in:	spections),	if available:	100%
Remarks:								
I								

Project/Site: Yosemite National Park - Tuolumne Meadows		City/County	Tuolumne	County	Sampling Date: 8/26/10	
Applicant/Owner: National Park Service				State: CA	Sampling Point: SP13	
O D O-1		Section, To	wnship, Ra	nge:		
Landform (hillslope, terrace, etc.): terrace		Local relief	(concave,	convex, none): none	Slope (%):	2
				Long: 119 21 24.66 W		
Soil Map Unit Name: Marmotland-Oxyaquic Dystrocryepts-Xeric Dystrocrye						
Are climatic / hydrologic conditions on the site typical for thi						
Are Vegetation N , Soil N , or Hydrology N ,				"Normal Circumstances" p		
Are Vegetation $\frac{N}{N}$, Soil $\frac{N}{N}$, or Hydrology $\frac{N}{N}$ SUMMARY OF FINDINGS – Attach site map				eeded, explain any answer	,	, etc.
Hydrophytic Vegetation Present? Yes N	lo X	T			-	
Hydric Soil Present? Yes X N	lo		e Sampled		×	
Hydric Soil Present? Yes X N Wetland Hydrology Present? YesN	lo X	with	in a Wetlar	nd? Yes	No X	
Remarks:						
Upland pit for Wet14.						
VEGETATION – Use scientific names of plan						
Tree Stratum (Plot size: 5 m radius	Absolute % Cover	Dominant Species?		Dominance Test works		
1. Pinus contorta	10	Y	FAC	Number of Dominant Sp That Are OBL, FACW, or		(A)
2.	-			Total Number of Demine		
3				Total Number of Domina Species Across All Strat		(B)
4				Percent of Dominant Sp	eries	
	10	= Total Co	ver	That Are OBL, FACW, o		(A/B)
Sapling/Shrub Stratum (Plot size:)				Prevalence Index work	sheet:	
1				Total % Cover of:	Multiply by:	
2				OBL species	x 1 =	
3	-			FACW species	x 2 =	
5				FAC species	x 3 =	4
	- 0	= Total Co	ver	FACU species	x 4 =	e e
Herb Stratum (Plot size: 2 x 1 meter)		_ rotar oc			x 5 =	
1. Antennaria corymbosa	2	N	FAC	Column Totals:	(A)	(B)
2. Achillea millefolium	20	<u>Y</u>	FACU	Prevalence Index	= B/A =	
3. Calamagrostis breweri	40	Y	UPL	Hydrophytic Vegetatio		
4. Elymus trachycaulus	5	N	FAC	1 - Rapid Test for H		
5. Erigeron peregrinus	10	N	FACW	2 - Dominance Test		
6. Potentilla gracilis 7. Pyrrocoma apargioides	7 3	N N	UPL	3 - Prevalence Inde		
		<u>N</u>	UPL	4 - Morphological A	daptations ¹ (Provide supple or on a separate sheet)	orting
8				5 - Wetland Non-Va	The same of the sa	
9				the control of the control of	hytic Vegetation¹ (Explain	á.
10				17	and wetland hydrology me	0
11	87	= Total Co		be present, unless distu		451
Woody Vine Stratum (Plot size:)	-	_ Total Co	/ei			
1				Hydrophytic		
2				Vegetation	Na X	
W Barra Granus d'a Ularta Stratura ()		= Total Co	/er	Present? Yes	No X	
% Bare Ground in Herb Stratum 0 Remarks:				l		
nama.						

US Army Corps of Engineers

	SOIL								Sampling Point: SP13
	Profile Des	scription: (Descri	e to the de	pth needed to docu	ument the	indicator	or confirm	n the absence	of indicators.)
10 YR 3/2	Depth								
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Tocation: PL=Pore Lining, M=Matrix, Vortic Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for PL=Pore Lining, M=Matrix, Vortic Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for PL=Pore Lining, M=Matrix, Vortic Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Potelmatic Hydric Soils*: Indicators for Vortic Matrix (SS) Plot Muster (PS) Red Parent Material (TF2) Plant Muster (PS) Red Parent Material (TF2) Other (Explain in Remarks) Plot Potent Matrix (PS) Plot Potent Matrix (PS) Other (Explain in Remarks) Other (Explain in Remarks) Other (Explain in Remarks) Plot Potent Matrix (PS) Plot Potent Potent Matrix (PS) Plot Potent Pot	(inches)								Remarks
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. **Location: PL=Pore Lining, M=Matrix, trydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Histoscal (A1)			85					sandy loam	
Indicators for Problematic Hydric Soils*: Histosol (A1)	16-24	10 YR 4/4	90	10 YR 5/6	10	C	M	loamy sand	Orange sand
Indicators for Problematic Hydric Soils*: Histosol (A1)									
Indicators for Problematic Hydric Soils*: Histosol (A1)		-0		-					-
Indicators for Problematic Hydric Soils*: Histosol (A1)		-	_		-0			-	
Indicators for Problematic Hydric Soils*: Histosol (A1)									
Indicators for Problematic Hydric Soils*: Histosol (A1)						_			
Indicators for Problematic Hydric Soils*: Histosol (A1)									
Indicators for Problematic Hydric Soils*: Histosol (A1)			_		_				-
Indicators for Problematic Hydric Soils*: Histosol (A1)		-						2.	
Histosol (A1) Sandy Redox (S5) 2 cm Muck (A10) Histoc Epipedon (A2) Stripped Matrix (S6) Red Parent Material (TF2) Histoc Epipedon (A2) Stripped Matrix (S6) Red Parent Material (TF2) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Very Shallow Dark Surface (TF12) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Other (Explain in Remarks) Depleted Below Dark Surface (A11) Depleted Matrix (F2) Other (Explain in Remarks) Thick Dark Surface (A12) X Redox Dark Surface (F6) wetland hydrology must be present, sandy Gleyed Matrix (S4) Redox Depressions (F8) unless disturbed or problematic. In the surface (A12) Redox Depressions (F8) Person (F7) Wetland hydrology must be present, unless disturbed or problematic. In the surface (A12) Redox Depressions (F8) Person (F7) Water-Stained Leaves (B9) (except Mydrix (S6) Present? Yes No							ed Sand G		
Histic Epipedon (A2) Stripped Matrix (S6) Red Parent Material (TF2) Black Histic (A3) Loamy Mucky Mineral (F1) (except MLRA 1) Depleted Denor Suffide (A4) Depleted Below Dark Surface (A11) Depleted Matrix (F2) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Depleted Dark Surface (F6) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Redox Depressions (F8) Beptited Layer (if present): Type: Depth (inches): Depth (inches): Water Matrix (F2) MLRA 1, 2, 4A, and 4B) Saturation (A3) Salt Crust (B11) Water Table (A2) Matrix (B1) Sediment Deposits (B3) Agaid Mat or Crust (B4) Iron Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B3) Surface Water (B4) Iron Deposits (B3) Surface Water (B4) Iron Deposits (B3) Surface Water (B4) Iron Deposits (B5) Recent Iron Reduction in Tilled Soils (C6) FAC-Neutral Test (D5) Surface Soil Crask (B6) Indicators (Dark Surface (F7) Water Marks (B1) Search Again (C4) Iron Deposits (B3) Surface Water (B4) Iron Deposits (B5) Surface (B8) Wetland Hydrology Present? Yes No X Depth (inches): Water Table (Present? Yes No X Depth (inches): Water Table (B4) Water Table (B4) Water Alary (B4) Water Table (B4) Water Alary (B4) Water Table (B4) Water Alary (B4) Water Alary (B4) Water Table (B4) Water Alary (B4) W		25.7	licable to a			neu.)			•
Black Histic (A3)	_			_					
Hydrogen Sulfide (A4)						F1) (evcer	t MIRA1		
Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Thick Dark Surface (A12) Trick Dark Surface (A12) Trick Dark Surface (A12) Seady Mucky Mineral (S1) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Sandy Gleyed Matrix (S4) Redox Depressions (F8) Redox Depr	100000000000000000000000000000000000000	Company of the Company of		_			t in Liter 1		
Thick Dark Surface (A12)		and the second second	ace (A11)			-/		_	(Explain in Troillains)
Sandy Gleyed Matrix (S4) Redox Depressions (F8) unless disturbed or problematic. Restrictive Layer (if present): Type: Depth (inches): Hydric Soli Present? Yes X No	_				0.00	6)		3Indicate	ors of hydrophytic vegetation and
PyDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one required: check all that apply) Surface Water (A1) High Water Table (A2) Salt Crust (B11) Secondary Indicators (2 or more required) MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Saturation (A3) Salt Crust (B11) Water Marks (B1) Secondary Indicators (2 or more required) A4, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Sediment Deposits (B2) Drift Deposits (B3) Oxidized Rhizospheres along Living Roots (C3) Geomorphic Position (D2) Drift Deposits (B3) Agail Mat or Crust (B4) Presence of Reduced Iron (C4) Surface Water (B5) Recent Iron Reduction in Tilled Soils (C6) FAC-Neutral Test (D5) Surface Water (B6) Stunted or Stressed Plants (D1) (LRR A) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8) Vater Table Present? Yes No Dother (Explain in Remarks) Vater Table Present? Yes No Dother (Explain in Remarks) Wetland Hydrology Present? Yes No Wetland Hydrology Present? Yes No No Metland Hydrology Present? Yes No No Wetland Hydrology Present? Yes No No No Prescribe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	Sandy	Mucky Mineral (S1)	Depleted Dark	k Surface	(F7)		wetla	and hydrology must be present,
Type:	_ Sandy	Gleyed Matrix (S4)		Redox Depres	ssions (F8	3)		unles	ss disturbed or problematic.
Poper (inches):	Restrictive	Layer (if present)	:						
VPROLOGY Vetland Hydrology Indicators: Virinary Indicators (minimum of one required, check all that apply) Surface Water (A1) Water-Stained Leaves (B9) (except High Water Table (A2) Salt Crust (B11) Water Marks (B1) Water Marks (B1) Water Marks (B1) Drainage Patterns (B10) Water Marks (B1) Dry-Season Water Table (C2) Sediment Deposits (B2) Hydrogen Sulfide Odor (C1) Drift Deposits (B3) Cxidized Rhizospheres along Living Roots (C3) For Deposits (B3) Frost-Heave Hummocks (D7) Sparrace Soil Cracks (B6) Surface Soil Cracks (B6) Sparracy (B7) Sparrsely Vegetated Concave Surface (B8) Frost-Heave Hummocks (D7) Water Table Present? Yes No X Depth (inches): Wetland Hydrology Present? Yes No X Depth (inches): Surface Soil Cracks (B7) Wetland Hydrology Present? Yes No X Depth (inches): Wetland Hydrology Present? Yes No X Depth (inches): Solution of solutions in spections), if available:	Туре:								
Vertand Hydrology Indicators:	Depth (ir	nches):						Hydric Soil	IPresent? Yes X No
Secondary Indicators (2 or more required) Surface Water (A1) Surface Water (A1) Water-Stained Leaves (B9) (except High Water Table (A2) Saturation (A3) Salt Crust (B11) Sediment Deposits (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) For Deposits (B5) Surface Soil Cracks (B6) Surface Soil Cracks (B6) Surface Soil Cracks (B6) Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) Surface Water Present? Surface Water Present? Surface Water Present? Surface Water Present? Surface Soil Cracks (B8) Surface Soil Cracks (B8) Surface Soil Cracks (B8) Surface Soil Cracks (B8) Surface Surface Water Present? Sur	YDROLO	OGY							
Surface Water (A1)	Vetland Hy	ydrology Indicato	rs:						
High Water Table (A2) Saturation (A3) Salt Crust (B11) Water Marks (B1) Aquatic Invertebrates (B13) Drainage Patterns (B10) Dry-Season Water Table (C2) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8) Frost-Heave Hummocks (D7) Saturation Visible on Aerial Imagery (C2) Stunted or Stressed Plants (D1) (LRR A) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8) Frost-Heave Hummocks (D7) Surface Water Present? Yes No Depth (inches): Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): Saturation Fresions, if available:	rimary Ind	icators (minimum o	f one requir	ed; check all that ap	ply)			Seco	ndary Indicators (2 or more required)
Saturation (A3)	_ Surface	e Water (A1)		Water-Si	tained Lea	ives (B9) (except	v	Vater-Stained Leaves (B9) (MLRA 1,
Water Marks (B1)	_ High W	later Table (A2)		MLRA	A 1, 2, 4A	, and 4B)			4A, and 4B)
Sediment Deposits (B2)	_	10 10		Salt Crus	st (B11)				Orainage Patterns (B10)
Drift Deposits (B3)	_ Water I	Marks (B1)						— [[]	Ory-Season Water Table (C2)
Algal Mat or Crust (B4)	_ Sedime	ent Deposits (B2)		Hydroge	n Sulfide (Odor (C1)		_ =	Saturation Visible on Aerial Imagery (C
Iron Deposits (B5) Recent Iron Reduction in Tilled Soils (C6) FAC-Neutral Test (D5) Surface Soil Cracks (B6) Stunted or Stressed Plants (D1) (LRR A) Raised Ant Mounds (D6) (LRR A) Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) Frost-Heave Hummocks (D7) Sparsely Vegetated Concave Surface (B8) ield Observations: surface Water Present? Yes No X Depth (inches): Vater Table Present? Yes No X Depth (inches): surface Present? Yes No X Depth (inches): Surface Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	_			Oxidized	Rhizosph	eres along	Living Ro	ots (C3) C	Geomorphic Position (D2)
Surface Soil Cracks (B6) Stunted or Stressed Plants (D1) (LRR A) Raised Ant Mounds (D6) (LRR A) Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) Frost-Heave Hummocks (D7) Sparsely Vegetated Concave Surface (B8) ield Observations: urface Water Present? Yes No X Depth (inches): vater Table Present? Yes No X Depth (inches): urface Present? Yes No X Depth (inches): vater Table Present? Yes No X Depth (inches): vate									
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) Frost-Heave Hummocks (D7) Sparsely Vegetated Concave Surface (B8) Iteld Observations: Surface Water Present? Yes No X Depth (inches): Vater Table Present? Yes No X Depth (inches): Saturation Present? Yes No X Depth (inches): Uncludes capillary fringe) Vescribe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	Iron De	posits (B5)		Recent I	ron Reduc	tion in Tille	ed Soils (C	6) F	AC-Neutral Test (D5)
Sparsely Vegetated Concave Surface (B8) Field Observations: Surface Water Present? Yes No X Depth (inches): Vater Table Present? Yes No X Depth (inches): Saturation Present? Yes No X Depth (inches): Saturation Present? Yes No X Depth (inches): Solution Present? Yes No X Depth (in	_				or Stresse	d Plants (I	01) (LRR A		
Field Observations: Surface Water Present? Yes No X Depth (inches): Vater Table Present? Yes No X Depth (inches): Saturation Present? Yes No X Depth (inches)					xplain in F	Remarks)		<u> </u>	Frost-Heave Hummocks (D7)
Surface Water Present? Yes No X Depth (inches):			ave Surface	(B8)					
Vater Table Present? Yes No X Depth (inches): Wetland Hydrology Present? Yes No X Depth (inches): Wetland Hydrology Present? Yes No X Depth (inches): Saturation Present Present? Yes No X Depth (inches): Wetland Hydrology Present? Yes No X Depth (inches): Saturation Present Present? Yes No X Depth (inches): Saturation Present? Yes S				· ·					
Saturation Present? Yes No X Depth (inches): Wetland Hydrology Present? Yes No X No Loudes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	Surface Wa	iter Present?		il Para il i			—		
includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	Vater Table	e Present?							
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			Yes	No X Depth (i	inches): _		Wet	land Hydrolog	y Present? YesNo X
Remarks:			am gauge, n	nonitoring well, aeria	l photos, p	previous in	spections),	, if available:	
Remarks:									
	Remarks:								

Project/Site: Yosemite National Park - Tuolumne Meadow	s	City/County	. Tuolumne	County	Sampling Date: 8/26/10
Applicant/Owner: National Park Service				State: CA	Sampling Point: SP14
Investigator(s): Stevens, Dungan, Scheuerman		Section, To	wnship, Ra	nge:	
Landform (hillslope, terrace, etc.): terrace		Local relief	f (concave,	convex, none): none	Slope (%): 5
Subregion (LRR): MLRA 22A					Datum: NAD83
Soil Map Unit Name: Canisrocks-Xeric Dystrocryepts association					
Are climatic / hydrologic conditions on the site typical for					
Are Vegetation N, Soil N, or Hydrology N					resent? Yes X No
Are Vegetation N , Soil N , or Hydrology N				eded, explain any answe	
SUMMARY OF FINDINGS – Attach site ma					,
Hydrophytic Vegetation Present? Yes X	No		21750		
Hydric Soil Present? Yes	No X		e Sampled		Y
Wetland Hydrology Present? Yes	No X	with	in a Wetlar	nd? Yes	No X
Remarks:					
VEGETATION – Use scientific names of pla					
Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test work	
1				Number of Dominant Sp That Are OBL, FACW, of	
2.				Total Number of Domin	ont .
3				Species Across All Stra	
4	_			Percent of Dominant Sp	necies
2 m radius		_= Total Co	over	That Are OBL, FACW,	
Sapling/Shrub Stratum (Plot size: 3 m radius 1. Pinus contorta	10	Υ	FAC	Prevalence Index wor	ksheet:
		·—	170	Total % Cover of:	Multiply by:
2				OBL species	x 1 =
4				FACW species	x 2 =
5				FAC species	x 3 =
	10	= Total Co	over		x 4 =
Herb Stratum (Plot size: 2 x 1 meter					x 5 =
1. Carex scopulorum	_ 5	N	FACW	Column Totals:	(A) (B)
2. Perideridia parishii		N Y	FACW	Prevalence Index	= B/A =
Mimulus primuloides Calamagrostis canadensis	70 25	N	FACW	Hydrophytic Vegetation	
Juncus orthophyllus	10	N	FACW	Total Control of the	lydrophytic Vegetation
Mark I and a serie Elifamenta	20	Y	FACW	X 2 - Dominance Tes	
6. Munienbergia filiformis 7. Aster alpigenus	10	N	OBL	3 - Prevalence Inde	
8. Ranunculus alismifolius	70	Y	FACW	4 - Morphological A	daptations ¹ (Provide supporting s or on a separate sheet)
9.				5 - Wetland Non-Va	
10					ohytic Vegetation¹ (Explain)
11.				¹ Indicators of hydric soi	and wetland hydrology must
200	220	= Total Cov	ver	be present, unless distu	rbed or problematic.
Woody Vine Stratum (Plot size:)		-			
1				Hydrophytic	
2				Vegetation Present? Yes	s_X No
% Bare Ground in Herb Stratum 0	-	_= Total Co	ver	100	
Remarks:					

US Army Corps of Engineers

SOIL								Sampling Point: SP14
Profile Des	cription: (Describ	e to the dep	oth needed to docur	nent the	indicator	or confirm	m the absence	
Depth	Matrix		Redo	x Featur				
(inches)	Color (moist)		Color (moist)	%	Type ¹	Loc²	Texture	Remarks
0-4	10 YR 2.5/2	100			_		loam	High organic matter, dense roots, moist
4-6	7.5 YR 2.5/2	100					loam	mucky mineral, moist
6-20	10 YR 3/3	100					sandy loam	moist
20-24	10 YR 3/3	90	10 YR 4/6	10	С	М	loam	moist
		-2						·
-								
			-					
								7
								·
			=Reduced Matrix, CS			ed Sand G		cation: PL=Pore Lining, M=Matrix.
100		icable to all	LRRs, unless other		ited.)			ors for Problematic Hydric Soils ³ :
Histoso	, , , , ,		Sandy Redox (m Muck (A10)
_	pipedon (A2) listic (A3)		Stripped Matrix Loamy Mucky N		F1) (evcen	t MIRA1		d Parent Material (TF2) y Shallow Dark Surface (TF12)
	en Sulfide (A4)		Loamy Gleyed			CIMILITY I		er (Explain in Remarks)
_	d Below Dark Surf	ace (A11)	Depleted Matrix					
Thick D	ark Surface (A12)		Redox Dark Su	rface (F6	3)		3Indicate	ors of hydrophytic vegetation and
	Mucky Mineral (S1)	i.	Depleted Dark					and hydrology must be present,
	Gleyed Matrix (S4)		Redox Depress	ions (F8)		unles	ss disturbed or problematic.
1	Layer (if present)							
Type:	ahaa):						Undela Call	Present? Yes No X
Depth (in Remarks:	icnes):		_				Hydric Soil	Present? Yes No ^
HYDROLO	GY							
Wetland Hy	drology Indicator	s:						
Primary Indi	cators (minimum o	f one require	d; check all that appl	y)			Seco	ndary Indicators (2 or more required)
Surface	Water (A1)		Water-Sta	ined Lea	ves (B9) (e	except	v	Vater-Stained Leaves (B9) (MLRA 1, 2,
High W	ater Table (A2)		MLRA	1, 2, 4A,	and 4B)			4A, and 4B)
Saturati	11 12		Salt Crust	20				Prainage Patterns (B10)
_	Marks (B1)		Aquatic In		120		_	Pry-Season Water Table (C2)
_	nt Deposits (B2)		Hydrogen			1 5 da - Da	_	Saturation Visible on Aerial Imagery (C9)
	posits (B3)		Oxidized F	December 199	20.00			Seomorphic Position (D2)
	Algal Mat or Crust (B4) Presence of Reduced Iron (C4)							Shallow Aquitard (D3) FAC-Neutral Test (D5)
_	_ Iron Deposits (B5)							Raised Ant Mounds (D6) (LRR A)
	ion Visible on Aeria	al Imagery (B				,, (21111)		rost-Heave Hummocks (D7)
_	y Vegetated Conca				,			
Field Obser	rvations:							
Surface Wat	ter Present?	Yes	No X Depth (in	ches):		_		
Water Table	Present?	Yes	No X Depth (in	ches):_		_		
Saturation F	Present? pillary fringe)		No X Depth (in				land Hydrolog	y Present? Yes No X
		ım gauge, m	onitoring well, aerial	ohotos, p	revious in	spections).	, if available:	
Remarks:								
Transmitter.								

Project/Site: Yosemite National Park - Crane Flat		City/County	<i>r</i>	Sampling Date: 09/08/2010
Applicant/Owner: National Park Service				State: CA Sampling Point: SP15 Wet26
The second second		Section, To		nge:
				convex, none): none Slope (%): 2
				Long: 119 47 51.14 W Datum: NAD83
Soil Map Unit Name: Badgerpass-Oxyaquic Dystroxerepts association				
Are climatic / hydrologic conditions on the site typical for this				
Are Vegetation N, Soil N, or Hydrology N si				"Normal Circumstances" present? Yes X No
Are Vegetation N, Soil N, or Hydrology N, n	aturally pro	blematic?	(If ne	eeded, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map s	showing	samplin	g point l	ocations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes X No			2001	
Hydric Soil Present? Yes X No			ne Sampled nin a Wetlar	~
Wetland Hydrology Present? Yes X No	<u> </u>	With	iii a vvetiai	165NO
Remarks:				
Photo: CS1.				
VEGETATION – Use scientific names of plant	te			
VEGETATION - Use scientific flames of plant	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)	% Cover			Number of Dominant Species
1				That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3				Species Across All Strata: (B)
4		E2 5 1010		Percent of Dominant Species
Sapling/Shrub Stratum (Plot size:)		= Total Co	ver	That Are OBL, FACW, or FAC: (A/B)
1				Prevalence Index worksheet:
2.				Total % Cover of: Multiply by:
3.				OBL species x 1 =
4.				FACW species x 2 =
5				FACIl propies x 3 =
2 v 1 meter		= Total Co	over	FACU species x 4 = UPL species x 5 =
Herb Stratum (Plot size: 2 x 1 meter 1. Lupinus polyphyllus	2	N	FACW	Column Totals: (A) (B)
2. Galium trifidum	10	N	OBL	
3. Sidalcea reptans	5	N	OBL	Prevalence Index = B/A =
4. Carex nudata	50	Y	FACW	Hydrophytic Vegetation Indicators: X 1 - Rapid Test for Hydrophytic Vegetation
5. Rumex crispus	10	N	FACW	2 - Dominance Test is >50%
6. Trifolium wormskioldii	12	N	FACW	3 - Prevalence Index is ≤3.0¹
7. Lomatium utriculatum	3	N	UPL	4 - Morphological Adaptations (Provide supporting
8. Carex vesicaria	40	Y	OBL	data in Remarks or on a separate sheet)
9. Polygonum bistortoides	7	N	OBL	5 - Wetland Non-Vascular Plants ¹
10				Problematic Hydrophytic Vegetation (Explain)
11				Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size:)		= Total Co	ver	be present, unless distance of problemate.
1				Modernhodie
2.				Hydrophytic Vegetation
_		= Total Co	ver	Present? Yes X No
% Bare Ground in Herb Stratum 0				
Remarks:				

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Profile Description: (Describe Depth (inches)	% 100 100 100 80 80	Redo Color (moist) 7.5YR 5/8 Reduced Matrix, CS	x Feature % 20 20 S=Covererwise notes (S6) Mineral (F Matrix (F:) (1) (1) (1) (2) (3) (4) (5) (5) (5) (6) (6) (7) (7) (7) (7) (7) (8) (8) (8) (8) (8) (8) (8) (8) (8) (8	Type Type C d or Coate ed.)	M M	Texture sand clay loam sendy clay loam sendy clay loam sendy clay loam sendy clay loam Crains. Indicat 2 c Rei Oth 3Indicat wetta unle	Remarks thick roots/low mineral content moist/thick roots/fibers beation: PL=Pore Lining, M=Matrix. Fors for Problematic Hydric Soils ³ : m Muck (A10) d Parent Material (TF2) ry Shallow Dark Surface (TF12) her (Explain in Remarks) fors of hydrophytic vegetation and and hydrology must be present, and instructions of the problematic. I Present? Yes X No
(inches) Color (moist) 0-6 10YR 2/2 6-15 10YR 2/1 15-21 10YR 2/1 21-24 10YR 4/1 21-24 10YR 4/1 Type: C=Concentration, D=De Hydric Soil Indicators: (Applie Histosol (A1) X Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Depleted Below Dark Surfact Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Restrictive Layer (if present): Type: Depth (inches): Remarks: YDROLOGY	100 100 80 80	Color (moist) 7.5YR 5/8 Reduced Matrix, CS LRRs, unless other Sandy Redox (S Stripped Matrix Loamy Mucky M Loamy Gleyed I Depleted Matrix Redox Dark Su Depleted Dark Su	% 20 S=Covererwise not S5) (S6) Mineral (FMatrix (F3) (F3) (F3) (F4) Fface (F6) Surface (F6)	Type C d or Coate led.)	M Sand G	sand clay loam sandy clay loam	thick roots/low mineral content moist/thick roots/fibers beation: PL=Pore Lining, M=Matrix. For Problematic Hydric Soils ³ : Muck (A10) d Parent Material (TF2) ry Shallow Dark Surface (TF12) ner (Explain in Remarks) for sof hydrophytic vegetation and and hydrology must be present, as disturbed or problematic.
0-6 10YR 2/2 6-15 10YR 2/1 15-21 10YR 2/1 21-24 10YR 4/1 Type: C=Concentration, D=De Hydric Soil Indicators: (Applied Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Depleted Below Dark Surfact Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Restrictive Layer (if present): Type: Depth (inches): Remarks: Primary Indicators (minimum of Surface Water (A1)	100 100 80 80	7.5YR 5/8 Reduced Matrix, CS LRRs, unless other Sandy Redox (S Stripped Matrix Loamy Mucky N Loamy Gleyed I Depleted Matrix Redox Dark Su Depleted Dark Su	20 S=Covererwise not S5) (S6) Matrix (F2) (F3) fface (F6) Surface (F6)	d or Coate	M Sand G	sand clay loam sandy clay loam	thick roots/low mineral content moist/thick roots/fibers beation: PL=Pore Lining, M=Matrix. For Problematic Hydric Soils ³ : Muck (A10) d Parent Material (TF2) ry Shallow Dark Surface (TF12) ner (Explain in Remarks) for sof hydrophytic vegetation and and hydrology must be present, as disturbed or problematic.
10YR 2/1 10YR 2/1 10YR 2/1 10YR 4/1 10Y	100 100 80 pletion, RM=l	Reduced Matrix, CS LRRs, unless other Sandy Redox (S Stripped Matrix Loamy Micky M Loamy Gleyed I Depleted Matrix Redox Dark Su Depleted Dark Su	S=Coverer rwise not S5) (S6) Mineral (F Matrix (F; (F3) rface (F6) Surface (F6)	d or Coate led.) 1) (except	ed Sand G	clay loam sandy clay loam sandy clay loam sandy clay loam Srains. Loa Indicat 2 c Rei Oth 3Indicat wette unle	moist/thick roots/fibers moist/fibers mois
Type: C=Concentration, D=De ydric Soll Indicators: (Applie Histosol (A1) K Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Depleted Below Dark Surfac Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) estrictive Layer (if present): Type: Depth (inches): emarks:	100 80 pletion, RM=1 cable to all L	Reduced Matrix, CS LRRs, unless other Sandy Redox (S Stripped Matrix Loamy Micky M Loamy Gleyed I Depleted Matrix Redox Dark Su Depleted Dark Su	S=Coverer rwise not S5) (S6) Mineral (F Matrix (F; (F3) rface (F6) Surface (F6)	d or Coate led.) 1) (except	ed Sand G	sandy clay loam sandy clay loam Srains. 2Lo Indicat	cation: PL=Pore Lining, M=Matrix. ors for Problematic Hydric Soils ³ : m Muck (A10) d Parent Material (TF2) ry Shallow Dark Surface (TF12) ner (Explain in Remarks) ors of hydrophytic vegetation and and hydrology must be present, ss disturbed or problematic.
Type: C=Concentration, D=De ydric Soil Indicators: (Applie Histosol (A1) K Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Depleted Below Dark Surfac Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) estrictive Layer (if present): Type: Depth (inches): demarks: TOROLOGY Vetland Hydrology Indicators rimary Indicators (minimum of Surface Water (A1)	pletion, RM=I	Reduced Matrix, CS LRRs, unless other Sandy Redox (S Stripped Matrix Loamy Micky M Loamy Gleyed I Depleted Matrix Redox Dark Su Depleted Dark Su	S=Coverer rwise not S5) (S6) Mineral (F Matrix (F; (F3) rface (F6) Surface (F6)	d or Coate led.) 1) (except	ed Sand G	Srains. 2Lo Indicat	ors for Problematic Hydric Soils ^a : m Muck (A10) d Parent Material (TF2) ry Shallow Dark Surface (TF12) ner (Explain in Remarks) ors of hydrophytic vegetation and and hydrology must be present, ss disturbed or problematic.
Type: C=Concentration, D=De lydric Soil Indicators: (Applie Histosol (A1) K Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Depleted Below Dark Surfac Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) destrictive Layer (if present): Type: Depth (inches): Demarks:	pletion, RM=l cable to all L	Reduced Matrix, CS LRRs, unless other Sandy Redox (S Stripped Matrix Loamy Micky M Loamy Gleyed I Depleted Matrix Redox Dark Su Depleted Dark Su	S=Coverer rwise not S5) (S6) Mineral (F Matrix (F; (F3) rface (F6) Surface (F6)	d or Coate led.) 1) (except	ed Sand G	Grains. ² Loc Indicat	ors for Problematic Hydric Soils ^a : m Muck (A10) d Parent Material (TF2) ry Shallow Dark Surface (TF12) ner (Explain in Remarks) ors of hydrophytic vegetation and and hydrology must be present, ss disturbed or problematic.
ydric Soll Indicators: (Applii Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Depleted Below Dark Surfac Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) estrictive Layer (if present): Type: Depth (inches): emarks: //DROLOGY //etland Hydrology Indicators rimary Indicators (minimum of Surface Water (A1)	cable to all L - - -	LRRs, unless other Sandy Redox (\$ Stripped Matrix Loamy Mucky N Loamy Gleyed I Depleted Matrix Redox Dark Su Depleted Dark \$	rwise not (S6) (S6) Mineral (F Matrix (F: ((F3) rface (F6 Surface (1) (except 2)		Indicat 2 c Re Oth 3Indicat unle	ors for Problematic Hydric Soils ^a : m Muck (A10) d Parent Material (TF2) ry Shallow Dark Surface (TF12) ner (Explain in Remarks) ors of hydrophytic vegetation and and hydrology must be present, ss disturbed or problematic.
ydric Soll Indicators: (Applii Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Depleted Below Dark Surfac Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) estrictive Layer (if present): Type: Depth (inches): emarks: //DROLOGY //etland Hydrology Indicators rimary Indicators (minimum of Surface Water (A1)	cable to all L - - -	LRRs, unless other Sandy Redox (\$ Stripped Matrix Loamy Mucky N Loamy Gleyed I Depleted Matrix Redox Dark Su Depleted Dark \$	rwise not (S6) (S6) Mineral (F Matrix (F: ((F3) rface (F6 Surface (1) (except 2)		Indicat 2 c Re Oth 3Indicat unle	ors for Problematic Hydric Soils ^a : m Muck (A10) d Parent Material (TF2) ry Shallow Dark Surface (TF12) ner (Explain in Remarks) ors of hydrophytic vegetation and and hydrology must be present, ss disturbed or problematic.
ydric Soll Indicators: (Applii Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Depleted Below Dark Surfac Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) estrictive Layer (if present): Type: Depth (inches): emarks: //DROLOGY //etland Hydrology Indicators rimary Indicators (minimum of Surface Water (A1)	cable to all L - - -	LRRs, unless other Sandy Redox (\$ Stripped Matrix Loamy Mucky N Loamy Gleyed I Depleted Matrix Redox Dark Su Depleted Dark \$	rwise not (S6) (S6) Mineral (F Matrix (F: ((F3) rface (F6 Surface (1) (except 2)		Indicat 2 c Re Oth 3Indicat unle	ors for Problematic Hydric Soils ^a : m Muck (A10) d Parent Material (TF2) ry Shallow Dark Surface (TF12) ner (Explain in Remarks) ors of hydrophytic vegetation and and hydrology must be present, ss disturbed or problematic.
ydric Soll Indicators: (Applii Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Depleted Below Dark Surfac Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) estrictive Layer (if present): Type: Depth (inches): emarks: //DROLOGY //etland Hydrology Indicators rimary Indicators (minimum of Surface Water (A1)	cable to all L - - -	LRRs, unless other Sandy Redox (\$ Stripped Matrix Loamy Mucky N Loamy Gleyed I Depleted Matrix Redox Dark Su Depleted Dark \$	rwise not (S6) (S6) Mineral (F Matrix (F: ((F3) rface (F6 Surface (1) (except 2)		Indicat 2 c Re Oth 3Indicat unle	ors for Problematic Hydric Soils ^a : m Muck (A10) d Parent Material (TF2) ry Shallow Dark Surface (TF12) ner (Explain in Remarks) ors of hydrophytic vegetation and and hydrology must be present, ss disturbed or problematic.
ydric Soll Indicators: (Applii Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Depleted Below Dark Surfac Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) estrictive Layer (if present): Type: Depth (inches): emarks: //DROLOGY //etland Hydrology Indicators rimary Indicators (minimum of Surface Water (A1)	cable to all L - - -	LRRs, unless other Sandy Redox (\$ Stripped Matrix Loamy Mucky N Loamy Gleyed I Depleted Matrix Redox Dark Su Depleted Dark \$	rwise not (S6) (S6) Mineral (F Matrix (F: (F3) rface (F6 Surface (1) (except 2)		Indicat 2 c Re Oth 3Indicat unle	ors for Problematic Hydric Soils ^a : m Muck (A10) d Parent Material (TF2) ry Shallow Dark Surface (TF12) ner (Explain in Remarks) ors of hydrophytic vegetation and and hydrology must be present, ss disturbed or problematic.
ydric Soll Indicators: (Applii Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Depleted Below Dark Surfac Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) estrictive Layer (if present): Type: Depth (inches): emarks: //DROLOGY //etland Hydrology Indicators rimary Indicators (minimum of Surface Water (A1)	cable to all L - - -	LRRs, unless other Sandy Redox (\$ Stripped Matrix Loamy Mucky N Loamy Gleyed I Depleted Matrix Redox Dark Su Depleted Dark \$	rwise not (S6) (S6) Mineral (F Matrix (F: (F3) rface (F6 Surface (1) (except 2)		Indicat 2 c Re Oth 3Indicat unle	ors for Problematic Hydric Soils ^a : m Muck (A10) d Parent Material (TF2) ry Shallow Dark Surface (TF12) ner (Explain in Remarks) ors of hydrophytic vegetation and and hydrology must be present, ss disturbed or problematic.
Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Depleted Below Dark Surfac Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) estrictive Layer (if present): Type: Depth (inches): emarks: DROLOGY Vetland Hydrology Indicators rimary Indicators (minimum of Surface Water (A1)	-	Sandy Redox (8 Stripped Matrix Loamy Mucky N Loamy Gleyed I Depleted Matrix Redox Dark Su Depleted Dark 8	S5) (S6) Mineral (F Matrix (F2 (F3) rface (F6 Surface (1) (except 2)	t MLRA 1	2 c Rei	m Muck (A10) d Parent Material (TF2) ry Shallow Dark Surface (TF12) ner (Explain in Remarks) ors of hydrophytic vegetation and and hydrology must be present, ss disturbed or problematic.
Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Depleted Below Dark Surfac Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) estrictive Layer (if present): Type: Depth (inches): emarks: DROLOGY Tetland Hydrology Indicators rimary Indicators (minimum of Surface Water (A1)	ce (A11)	Stripped Matrix Loamy Mucky M Loamy Gleyed I Depleted Matrix Redox Dark Su Depleted Dark S	(S6) Mineral (F Matrix (F: (F3) rface (F6 Surface (2)	t MLRA 1	Re- Ver Oth Indicat wetle unle	d Parent Material (TF2) ry Shallow Dark Surface (TF12) ner (Explain in Remarks) ors of hydrophytic vegetation and and hydrology must be present, ss disturbed or problematic.
Black Histic (A3) Hydrogen Sulfide (A4) Depleted Below Dark Surfac Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) estrictive Layer (if present): Type: Depth (inches): Depth (inches): "DROLOGY Tetland Hydrology Indicators rimary Indicators (minimum of Surface Water (A1)	ce (A11)	Loamy Mucky N Loamy Gleyed I Depleted Matrix Redox Dark Su Depleted Dark S	Mineral (F Matrix (F: (F3) rface (F6 Surface (2)	t MLRA 1	Oth Sindicate wetle unle	ry Shallow Dark Surface (TF12) ner (Explain in Remarks) ors of hydrophytic vegetation and and hydrology must be present, ss disturbed or problematic.
Hydrogen Sulfide (A4) Depleted Below Dark Surface Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) estrictive Layer (if present): Type: Depth (inches): ### Comparison of C	ce (A11)	Loamy Gleyed I Depleted Matrix Redox Dark Sui Depleted Dark S	Matrix (F: (F3) rface (F6 Surface (2)		Oth	ner (Explain in Remarks) ors of hydrophytic vegetation and and hydrology must be present, as disturbed or problematic.
Depleted Below Dark Surface Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) estrictive Layer (if present): Type: Depth (inches): emarks: DROLOGY [etland Hydrology Indicators frimary Indicators (minimum of Surface Water (A1)	ce (A11) -	Depleted Matrix Redox Dark Su Depleted Dark S	(F3) rface (F6 Surface ()		³ Indicat wetle unle	ors of hydrophytic vegetation and and hydrology must be present, ss disturbed or problematic.
Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) estrictive Layer (if present): Type: Depth (inches): emarks: DROLOGY [etland Hydrology Indicators imary Indicators (minimum of Surface Water (A1)	-	Redox Dark Sui	rface (F6 Surface (wetla	and hydrology must be present, ss disturbed or problematic.
Sandy Gleyed Matrix (S4) estrictive Layer (if present): Type: Depth (inches): emarks: **TOROLOGY** Torontomary Indicators (minimum of Surface Water (A1)	-	The same filling to the same of		F7)		unle	ss disturbed or problematic.
estrictive Layer (if present): Type: Depth (inches): emarks: DROLOGY Torology Indicators imary Indicators (minimum of Surface Water (A1)		Redox Depress	ions (F8)				
Type:						Hydric Soi	I Present? Yes X No
Depth (inches):emarks: 'DROLOGY 'etland Hydrology Indicators rimary Indicators (minimum of Surface Water (A1)		_				Hydric Soi	I Present? Yes X No
POROLOGY TOROLOGY Tetland Hydrology Indicators Timary Indicators (minimum of a continum of a cont						Hydric Soi	Present? Yes <u>^</u> No
'DROLOGY /etland Hydrology Indicators rimary Indicators (minimum of _ Surface Water (A1)							
Wetland Hydrology Indicators Primary Indicators (minimum of Surface Water (A1)							
Primary Indicators (minimum of Surface Water (A1)							
_ Surface Water (A1)		: check all that apply	v)			Seco	endary Indicators (2 or more required)
		Water-Stai		es (B9) (e	xcent	7000	Water-Stained Leaves (B9) (MLRA 1
High Water Table (A2)			1, 2, 4A,		мерт		4A, and 4B)
Saturation (A3)		Salt Crust				Χı	Drainage Patterns (B10)
Water Marks (B1)		Aquatic Inv	200	es (B13)			Dry-Season Water Table (C2)
Sediment Deposits (B2)		Hydrogen	Sulfide C	dor (C1)		_ 8	Saturation Visible on Aerial Imagery (
Drift Deposits (B3)		Oxidized R	Rhizosphe	res along	Living Ro	oots (C3) X	Geomorphic Position (D2)
_ Algal Mat or Crust (B4)		Presence	of Reduc	ed Iron (C	4)	_ \$	Shallow Aquitard (D3)
_ Iron Deposits (B5)		Recent Iro	n Reduct	ion in Tille	d Soils (C	(6) <u>X</u> F	FAC-Neutral Test (D5)
_ Surface Soil Cracks (B6)		Stunted or	Stressed	l Plants (D	1) (LRR A		Raised Ant Mounds (D6) (LRR A)
_ Inundation Visible on Aerial			olain in R	emarks)		_ F	Frost-Heave Hummocks (D7)
_ Sparsely Vegetated Concav	/e Surface (B	38)					
eld Observations:		. Y					
		No X Depth (inc	100		-		
		No X Depth (inc					· ·
aturation Present? ncludes capillary fringe) escribe Recorded Data (strean		No X Depth (inc nitoring well, aerial p	979				gy Present? Yes X No
emarks:							
	cours b	nua farmand					
Vater stained Carex I	eaves na	ave formed m	Idl.				

Project/Site: Yosemite National Park - Crane Flat	(City/County	s		Sampling Date: 09/08/2010		
Applicant/Owner: National Park Service				State: CA			
Investigator(s): Scheuerman, Stevens Section, Township, Range:							
					Slope (%): 1		
					Datum: NAD83		
Soil Map Unit Name: Badgerpass-Oxyaquic Dystroxerepts associ							
Are climatic / hydrologic conditions on the site typical for t							
Are Vegetation N, Soil N, or Hydrology N					resent? Yes X No		
Are Vegetation N , Soil N , or Hydrology N							
SUMMARY OF FINDINGS – Attach site ma							
Hydrophytic Vegetation Present? Yes	No_X						
Hydric Soil Present? Yes	No X		e Sampled		X		
Wetland Hydrology Present? Yes	No X	with	in a Wetlar	nd? Yes	No X		
Remarks:							
Adjacent to Crane Flat	as st	ation					
VEGETATION – Use scientific names of pla							
	Absolute	Dominant	Indicator	Dominance Test works	sheet:		
Tree Stratum (Plot size: 5 m radius	% Cover	Species?	Status	Number of Dominant Sp	ecies		
1. Pseudotsuga menziesii	40	<u>Y</u>	UPL	That Are OBL, FACW, o			
2. Abies concolor	40	<u>Y</u>	UPL	Total Number of Domina	int		
3				Species Across All Strats	a: <u>5</u> (B)		
4	80	50 A 1010		Percent of Dominant Spe	ecies		
Sapling/Shrub Stratum (Plot size: 3 m radius	00	= Total Co	ver	That Are OBL, FACW, o	r FAC: 0 (A/B)		
1. Pseudotsuga menziesii	3	N	UPL	Prevalence Index work	Production of the Control of		
2. Ribes roezlii	10	Y	UPL	"	Multiply by:		
3. Chrysolepis sempervirens	3	N	UPL		x 1 =		
4.					x 2 =		
5	_,			(1)	x 3 =		
2 v 1 meter	16	= Total Co	ver	UPL species	x 4 =		
Herb Stratum (Plot size: 2 x 1 meter Achillea millefolium	10	Υ	FACU		(A) (B)		
2. Galium aparine	- 8	· Y	FACU	Column Totals.	(8) (8)		
3. Osmorhiza occidentalis	$-\frac{3}{3}$	N	UPL	Prevalence Index	100100		
4. Caryophyllaceae sp.	5	N		Hydrophytic Vegetation	The state of the s		
5. Cirsium vulgare	5	N	FACU	1 - Rapid Test for H	1 0 0 10		
6.				3 - Prevalence Index			
7					daptations ¹ (Provide supporting		
8.				data in Remarks	or on a separate sheet)		
9.				5 - Wetland Non-Va	scular Plants ¹		
10				Problematic Hydrop	hytic Vegetation¹ (Explain)		
11					and wetland hydrology must		
Manda Vine Shahar (Diet -i		= Total Co	/er	be present, unless distur	bed or problematic.		
Woody Vine Stratum (Plot size:)							
1				Hydrophytic Vegetation			
2		= Total Cov	/er	Present? Yes	No X		
% Bare Ground in Herb Stratum 90		- Total Co	761				
Remarks:							
Bare ground is covered with conifer de	uff and litt	ter.					

US Army Corps of Engineers

SOIL						Sampling Point: SP16
Profile Des	cription: (Describ	e to the depth	needed to document the indicator or c	onfirm the	absence	
Depth	Matrix		Redox Features			
(inches)	Color (moist)	%	Color (moist) % Type L	.oc ² _ 7	Texture	Remarks
1-4	10YR 2/2	100		loa	amy sand	thick roots/fibers
4-20	10YR 3/3	100		loa	amy sand	
						·
1= 0.0					2	
- 71			educed Matrix, CS=Covered or Coated Se Rs, unless otherwise noted.)	and Grains		cation: PL=Pore Lining, M=Matrix. prs for Problematic Hydric Solls ³ :
Histoso	Epipedon (A2)	-	Sandy Redox (S5) Stripped Matrix (S6)		_	n Muck (A10) I Parent Material (TF2)
_	Histic (A3)	_	Loamy Mucky Mineral (F1) (except ML	RA 1)		y Shallow Dark Surface (TF12)
	en Sulfide (A4)	_	Loamy Gleyed Matrix (F2)	INA 1)		er (Explain in Remarks)
_	ed Below Dark Surf	ace (A11)	Depleted Matrix (F3)			(
Thick D	ark Surface (A12)		Redox Dark Surface (F6)		3Indicate	ors of hydrophytic vegetation and
Sandy	Mucky Mineral (S1)	_	Depleted Dark Surface (F7)		wetla	nd hydrology must be present,
	Gleyed Matrix (S4)		Redox Depressions (F8)		unles	s disturbed or problematic.
Restrictive	Layer (if present)	:				
Type:			_			V
Depth (ir	nches):		_	H	ydric Soil	Present? Yes No X
HYDROLO	OGY					
Charles Statement St.	ydrology Indicator	.e.				
775 15 170 170 170	The second second		heck all that apply)		Seco	ndary Indicators (2 or more required)
	Water (A1)	r ono roquirou, o	Water-Stained Leaves (B9) (except	nt		Vater-Stained Leaves (B9) (MLRA 1, 2,
	ater Table (A2)		MLRA 1, 2, 4A, and 4B)	pt	_ •	4A, and 4B)
Saturat			Salt Crust (B11)		E.	Prainage Patterns (B10)
	Marks (B1)		Aquatic Invertebrates (B13)			Pry-Season Water Table (C2)
_	ent Deposits (B2)		Hydrogen Sulfide Odor (C1)		_	saturation Visible on Aerial Imagery (C9)
_	eposits (B3)		Oxidized Rhizospheres along Livir	ng Roots (C		
	lat or Crust (B4)		Presence of Reduced Iron (C4)		_	hallow Aquitard (D3)
	posits (B5)		Recent Iron Reduction in Tilled So	oils (C6)		AC-Neutral Test (D5)
Surface	Surface Soil Cracks (B6) Stunted or Stressed Plants (D1) (I					aised Ant Mounds (D6) (LRR A)
Inundat	tion Visible on Aeria	al Imagery (B7)	Other (Explain in Remarks)		F	rost-Heave Hummocks (D7)
Sparse	ly Vegetated Conce	ave Surface (B8)				
Field Obse	rvations:					
Surface Wa	ter Present?	Yes No	X Depth (inches):			
Water Table	e Present?	Yes No	X Depth (inches):			
Saturation F		Yes No	X Depth (inches):	Wetland	Hydrolog	y Present? YesNo X
	apillary fringe) ecorded Data (strea	am gauge, monit	oring well, aerial photos, previous inspect	tions), if av	ailable:	
Domorks:						
Remarks:						
I						

		City/County	y		Sampling Date: 09/08/2010
Applicant/Owner: National Park Service				State: CA	Sampling Point: SP17
0-1		Section, To	ownship, Rar	nge:	
		Local relie	f (concave, o	convex, none): none	Slope (%): 2
					Datum: NAD83
Soil Map Unit Name: Badgerpass-Oxyaquic Dystroxerepts associa					
Are climatic / hydrologic conditions on the site typical for th					
Are Vegetation N, Soil N, or Hydrology N					
Are Vegetation N, Soil N, or Hydrology N					
SUMMARY OF FINDINGS – Attach site map	15,111				
Hydrophytic Vegetation Present? Yes 1	No X	<u> </u>			
Hydric Soil Present? Yes X	No		ne Sampled		v
Wetland Hydrology Present? Yes	No X	with	nin a Wetlar	nd? Yes	No X
Remarks:					
Upland pit for Wet28.					
VEGETATION – Use scientific names of pla	nts.				
Tree Stratum (Plot size:)	Absolute % Cover		Indicator	Dominance Test works	
1	78 COVE	opedes:	Graius	Number of Dominant Sp That Are OBL, FACW, o	
2.				Print 2 400 Print 2	
				Total Number of Domina Species Across All Strat	
4.					
		= Total Co	over	Percent of Dominant Sp That Are OBL, FACW, o	
Sapling/Shrub Stratum (Plot size:)				Prevalence Index work	
1	-:			CONTRACTOR OF THE PROPERTY OF	Multiply by:
2					x 1 =
3					x 2 =
4					x 3 =
5					x 4 =
Herb Stratum (Plot size: 2 x 1 meter		= Total C	over	UPL species	x 5 =
1. Solidago canadensis	80	Υ	FACU	Column Totals:	(A)(B)
2. Erigeron peregrinus	6	N	FACW	Prevalence Index	= B/A =
3. Poa pratensis	40	Υ	FACU	Hydrophytic Vegetation	5.033107 1.5
4. Achillea millefolium	_ 2	N	FACU	1 - Rapid Test for H	ydrophytic Vegetation
5. Sidalcea repetans	10	N	OBL	2 - Dominance Test	
6. Deschampsia cespitosa	_ 2	N	FACW	3 - Prevalence Inde:	x is ≤3.0 ¹
7. Carex sp.	_ 3	N		4 - Morphological A	daptations ¹ (Provide supporting
8					or on a separate sheet)
9		0	· · · · · · · ·	5 - Wetland Non-Va	hytic Vegetation¹ (Explain)
10				- · ·	and wetland hydrology must
11	143	= Total Co		be present, unless distu	
Woody Vine Stratum (Plot size:)		= Total Co	iver		
1				Hydrophytic	
2				Vegetation	Y
		= Total Co	ver	Present? Yes	No X
% Bare Ground in Herb Stratum 0 Remarks:					
remarks.					

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SOIL								Sampling Point: SP17
Profile Des	cription: (Describ	e to the dep	oth needed to docu	ment the	indicator	or confirm	n the absence	
Depth	Matrix		Redo	x Featur	es			
(inches)	Color (moist)	%	Color (moist)	%	Type	Loc ²	Texture	Remarks
0-10	10YR 2/1	100					sandy loam	moist after 6"/dense fibers
10-24	10YR 4/3	80	5YR 5/8	20	С	M	sandy clay loam	
								-
-				-				
				· -				
	: 			-			- 2	
			=Reduced Matrix, C			ed Sand Gr		cation: PL=Pore Lining, M=Matrix.
100	25.5	licable to all	LRRs, unless othe		itea.)			ors for Problematic Hydric Soils ³ :
X Histoso	DI (A1) Epipedon (A2)		Sandy Redox (m Muck (A10)
_	listic (A3)		Stripped Matrix Loamy Mucky I		F1) (evcen	MIRA1)		d Parent Material (TF2) ry Shallow Dark Surface (TF12)
	en Sulfide (A4)		Loamy Gleyed			CINICION I)	_	ner (Explain in Remarks)
_	ed Below Dark Surfa	ace (A11)	Depleted Matri		_			,
Thick D	ark Surface (A12)		Redox Dark Su	ırface (F6	6)		3Indicate	ors of hydrophytic vegetation and
Sandy	Mucky Mineral (S1)	6	Depleted Dark	Surface ((F7)		wetla	and hydrology must be present,
	Gleyed Matrix (S4)		Redox Depress	sions (F8)		unle	ss disturbed or problematic.
Restrictive	Layer (if present)	:						
Type:								V
Depth (in	nches):						Hydric Soi	I Present? Yes X No
HYDROLO	OGY							
Carolina Charles Co.	drology Indicator	s:						
775 15 1000 1000			d; check all that appl	Iv)			Seco	andary Indicators (2 or more required)
	Water (A1)				ves (B9) (e	xcent		Water-Stained Leaves (B9) (MLRA 1, 2,
_	ater Table (A2)				and 4B)	мерт		4A, and 4B)
Saturat			Salt Crust					Drainage Patterns (B10)
_	Marks (B1)		Aquatic In		es (B13)			Dry-Season Water Table (C2)
Sedime	ent Deposits (B2)		Hydrogen	Sulfide (Odor (C1)			Saturation Visible on Aerial Imagery (C9)
Drift De	eposits (B3)					Living Roo	ots (C3) X	Geomorphic Position (D2)
Algal M	lat or Crust (B4)		Presence	of Reduc	ed Iron (C	4)	_ 8	Shallow Aquitard (D3)
Iron De	posits (B5)		Recent Iro	on Reduc	tion in Tille	d Soils (C6	G) F	FAC-Neutral Test (D5)
Surface	Surface Soil Cracks (B6) Stunted or Stressed Plants (D1) (LRR A)						F	Raised Ant Mounds (D6) (LRR A)
Inundat	tion Visible on Aeria	al Imagery (E	Other (Ex	plain in R	emarks)		F	Frost-Heave Hummocks (D7)
Sparsel	ly Vegetated Conca	ave Surface	(B8)					
Field Obse	rvations:		V					
Surface Wa	ter Present?	Yes	No X Depth (in			_		
Water Table	e Present?	Yes	No X Depth (in	iches):		_		
Saturation F		Yes	No X Depth (in	iches):		Wetl	and Hydrolog	gy Present? YesNo X
	ipillary fringe) ecorded Data (strea	nm gauge, m	onitoring well, aerial	photos, p	revious ins	pections),	if available:	
Remarks:								
IXCIIIAIKS.								
I								

Project/Site: _Yosemite National Park - Crane Flat		Citv/Cou	untv:		Sampling Date: 09/08	/2010
Applicant/Owner: National Park Service		,,		State: CA	Sampling Point SP18	Wet28
C.I.		Section	, Township, Rai			
			el delocalization and inter-	convex, none): none	Clane /0/	α. 0
				Long: 119 48 09.42 W		
	-					AD03
Soil Map Unit Name: Badgerpass-Oxyaquic Dystroxerepts association						
Are climatic / hydrologic conditions on the site typical for this						
Are Vegetation N, Soil N, or Hydrology N, si				Normal Circumstances" pr	esent? Yes X	No
Are Vegetation N, Soil N, or Hydrology N, n	aturally pro	blemati	c? (If ne	eded, explain any answers	s in Remarks.)	
SUMMARY OF FINDINGS – Attach site map s	showing	samp	ling point l	ocations, transects,	important featur	es, etc.
Hydrophytic Vegetation Present? Yes X No						
Hydric Soil Present? Yes X No		1.3	s the Sampled			
Wetland Hydrology Present? Yes X No		\	within a Wetlar	nd? Yes 🔨	No	
Remarks:						
Photo: CS3,4,5. Small tr	ee fr	oa	found	in wetland.		
VEGETATION – Use scientific names of plant		Domin	ant Indicator	Dominance Test works	heet.	
Tree Stratum (Plot size:)			es? Status	Number of Dominant Sp		
1				That Are OBL, FACW, or		(A)
2				Total Number of Domina	int	
3				Species Across All Strate		(B)
4				Percent of Dominant Spe	ecies	
Sapling/Shrub Stratum (Plot size:)		= Total	Cover	That Are OBL, FACW, or		(A/B)
1				Prevalence Index work		
2				1.0	Multiply by:	
3.	0)			OBL species	x 1 =	_
4.				FACW species		
5.				FAC species		
		= Total	l Cover	FACU species		
Herb Stratum (Plot size: 2 x 1 meter	00		OPI	UPL species		
1. Carex vesicaria	30	Y	OBL FACW	Column Totals:	(A)	(B)
2. Carex nudata 3. Polygonum bistortoides	7	<u>N</u>	OBL		= B/A =	_
4. Epilobium ciliatum	12	N	FACW	Hydrophytic Vegetation	n Indicators:	
5. Galium trifidum	10	N	OBL	X 1 - Rapid Test for Hy	1 1 1 15	
6. Perideridia lemmonii	12	N	UPL	2 - Dominance Test		
7. Lomatium sp.	4	N		3 - Prevalence Index		
8. Deschampsia cespitosa	1	N	FACW	4 - Morphological Addata in Remarks	or on a separate shee	
9.				5 - Wetland Non-Va		*
10.				Problematic Hydropi		lain)
11.				¹ Indicators of hydric soil		y must
	136	= Total	Cover	be present, unless distur	bed or problematic.	
Woody Vine Stratum (Plot size:)						
1				Hydrophytic		
2				Vegetation Present? Yes	X No	
% Bare Ground in Herb Stratum ⁰		= Total	Cover			
Remarks:				ı		
				Minter Manualsine Ma	and Occast 1/a.	

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Proper Matrix Redox Features Matrix Redox Features Redox Features Redox Features Remarks Remarks Remarks Redox Features Remarks Rema	OIL									Sampling Point: SP18 Wet:
Color (moist) % Type Loc Testure Remarks	rofile Description	n: (Describe	to the dep	th neede	d to docun	nent the	indicator	or confirm	the absence	of indicators.)
10 10 10 10 10 10 10 10								1 - 2	+ (
Add 17 2.5Y 4/1 95 10YR 4/6 5 C M sandy clay town metallic flecks in soil				Color	(moist)	%	Type'	Loc		
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. T_Location: PL=Pore Lining, M=Matrix, Pydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils*: Histoscal (A1) Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils*: Histoscal (A1) Indicators for Problematic Hydric Soils*: 2 cm Muck (A10) Commy Mucky Mineral (F1) (except MLRA 1) Very Shallow Dark Surface (F12) Very Shallow Dark Surface (A11) Depleted Matrix (F2) Very Shallow Dark Surface (A11) Depleted Dark Surface (F5) Very Shallow Dark Surface (A11) Depleted Dark Surface (F5) Very Shallow Dark Surface (Very Shallow Dark Shallow Dark Surface (Very Shallow Dark Surface (Very Shallow Dark				10)/D	10					thick foots/filetailic flecks iif soi
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Coation: PL=Pore Lining, M=Matrix, Pydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils*:		The state of the s	-	10YR 4	1/6	5		IVI		
Indicators for Problematic Hydric Soils*: Histosci (A1)	17-21 2.5Y	/ 4/1	100						sandy clay loam	metallic flecks in soil
ydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosci (A1) Histosci (A1) Histosci (A2) Black Histic (A2) Black Histic (A2) Loamy Mucky Mineral (F1) (except MLRA 1) Depleted Below Dark Surface (A11) Depleted Below Dark Surface (A11) Depleted Below Dark Surface (A12) Sandy Mucky Mineral (F2) Depleted Below Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Depleted Dark Surface (F8) Sandy Gleyed Matrix (F3) Sey Mineral (S1) Depleted Dark Surface (F8) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Depleted Dark Surface (F8) Sandy Gleyed Matrix (S4) Redox Depressions (F8) Wetand hydrology must be present, unless disturbed or problematic. Type: Depth (inches): Water-Stained Leaves (B9) (except MLRA 1) High Water Table (A2) MIRA 1, 2, 4A, and 4B) Sufface Water (A1) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Oxidized Rhizospheres along Living Roots (C3) Sediment Deposits (B3) Oxidized Rhizospheres along Living Roots (C3) Surface Soil Cracks (B6) Surface Soil Cracks (B6) Surface Soil Cracks (B6) Surface On Aerial Imagery (B7) Surface Mater (A1) Frost-Heave Hummocks (D7) Sparsely Vegetated Concave Surface (B8) Weter (Explain in Remarks) Indicators for Problematic Pyers Name (TF2) Poth (Carpor Matrix (F1) Weter Marks (B1) Aquatic Invertebrates (B13) Sparsely Vegetated Concave Surface (B8) Surface Soil Cracks (B6) Stunted or Stressed Plants (D1) (LRR A) Indicators for Muterial (TF2) Performance (TF2) Poth (Carpor Matrix (F1) Weter Table (A2) Mater Table (A2) Weter Stained Leaves (B9) (except Water Fasent? Yes No Depth (inches): Journal of Present? Yes No Depth (inches): Journal of Present? Yes No Depth (inches): Journal of Present? Yes No Depth (inches): Journal of Start (Ba) Wetand Hydrology Present? Yes No Depth (inches): Journal of Start (Ba) Wetand Hydrology Present? Yes No Depth (inches): Journal of Start (Ba) Wetand Hydrology Present? Yes No Depth (inches): Jou										
Indicators for Problematic Hydric Soils*: Histosci (A1)										
Indicators for Problematic Hydric Soils*: Histosci (A1)										
ydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosci (A1) Histosci (A1) Histosci (A2) Black Histic (A2) Black Histic (A2) Loamy Mucky Mineral (F1) (except MLRA 1) Depleted Below Dark Surface (A11) Depleted Below Dark Surface (A11) Depleted Below Dark Surface (A12) Sandy Mucky Mineral (F2) Depleted Below Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Depleted Dark Surface (F8) Sandy Gleyed Matrix (F3) Sey Mineral (S1) Depleted Dark Surface (F8) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Depleted Dark Surface (F8) Sandy Gleyed Matrix (S4) Redox Depressions (F8) Wetand hydrology must be present, unless disturbed or problematic. Type: Depth (inches): Water-Stained Leaves (B9) (except MLRA 1) High Water Table (A2) MIRA 1, 2, 4A, and 4B) Sufface Water (A1) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Oxidized Rhizospheres along Living Roots (C3) Sediment Deposits (B3) Oxidized Rhizospheres along Living Roots (C3) Surface Soil Cracks (B6) Surface Soil Cracks (B6) Surface Soil Cracks (B6) Surface On Aerial Imagery (B7) Surface Mater (A1) Frost-Heave Hummocks (D7) Sparsely Vegetated Concave Surface (B8) Weter (Explain in Remarks) Indicators for Problematic Pyers Name (TF2) Poth (Carpor Matrix (F1) Weter Marks (B1) Aquatic Invertebrates (B13) Sparsely Vegetated Concave Surface (B8) Surface Soil Cracks (B6) Stunted or Stressed Plants (D1) (LRR A) Indicators for Muterial (TF2) Performance (TF2) Poth (Carpor Matrix (F1) Weter Table (A2) Mater Table (A2) Weter Stained Leaves (B9) (except Water Fasent? Yes No Depth (inches): Journal of Present? Yes No Depth (inches): Journal of Present? Yes No Depth (inches): Journal of Present? Yes No Depth (inches): Journal of Start (Ba) Wetand Hydrology Present? Yes No Depth (inches): Journal of Start (Ba) Wetand Hydrology Present? Yes No Depth (inches): Journal of Start (Ba) Wetand Hydrology Present? Yes No Depth (inches): Jou										
Indicators for Problematic Hydric Soils*: Histosci (A1)	-									-
ydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Histoscol (A1) Sandy Redox (S5) Listic Epipedon (A2) Black Histic (A3) Loamy Murky Mineral (F1) (except MLRA 1) Loamy Murky Mineral (F1) (except MLRA 1) Loamy Murky Mineral (F2) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Redox Dark Surface (F6) Sandy Mey Mineral (F1) Sandy Musy Mineral (F1) Sandy Gieyed Matrix (S4) Redox Dark Surface (F8) Setrictive Layer (if present): Type: Depth (inches): Hydric Soil Present? Yes X No MLRA 1, 2, 4A, and 4B) Hydric Soil Present? Yes X No Muster-Stained Leaves (B9) (except Muster (A1) High Water Table (A2) Muster Marks (B1) Sediment Deposits (B3) Oxidized Rhizospheres along Living Roots (C3) Sediment Deposits (B3) Oxidized Rhizospheres along Living Roots (C3) Sediment Deposits (B3) Oxidized Rhizospheres along Living Roots (C3) Sparsely Vegetated Concave Surface (B8) Surface Soil Cracks (B6) Surface Table (C2) Yes X No Depth (inches): Load And Hydrology Present? Yes X No Depth (inches): Load And Hydrology Present? Yes X No Depth (inches): Load Present? Yes X No Depth (inches): Load Present? Yes X No Depth (inches): Load President Present? Yes X No									20	Brond Brond Brond
Histosol (A1) Sandy Redox (S5) 2 cm Muck (A10) Histos Epipedon (A2) Stripped Metrix (S6) Red Parent Material (TF2) Histosol (A2) Stripped Metrix (S6) Red Parent Material (TF2) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Very Shallow Dark Surface (F12) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Other (Explain in Remarks) Depleted Below Dark Surface (A12) Redox Dark Surface (F6) wetland hydrology must be present, sandy Gleyed Matrix (S4) Depleted Dark Surface (F7) wetland hydrology must be present, unless disturbed or problematic. ### Sandy Gleyed Matrix (S4) Pepted Dark Surface (F7) wetland hydrology must be present, unless disturbed or problematic. ### Surface Water (A1) Pepted Matrix (F2) ### Depth (inches): ### Depth (inches): ### Secondary Indicators (2 or more required) ### Secondary Indicators (2 or more required) ### Water-Stained Leaves (B9) (except Matrix (B1)) ### Saturation (A3) Saturation (ed Sand Gr		
Histic Epipedon (A2) Stripped Matrix (S6) Red Parent Material (TF2) Very Shallow Dark Surface (TF12) Loamy Mucky Mineral (F1) (except MLRA 1) Very Shallow Dark Surface (TF12) Depleted Dark Surface (A12) Redox Dark Surface (F6) Shandy Mucky Mineral (S11) Depleted Dark Surface (F6) Shandy Mucky Mineral (S11) Depleted Dark Surface (F7) Wetland Hydrology must be present, unless disturbed or problematic. Sestrictive Layer (if present): Type: Depth (inches): Depth (inches): Depth (inches): Water-Stained Leaves (B9) (except MLRA 1) Hydric Soil Present? Yes X No Water Marks (B1) Saturation (A3) Saturation (A4) Saturation (A4) S		itors. (Applie	abic to aii				icu.,			
Black Histic (A3)		n (A2)		_						
Depleted Below Dark Surface (A11)				_			1) (excep	t MLRA 1)		
Thick Dark Surface (A12) Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) wetland hydrology must be present, unless disturbed or problematic. Sandy Gleyed Matrix (S4) Redox Depressions (F8) unless disturbed or problematic. Setrictive Layer (if present): Type: Depth (inches): Hydric Soil Present? Yes No No Population of the set				77			2)		Oth	er (Explain in Remarks)
			e (A11)			0.00			3	
Sandy Gleyed Matrix (\$4)										
Secondary Indicators: Present P										
PROLOGY Fetland Hydrology Indicators: rimary Indicators (minimum of one required; check all that apply) Secondary Indicators (2 or more required)										
PROLOGY Secondary Indicators: Secondary Indicators: Secondary Indicators (2 or more required)	Туре:	20 27 19								
PROLOGY Fetland Hydrology Indicators:	Donth (inches):								Hydric Soi	Present? Yes X No
Secondary Indicators (2 or more required) Surface Water (A1)	emarks:									
Surface Water (A1)	Pemarks:									
High Water Table (A2) MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Water Marks (B1) Aquatic Invertebrates (B13) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8) ield Observations: Iron Deposits (B8) Drainage Patterns (B10) Aquatic Invertebrates (B13) Aquatic Inverteb	emarks: YDROLOGY Vetland Hydrolog	gy Indicators:		d: abaak a	all that apply					undan Undianters (2) or more required)
Saturation (A3) Saturation (A3) Saturation (A3) Saturation (A3) Saturation (A3) Saturation (A3) Sediment Deposits (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8) Surface Water Present? Sparsely Vegetated Concave Surface (B8) Surface Water Present? Yes X No Depth (inches): Iron Deposit (B7) Surface Soil Cracks (B6) Surface Water Present? Yes X No Depth (inches): Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8) Surface Water Present? Yes X No Depth (inches): Iron Deposits (B7) Surface Soil Cracks (B8) Surface Soil Cracks (B8) Surface Soil Cracks (B6) Surface Soil Cracks (B6) Surface Water Present? Yes X No Depth (inches): Iron Deposits (B7) Sparsely Vegetated Concave Surface (B8) Surface Water Present? Yes X No Depth (inches): Iron Deposits (B7) Surface Vegetated Concave Surface (B8) Surface Water Present? Yes X No Depth (inches): Iron Deposits (B1) Surface Vegetated Concave Surface (B8) Surface Water Present? Yes X No Depth (inches): Iron Deposits (B1) Surface Vegetated Concave Surface (B8) Surface Vegetated Concave Surface (B1) Surface Vegetated Concave Surface (B1) Surface Vegetated Concave Surface (B1)	emarks: 'DROLOGY 'etland Hydrolog rimary Indicators	gy Indicators: (minimum of c					(BQ) (s	avcent.	Seco	
Water Marks (B1)	emarks: 'DROLOGY 'etland Hydrolog rimary Indicators _ Surface Water	gy Indicators: (minimum of c			Water-Stai	ned Leav		except	Seco	Vater-Stained Leaves (B9) (MLRA 1,
Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8) Selet Observations: Vater Table Present? Yes X No Depth (inches): Depth (inches): Depth (inches): Depth (inches): Depth (inches): Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	PROLOGY Vetland Hydrolog rimary Indicators Surface Water High Water Ta	gy Indicators: (minimum of o		_	Water-Stai	ned Leav 1, 2, 4A,		except	<u>Seco</u> \	Vater-Stained Leaves (B9) (MLRA 1, 4A, and 4B)
Algal Mat or Crust (B4)	PROLOGY Vetland Hydrolog rimary Indicators Surface Water High Water Ta Saturation (A3	y Indicators: (minimum of o (A1) ble (A2)		_	Water-Stai MLRA Salt Crust	ned Leav 1 , 2, 4A, (B11)	and 4B)	except	Seco\	Vater-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10)
Iron Deposits (B5)	PROLOGY Vetland Hydrolog rimary Indicators Surface Water High Water Ta Saturation (A3 Water Marks (I	y Indicators: (minimum of c (A1) ble (A2)) B1)		_	Water-Stai MLRA Salt Crust Aquatic Inv	ned Leav 1, 2, 4A, (B11) vertebrate	and 4B)	xcept	Seco	Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2)
	PROLOGY Vetland Hydrolog rimary Indicators Surface Water High Water Ta Saturation (A3 Water Marks (I Sediment Depo	gy Indicators: (minimum of c (A1) ble (A2)) B1) osits (B2)		_	Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen	ned Leav 1, 2, 4A, (B11) vertebrate Sulfide C	and 4B) es (B13) edor (C1)		Seco	Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) Frost-Heave Hummocks (D7) Sparsely Vegetated Concave Surface (B8)	PROLOGY Vetland Hydrolog rimary Indicators Surface Water High Water Ta X Saturation (A3 Water Marks (I Sediment Dep	y Indicators: (minimum of c (A1) bble (A2)) B1) osits (B2) (B3)			Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F	ned Leav 1, 2, 4A, (B11) vertebrate Sulfide C	and 4B) es (B13) dor (C1) eres along	Living Roc	Seco	Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3)
Sparsely Vegetated Concave Surface (B8) Sparsely Vegetated Concave Surface (B8) Sparsely Vegetated Concave Surface (B8) Sparsely Vegetated Concave Surface (B8) Sparsely Vegetated Concave Surface (Basel Concave Surface (Basel Concave Surface (Basel Concave Surface Surface Surface (Basel Concave Surface Surface Surface Surface Surface (Basel Concave Surface S	PROLOGY Vetland Hydrolog rimary Indicators Surface Water Ta Saturation (A3 Water Marks (i Sediment Dep Drift Deposits (Algal Mat or Ci Iron Deposits (gy Indicators: (minimum of c (A1) ble (A2)) B1) osits (B2) (B3) rust (B4) (B5)			Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iro	ned Leaven 1, 2, 4A, (B11) vertebrate Sulfide O Rhizosphe of Reduct	es (B13) dor (C1) eres along ed Iron (C ion in Tille	Living Roo 4) d Soils (C6	Secondary No. 1	Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5)
ield Observations: urface Water Present? Yes No Depth (inches):	PROLOGY Vetland Hydrolog rimary Indicators Surface Water High Water Ta K Saturation (A3 Sediment Dep Drift Deposits (Algal Mat or Ci Iron Deposits (Surface Soil C	gy Indicators: (minimum of c (A1) ble (A2)) B1) osits (B2) (B3) rust (B4) (B5) racks (B6)	ne require		Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iro Stunted or	ned Leaven 1, 2, 4A, (B11) vertebrate Sulfide Control Rhizosphe of Reduct n Reduct Stressed	es (B13) dor (C1) eres along ed Iron (C ion in Tille d Plants (D	Living Roo 4) d Soils (C6	Seco	Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
urface Water Present? Yes No Depth (inches):	PROLOGY Vetland Hydrolog rimary Indicators Surface Water High Water Ta Saturation (AS) Water Marks (I) Sediment Deporit Deposits (I) Iron Deposits (I) Surface Soil C Inundation Visit	y Indicators: (minimum of of (A1) bble (A2)) B1) osits (B2) (B3) rust (B4) (B5) racks (B6) ible on Aerial	ne require	7)	Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iro Stunted or	ned Leaven 1, 2, 4A, (B11) vertebrate Sulfide Control Rhizosphe of Reduct n Reduct Stressed	es (B13) dor (C1) eres along ed Iron (C ion in Tille d Plants (D	Living Roo 4) d Soils (C6	Seco	Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
/ater Table Present? Yes X No Depth (inches): 15 Wetland Hydrology Present? Yes X No Depth (inches): 0 (surface) Wetland Hydro	PROLOGY Vetland Hydrolog rimary Indicators Surface Water High Water Tax Saturation (A3) Water Marks (I) Sediment Deporit Deposits (Iron	y Indicators: (minimum of of (A1) bble (A2)) B1) osits (B2) (B3) rust (B4) (B5) racks (B6) ible on Aerial itated Concave	ne require	7)	Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iro Stunted or	ned Leaven 1, 2, 4A, (B11) vertebrate Sulfide Control Rhizosphe of Reduct n Reduct Stressed	es (B13) dor (C1) eres along ed Iron (C ion in Tille d Plants (D	Living Roo 4) d Soils (C6	Seco	Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
aturation Present? Yes X No Depth (inches): 0 (surface) Wetland Hydrology Present? Yes X No learned by the scribe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	/DROLOGY // Vetland Hydrolog // rimary Indicators	y Indicators: (minimum of	magery (B e Surface (Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence Recent Iro Stunted or Other (Exp	ned Leav 1, 2, 4A, (B11) vertebrate Sulfide C Rhizosphe of Reduct n Reduct Stressed	es (B13) dor (C1) eres along ed Iron (C ion in Tille d Plants (D	Living Roo 4) d Soils (C6	Seco	Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Ca) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
ncludes capillary fringe) escribe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	PROLOGY Vetland Hydrolog rimary Indicators Surface Water High Water Ta Saturation (A3 Water Marks (I) Sediment Deposits (I) Algal Mat or Ci Iron Deposits (I) Surface Soil Ci Inundation Visi Sparsely Vege ield Observation urface Water Pres	y Indicators: (minimum of	imagery (Be Surface (7) B8) No X	Water-Stain MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iro Stunted or Other (Exp	ned Leav 1, 2, 4A, (B11) vertebrate Sulfide C chizosphe of Reduct n Reduct Stressed olain in Re	es (B13) es (B13) eres along ed Iron (C ion in Tille d Plants (D emarks)	Living Roo 4) d Soils (C6	Seco	Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Ca) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
	YDROLOGY Vetland Hydrolog Vetland Hydrol	y Indicators: (minimum of of (A1) bble (A2)) B1) osits (B2) (B3) rust (B4) (B5) racks (B6) ible on Aerial stated Concave is: sent? Y	magery (B e Surface (i	7)	Water-Stain MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence Recent Iro Stunted or Other (Exp	ned Leav 1, 2, 4A, (B11) vertebrate Sulfide C chizosphe of Reduct n Reduct Stressed clain in Re-	es (B13) dor (C1) eres along ed Iron (C ion in Tille d Plants (D emarks)	Living Roc 4) d Soils (C6 11) (LRR A	Seco	Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Coemorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
emarks:	PROLOGY Vetland Hydrolog rimary Indicators Surface Water High Water Ta X Saturation (A3 Water Marks (i Sediment Dep Drift Deposits (Algal Mat or Ci Iron Deposits (Surface Soil C Inundation Visi Sparsely Vege ield Observation urface Water Prese vater Table Presentaturation Pre	gy Indicators: (minimum of c (A1) bble (A2)) B1) osits (B2) (B3) rust (B4) (B5) racks (B6) ible on Aerial stated Concave ss: sent? ? ? ? ? ? ? ?	imagery (B e Surface (i es X es X	7)	Water-Stain MLRA Salt Crust Aquatic Im Hydrogen Oxidized R Presence Recent Iro Stunted or Other (Exp	ned Leaving Annual Leaving Reduction	es (B13) els (B1	Living Roc 4) d Soils (CE 11) (LRR A	Second No. N	Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (California) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
	YDROLOGY Vetland Hydrolog Primary Indicators Surface Water High Water Ta X Saturation (A3 Water Marks (i Sediment Dep Drift Deposits (Algal Mat or Ci Iron Deposits (Surface Soil C Inundation Visi Sparsely Vege Veter Table Prese Vater Table Present Includes capillary	gy Indicators: (minimum of c (A1) bble (A2)) B1) osits (B2) (B3) rust (B4) (B5) racks (B6) ible on Aerial stated Concave ss: sent? ? ? ? ? ? ? ?	imagery (B e Surface (i es X es X	7)	Water-Stain MLRA Salt Crust Aquatic Im Hydrogen Oxidized R Presence Recent Iro Stunted or Other (Exp	ned Leaving Annual Leaving Reduction	es (B13) els (B1	Living Roc 4) d Soils (CE 11) (LRR A	Second No. N	Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Commonship Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
	YDROLOGY Vetland Hydrolog Primary Indicators Surface Water High Water Ta X Saturation (A3 Water Marks (i Sediment Dep Drift Deposits (Algal Mat or Ci Iron Deposits (Surface Soil C Innudation Visi Sparsely Vege Field Observation Surface Water Prese Vater Table Prese Saturation Present Includes capillary in Describe Recorded	gy Indicators: (minimum of c (A1) bble (A2)) B1) osits (B2) (B3) rust (B4) (B5) racks (B6) ible on Aerial stated Concave ss: sent? ? ? ? ? ? ? ?	imagery (B e Surface (i es X es X	7)	Water-Stain MLRA Salt Crust Aquatic Im Hydrogen Oxidized R Presence Recent Iro Stunted or Other (Exp	ned Leaving Annual Leaving Reduction	es (B13) els (B1	Living Roc 4) d Soils (CE 11) (LRR A	Second No. N	Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Coemorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
	YDROLOGY Vetland Hydrolog Primary Indicators Surface Water High Water Ta X Saturation (A3 Water Marks (i Sediment Dep Drift Deposits (Algal Mat or Ci Iron Deposits (Surface Soil C Innudation Visi Sparsely Vege Field Observation Surface Water Prese Vater Table Prese Saturation Present Includes capillary in Describe Recorded	gy Indicators: (minimum of c (A1) bble (A2)) B1) osits (B2) (B3) rust (B4) (B5) racks (B6) ible on Aerial stated Concave ss: sent? ? ? ? ? ? ? ?	imagery (B e Surface (i es X es X	7)	Water-Stain MLRA Salt Crust Aquatic Im Hydrogen Oxidized R Presence Recent Iro Stunted or Other (Exp	ned Leaving Annual Leaving Reduction	es (B13) els (B1	Living Roc 4) d Soils (CE 11) (LRR A	Second No. N	Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Coemorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)

Project/Site: Yosemite National Park - Gin Flat		City/County	r	Sampling Date: 09/08/2010
Applicant/Owner: National Park Service				State: CA Sampling Point: SP19 Wet29
		Section, To		nge:
				convex, none): none Slope (%): 10
				Long: 119 46 16.02 W Datum: NAD83
Soil Map Unit Name: Rock outcrop-Canisrocks-Xeric Dystrocryepts comp				
Are climatic / hydrologic conditions on the site typical for this				
Are Vegetation N, Soil N, or Hydrology N si				"Normal Circumstances" present? Yes X No
Are Vegetation N, Soil N, or Hydrology N, n	aturally prol	blematic?	(If ne	eeded, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map s	showing	samplin	g point l	ocations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes X No				
Hydric Soil Present? Yes X No			ie Sampled iin a Wetlar	V
Wetland Hydrology Present? Yes X No	<u> </u>	With	iii a vvetiai	Id: 162 10 10 10 10 10 10 10 10 10 10 10 10 10
Remarks:				
Photos: CS6,7.				
	-			
VEGETATION – Use scientific names of plant		Daminant	la disatas	Dominous Test undebest
Tree Stratum (Plot size:)	Absolute % Cover			Dominance Test worksheet: Number of Dominant Species
1				That Are OBL, FACW, or FAC:(A)
2				Total Number of Dominant
3				Species Across All Strata:(B)
4				Percent of Dominant Species
Sapling/Shrub Stratum (Plot size:)		= Total Co	ver	That Are OBL, FACW, or FAC: (A/B)
1				Prevalence Index worksheet:
2				Total % Cover of: Multiply by:
3.				OBL species x 1 =
4.				FACW species x 2 =
5.				FAC species x 3 =
		= Total Co	ver	FACU species x 4 =
Herb Stratum (Plot size: 2 x 1 meter	20	v	OPI	UPL species x 5 = Column Totals: (A) (B)
1. Polygonum bistortoides	10	Y	UPL	Column Totals: (A) (B)
Perideridia lemmonii Juncus effusus	20	N Y	OBL	Prevalence Index = B/A =
Junious enusus Platanthera leucostachys	5	N	FACW	Hydrophytic Vegetation Indicators:
Dada- Wasai Wasai	4	N	FACW	X 1 - Rapid Test for Hydrophytic Vegetation
6. Carex vesicaria	25	Y	OBL	2 - Dominance Test is >50%
7. Carex nudata	20	Y	FACW	3 - Prevalence Index is ≤3.01
8. Phalacroseris bolanderi	20	Y	OBL	4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
9. Lotus oblongifolius	20	Y	OBL	5 - Wetland Non-Vascular Plants ¹
10. Agrostis sp.	7	N		Problematic Hydrophytic Vegetation¹ (Explain)
11.				¹ Indicators of hydric soil and wetland hydrology must
		= Total Cov	/er	be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size:)				
1				Hydrophytic Vegetation
2				Present? Yes X No
% Bare Ground in Herb Stratum 0		= Total Co	<i>r</i> ег	
Remarks:				

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OIL				Sampling Point: SP19 Wet
Profile Description: (Describ	e to the depth	needed to document the indicator or co	nfirm the absence	of indicators.)
Depth Matrix		Redox Features		
(inches) Color (moist)		Color (moist) % Type Lo		Remarks
0-4 10YR 2/2			sandy loam	mucky
4-5 10YR 3/2	100		sand	metallic flecks/gravelly
5-7 2.5YR 4/2	100		clay loam	metallic flecks
7-13 10YR 2/2	100		silty loam	high organic content
				-
		educed Matrix, CS=Covered or Coated Sar		cation: PL=Pore Lining, M=Matrix.
	licable to all Li	RRs, unless otherwise noted.)		ors for Problematic Hydric Soils ³ :
_ Histosol (A1)	<u>-</u>	_ Sandy Redox (S5)		m Muck (A10)
Histic Epipedon (A2)	_	_ Stripped Matrix (S6)		d Parent Material (TF2)
Black Histic (A3) Hydrogen Sulfide (A4)	_	 Loamy Mucky Mineral (F1) (except MLR Loamy Gleyed Matrix (F2) 		y Shallow Dark Surface (TF12) er (Explain in Remarks)
Depleted Below Dark Surf	face (A11)	Depleted Matrix (F3)	_ 0111	er (Explain in Remarks)
_ Thick Dark Surface (A12)		Redox Dark Surface (F6)	3Indicate	ors of hydrophytic vegetation and
Sandy Mucky Mineral (S1)) _	Depleted Dark Surface (F7)	wetla	and hydrology must be present,
_ Sandy Gleyed Matrix (S4)		Redox Depressions (F8)	unles	ss disturbed or problematic.
estrictive Layer (if present)	:			
Type:		_		×
Depth (inches):		_	Hydric Soi	Present? Yes X No
YDROLOGY				
Vetland Hydrology Indicator				
rimary Indicators (minimum o	of one required;			ndary Indicators (2 or more required)
Surface Water (A1) High Water Table (A2)		Water-Stained Leaves (B9) (except	_ v	Vater-Stained Leaves (B9) (MLRA 1,
		MLRA 1, 2, 4A, and 4B)		4A, and 4B)
Saturation (A3)		Salt Crust (B11)		Orainage Patterns (B10)
Water Marks (B1) Sediment Deposits (B2)		Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1)	_	Ory-Season Water Table (C2) Saturation Visible on Aerial Imagery (C
_ Drift Deposits (B3)		Oxidized Rhizospheres along Living		Geomorphic Position (D2)
_ Algal Mat or Crust (B4)		Presence of Reduced Iron (C4)		Shallow Aquitard (D3)
_ Iron Deposits (B5)		Recent Iron Reduction in Tilled Soil		AC-Neutral Test (D5)
_ Surface Soil Cracks (B6)		Stunted or Stressed Plants (D1) (LF		Raised Ant Mounds (D6) (LRR A)
_ Inundation Visible on Aeria	al Imagery (B7)	Other (Explain in Remarks)		rost-Heave Hummocks (D7)
_ Sparsely Vegetated Conc	ave Surface (B8)		
ield Observations:		V		
urface Water Present?		X Depth (inches):		
Vater Table Present?		Depth (inches): 10		.,
Saturation Present? ncludes capillary fringe)		Depth (inches): 0 (surface) toring well, aerial photos, previous inspection		y Present? Yes X No
rescribe Recorded Data (Strea	ani gauge, moni	toring well, aerial priotos, previous inspection	uis), ii avaliadie:	
Remarks:				

Project/Site: Yosemite National Park - Gin Flat	c	ity/County	c		Sampling Date: 09/08/2010
Applicant/Owner: National Park Service				State: CA	
Investigator(s): Scheuerman, Stevens	8	Section, To	wnship, Rar	nge:	
Landform (hillslope, terrace, etc.): hillslope	1	_ocal relief	(concave, c	convex, none): none	Slope (%): 10
Subregion (LRR): MLRA 22A	Lat: _37 45	5 36.18 N		Long: 119 46 15.91 W	Datum: NAD83
Soil Map Unit Name: Rock outcrop-Canisrocks-Xeric Dystrocryepts com	plex, 5 to 45 perc	ent slopes, mo	raines, mountair	n slopes, crylic NWI classific	ation: N/A
Are climatic / hydrologic conditions on the site typical for thi	is time of yea	r? Yes X	No_	(If no, explain in R	emarks.)
Are Vegetation N, Soil N, or Hydrology N,	significantly d	listurbed?	Are "	Normal Circumstances" p	oresent? Yes X No
Are Vegetation N, Soil N, or Hydrology N,	naturally prob	lematic?	(If ne	eded, explain any answe	rs in Remarks.)
SUMMARY OF FINDINGS – Attach site map	showing	samplin	g point le	ocations, transects	, important features, etc.
Hydrophytic Vegetation Present? Yes N					
Hydric Soil Present? Yes N	10 <u>X</u>		e Sampled in a Wetlan		No X
Wetland Hydrology Present? Yes N	10 <u>X</u>	With	iii a vvetiaii	u: 165	_ ""
Remarks:		- 14			
Upland area underlain by	y grar	nite.			
VEGETATION – Use scientific names of plar	ıts.				
Tree Stratum (Plot size: 5 m radius	Absolute	Dominant Species?		Dominance Test work	sheet:
Tree Stratum (Plot size: 5 m radius) 1. Abies magnifica	<u>% Cover</u> . 50	Y Species?	FACU	Number of Dominant Sp That Are OBL, FACW, of	
2		_			-
3.				Total Number of Domin Species Across All Stra	
4.					
		= Total Co	ver	Percent of Dominant Sp That Are OBL, FACW, of	
Sapling/Shrub Stratum (Plot size:)				Prevalence Index wor	ksheet:
1 2					Multiply by:
3.				OBL species	x 1 =
4.				ACCUPATION OF THE PROPERTY OF	x 2 =
5.				(2)	x 3 =
2 v 1 motor		= Total Co	ver		x 4 = x 5 =
Herb Stratum (Plot size: 2 x 1 meter 1 Pteridium aquilinum	10	Y	FACU		(A) (B)
2. 3.				Prevalence Index Hydrophytic Vegetation	= B/A =
4.				1 - Rapid Test for H	M M M M M M M M M M M M M M M M M M M
5.				2 - Dominance Tes	
6				3 - Prevalence Inde	
7				4 - Morphological A	Adaptations ¹ (Provide supporting
8					s or on a separate sheet)
9				5 - Wetland Non-Va	phytic Vegetation ¹ (Explain)
10					I and wetland hydrology must
11		= Total Cov		be present, unless distu	
Woody Vine Stratum (Plot size:)		- Total Co	i i		
1				Hydrophytic	
2				Vegetation Present? Yes	s No X
% Bare Ground in Herb Stratum 90		= Total Cov	/er		
Remarks:					

US Army Corps of Engineers

SOIL						Sampling Point: SP20
Profile Des	cription: (Describ	e to the depth	needed to document the indicator or c	onfirm th	he absence	
Depth	Matrix		Redox Features			
(inches)	Color (moist)	%	Color (moist) % Type ¹ L	.oc ²	Texture	Remarks
0-2	10YR 2/2	100			duff	organic matter
2-10	10YR 2/2	100		le	oamy sand	high root/fiber content
				_		
Type: C=C	Concentration D=D	enletion PM=P4	educed Matrix, CS=Covered or Coated Sa	and Grain	ne ² l or	cation: PL=Pore Lining, M=Matrix.
-21			Rs, unless otherwise noted.)	and Gran		ors for Problematic Hydric Soils ³ :
Histoso			Sandy Redox (S5)			n Muck (A10)
_	pipedon (A2)	_	Stripped Matrix (S6)		_	Parent Material (TF2)
Black H	listic (A3)	_	Loamy Mucky Mineral (F1) (except ML	RA 1)		y Shallow Dark Surface (TF12)
Hydrog	en Sulfide (A4)	_	Loamy Gleyed Matrix (F2)		Oth	er (Explain in Remarks)
1 — 1	d Below Dark Surf	ace (A11)	Depleted Matrix (F3)			
	ark Surface (A12)	_	Redox Dark Surface (F6)			ors of hydrophytic vegetation and
	Mucky Mineral (S1) Gleyed Matrix (S4)	_	Depleted Dark Surface (F7) Redox Depressions (F8)			nd hydrology must be present, is disturbed or problematic.
	Layer (if present)		_ Redox Depressions (Fo)		unies	is disturbed or problematic.
Type:	zajo. (n prosein)					
Depth (in	iches).		_		Hydric Soil	Present? Yes No X
Remarks:			- ,		nyane con	Tresent: Tesne
HADBOLO	vev.					
HYDROLC						
	rdrology Indicator		book all that apply		Sanar	adon (Indicators /2 or more required)
		i one required, d	theck all that apply)			ndary Indicators (2 or more required)
	Water (A1) ater Table (A2)		Water-Stained Leaves (B9) (excep	pt	— v	Vater-Stained Leaves (B9) (MLRA 1, 2,
Saturati			MLRA 1, 2, 4A, and 4B) Salt Crust (B11)		D	4A, and 4B) rainage Patterns (B10)
_	Marks (B1)		Aquatic Invertebrates (B13)			ry-Season Water Table (C2)
_	nt Deposits (B2)		Hydrogen Sulfide Odor (C1)			aturation Visible on Aerial Imagery (C9)
_	posits (B3)		Oxidized Rhizospheres along Livir	na Roots		
	at or Crust (B4)		Presence of Reduced Iron (C4)		_	hallow Aquitard (D3)
Iron De	posits (B5)		Recent Iron Reduction in Tilled So	oils (C6)		AC-Neutral Test (D5)
Surface	Soil Cracks (B6)		Stunted or Stressed Plants (D1) (L	LRR A)	R	aised Ant Mounds (D6) (LRR A)
Inundat	ion Visible on Aeria	al Imagery (B7)	Other (Explain in Remarks)		F	rost-Heave Hummocks (D7)
Sparsel	y Vegetated Conca	ave Surface (B8)				
Field Obser	rvations:					
Surface Wa	ter Present?	Yes No	Depth (inches):			
Water Table	Present?	Yes No	Depth (inches):			
Saturation F		Yes No	Depth (inches):	Wetlan	d Hydrolog	y Present? Yes No X
	pillary fringe) ecorded Data (strea	am gauge, monit	oring well, aerial photos, previous inspect	tions), if a	available:	
Remarks:						
Remarks.						

Project/Site: Yosemite National Park - W of Siesta Lake		City/County:			Sampling Date: 09/09/2010
Applicant/Owner: National Park Service				State: CA	Sampling Point: SP21 Wet33
Cabarraman Charana		Section, To	wnship, Ra	nge:	
Landform (hillslope, terrace, etc.): terrace		Local relief	(concave,	convex, none): none	Slope (%): 0
					Datum: NAD83
Soil Map Unit Name: Rock outcrop-Canisrocks-Xeric Dystrocryepts comple					
Are climatic / hydrologic conditions on the site typical for this					
Are Vegetation $\frac{N}{N}$, Soil $\frac{N}{N}$, or Hydrology $\frac{N}{N}$ significant size $\frac{N}{N}$					present? Yes X No
Are Vegetation N, Soil N, or Hydrology N na					
SUMMARY OF FINDINGS – Attach site map s				eded, explain any answe ocations, transects	,
Hydrophytic Vegetation Present? Yes X No					
Hydric Soil Present? Yes X No			e Sampled		M-
Wetland Hydrology Present? Yes X No	·——	With	in a Wetlar	ia? Yes X	No
Remarks:					
Photo: CS16. Open meadow surro	ounded	d by Pi	nus co	ntorta and Abie	es magnifica forest.
VEGETATION – Use scientific names of plant	s.				
Tree Stratum (Plot size:)	Absolute			Dominance Test work	sheet:
1	% Cover	Species?	Status	Number of Dominant Sp That Are OBL, FACW, of	
2				P1 2 2 W P2 P P P	
3				Total Number of Domin Species Across All Stra	
4.					
		= Total Co	ver	Percent of Dominant Sp That Are OBL, FACW, of	
Sapling/Shrub Stratum (Plot size:)				Prevalence Index wor	
1				TO THE OWNER OF THE PARTY OF TH	Multiply by:
2					x 1 =
3				FACW species	x 2 =
4				FAC species	x 3 =
5		- Total Car		FACU species	x 4 =
Herb Stratum (Plot size: 2 x 1 meter)		= Total Co	ver		x 5 =
1. Deschampsia cespitosa	60	Y	FACW	Column Totals:	(A) (B)
2. Pedicularis atollens	15	N	FACW	Prevalence Index	= B/A =
3. Dodecatheon jeffreyi	25	Y	FACW	Hydrophytic Vegetation	
4. Caltha leptosepala	8	<u>N</u>	OBL	X 1 - Rapid Test for H	lydrophytic Vegetation
5				2 - Dominance Tes	t is >50%
6				3 - Prevalence Inde	
7				4 - Morphological A	Adaptations ¹ (Provide supporting
8					s or on a separate sheet)
9				5 - Wetland Non-Va	phytic Vegetation¹ (Explain)
10				T .	
11	108	= Total Cov		be present, unless distu	I and wetland hydrology must urbed or problematic.
Woody Vine Stratum (Plot size:)		= Total Cov	er		
1				Hydrophytic	
2				Vegetation	Υ
% Bare Ground in Herb Stratum 0		= Total Cov	er	Present? Yes	s <u>X</u> No
Remarks:					

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SOIL					Sampling Point: SP21 Wet3:
Profile Desc	ription: (Describ	e to the depth	needed to document the indicator or co	onfirm the abse	ence of indicators.)
Depth	Matrix		Redox Features		
(inches)	Color (moist)		Color (moist) % Type ¹ Lo	oc² Textur	
0-8	10YR 2/2	_ 100 _		loam	thick roots/fibers
8-10	2.5Y 4/2	100		sandy lo	am
10-17	10YR 2/2	100		loam	
17-24	2.5YR 4/4	100		loamy sa	and
	-				
			Reduced Matrix, CS=Covered or Coated Sa RRs, unless otherwise noted.)		² Location: PL=Pore Lining, M=Matrix. cators for Problematic Hydric Soils ³ :
Histosol		cable to all L	Sandy Redox (S5)		2 cm Muck (A10)
	oipedon (A2)	-	Stripped Matrix (S6)		Red Parent Material (TF2)
Black Hi			Loamy Mucky Mineral (F1) (except MLI	_	Very Shallow Dark Surface (TF12)
Hydroge	en Sulfide (A4)	_	Loamy Gleyed Matrix (F2)	_	Other (Explain in Remarks)
	d Below Dark Surfa	ice (A11)	_ Depleted Matrix (F3)	3	
and the same of th	ark Surface (A12) Nucky Mineral (S1)	-	Redox Dark Surface (F6) Depleted Dark Surface (F7)		icators of hydrophytic vegetation and vetland hydrology must be present,
	Gleyed Matrix (S4)	-	Redox Depressions (F8)		inless disturbed or problematic.
	Layer (if present):				The second secon
Type:			_		
Depth (inc	ches):		<u> </u>	Hydric	Soil Present? Yes X No
YDROLO	GY				
7. 17. 17. 17. 17.	drology Indicators		check all that apply)		secondary Indicators (2 or more required)
	Water (A1)	one required,	Water-Stained Leaves (B9) (excep		Water-Stained Leaves (B9) (MLRA 1, 2
the same of the same	iter Table (A2)		MLRA 1, 2, 4A, and 4B)	_	4A, and 4B)
Saturation			Salt Crust (B11)	_	Drainage Patterns (B10)
Water M	larks (B1)		Aquatic Invertebrates (B13)	_	Dry-Season Water Table (C2)
_ Sedimen	nt Deposits (B2)		Hydrogen Sulfide Odor (C1)	_	Saturation Visible on Aerial Imagery (C
_ Drift Dep	oosits (B3)		Oxidized Rhizospheres along Livin	g Roots (C3) 💆	Geomorphic Position (D2)
	at or Crust (B4)		Presence of Reduced Iron (C4)	-	_ Shallow Aquitard (D3)
Iron Dep			Recent Iron Reduction in Tilled Soi	_	FAC-Neutral Test (D5)
_	Soil Cracks (B6)	(D7)	Stunted or Stressed Plants (D1) (L	.RR A) _	_ Raised Ant Mounds (D6) (LRR A)
_	on Visible on Aeria Vegetated Conca			_	_ Frost-Heave Hummocks (D7)
ield Obser		TO GUITAGO (B	,		
Surface Wate		Yes N	o X Depth (inches):		
Vater Table			o X Depth (inches):		
Saturation Pr				Wetland Hydro	ology Present? Yes X No
includes cap	oillary fringe)		itoring well, aerial photos, previous inspecti		
Remarks:					
vetland	is on terrace	adjacent	to creek.		

Project/Site: Yosemite National Park - West of Siesta Lake	<u> </u>	City/County:			Sampling Date: 09/09/2010	
Applicant/Owner: National Park Service				State: CA	Sampling Point: SP22	
0-1		Section, To				
		Local relief	(concave.	convex, none): none	Slope (%): 0	
					Datum: NAD83	
Soil Map Unit Name: Canisrocks-Glacierpoint complex, 0 t						
						_
Are climatic / hydrologic conditions on the site typical for the				(If no, explain in R		
Are Vegetation N, Soil N, or Hydrology N					oresent? Yes X No	
Are Vegetation N, Soil N, or Hydrology N	naturally pro	blematic?	(If ne	eeded, explain any answe	rs in Remarks.)	
SUMMARY OF FINDINGS – Attach site map	showing	samplin	g point l	ocations, transects	, important features, e	tc.
Hydrophytic Vegetation Present? Yes X	No		77/17/			
Hydric Soil Present? Yes	No X		e Sampled		V	
Wetland Hydrology Present? Yes	No X	with	in a Wetlar	nd? Yes	No X	
Remarks:						_
VEGETATION – Use scientific names of pla	ınts.					
C manadina	Absolute			Dominance Test work	sheet:	\neg
Tree Stratum (Plot size: 5 m radius 1. Pinus contorta	<u>% Cover</u> 15	Species? Y	Status FAC	Number of Dominant Sp		
	_ 13	<u> </u>	FAC	That Are OBL, FACW,	or FAC: 3 (A)	
2				Total Number of Domin		
3				Species Across All Stra	ta: <u>3</u> (B)	
4	15			Percent of Dominant Sp		
Sapling/Shrub Stratum (Plot size: 3 m radius	15	= Total Co	ver	That Are OBL, FACW,		8)
1. Pinus contorta	7	Υ	FAC	Prevalence Index work		
2.	- 24			1.	Multiply by:	
3.					x 1 =	
4.					x 2 =	
5.				(2)	x 3 =	
	7	= Total Co	ver		x 4 =	
Herb Stratum (Plot size: 2 x 1 meter)	_		E4011		x 5 =	
1. Juncus parryi	<u> 7</u>	N	FACU	Column Totals:	(A) (B)
2. Deschampsia cespitosa	_ 65	<u>Y</u>	FACW	Prevalence Index	= B/A =	
3. Polygonum bistortoides	5 10	N N	OBL	Hydrophytic Vegetation	on Indicators:	
Caltha leptosepala Osmorhiza occidentalis	- 10 -	N	UPL	1 - Rapid Test for H		
		<u></u>	OPL	X 2 - Dominance Tes		
6				3 - Prevalence Inde		
7				4 - Morphological A	Adaptations¹ (Provide supportii s or on a separate sheet)	ng
8				5 - Wetland Non-Va	The same of the sa	
9				the second that the second	phytic Vegetation¹ (Explain)	
10	_			T	I and wetland hydrology must	
11	91	= Total Cov		be present, unless distu		
Woody Vine Stratum (Plot size:)	-	_ Total Cov	rei			_
1				Hydrophytic		
2.				Vegetation	v	
		= Total Cov	ver	Present? Yes	s <u>X</u> No	
% Bare Ground in Herb Stratum 5						_
Remarks:						
						_

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Depth (inches) 0-5	Matrix		D. d			01 00111111	n the absence	
0-5	Color (moist)	%	Color (moist)	ox Feature %	Type	Loc ²	Texture	Remarks
	10YR 2/2	100			1700		loam	thick roots/fibers
5-18	10YR 2/2	70		_			sandy loam	moist
18-24	WART OF STREET	70	5YR 5/8	20		N.4		moist
0-24	10YR 5/6	70	3113/6	30		<u>M</u>	loamy sand	HIOIST
					=			
					_			
-			Reduced Matrix, C			ed Sand G		cation: PL=Pore Lining, M=Matrix.
	131.3	cable to all	LRRs, unless other		ed.)			ors for Problematic Hydric Soils ³ :
_ Histosol (Sandy Redox				_	m Muck (A10)
	ipedon (A2)		Stripped Matrix		4) (MIDAA		d Parent Material (TF2)
_ Black His	n Sulfide (A4)		Loamy Mucky Loamy Gleyed			(WLKA1)		y Shallow Dark Surface (TF12) er (Explain in Remarks)
	Below Dark Surface	ce (A11)	Depleted Matri		,		_ 500	- (-pain in romains)
_	rk Surface (A12)	,	Redox Dark St	0.00)		3Indicate	ors of hydrophytic vegetation and
_ Sandy M	ucky Mineral (S1)		Depleted Dark	Surface (7)		wetla	and hydrology must be present,
_ Sandy G	leyed Matrix (S4)		Redox Depres	sions (F8)			unles	ss disturbed or problematic.
estrictive L	ayer (if present):							
Туре:								
Depth (inc	hes):						Hydric Soil	Present? YesNo X
11. C.								
	rology Indicators		d: check all that app	oly)			Seco	ndary Indicators (2 or more required)
Vetland Hyd Primary Indica	rology Indicators ators (minimum of		d; check all that app Water-St		res (R9) (e	xcent		
Vetland Hyd rimary Indica Surface \	Irology Indicators ators (minimum of o Water (A1)		Water-Sta	ained Leav		xcept		ndary Indicators (2 or more required) Vater-Stained Leaves (B9) (MLRA 1,
Vetland Hyd Primary Indica Surface \ High Wat	Irology Indicators ators (minimum of o Water (A1) ter Table (A2)		Water-Sta MLRA	ained Leav 1, 2, 4A,		xcept	_ v	Vater-Stained Leaves (B9) (MLRA 1, 4A, and 4B)
Vetland Hyd Primary Indica Surface N High Wat Saturatio	Irology Indicators ators (minimum of o Nater (A1) ter Table (A2) n (A3)		Water-Sta MLRA Salt Crusi	ained Leav 1, 2, 4A, t (B11)	and 4B)	xcept	_ v	Vater-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10)
Vetland Hyd Primary Indic Surface \ High Wat Saturatio Water Ma	Irology Indicators ators (minimum of o Nater (A1) ter Table (A2) n (A3)		Water-Sta MLRA	ained Leav 1, 2, 4A, t (B11) nvertebrate	and 4B) es (B13)	xcept	_ v	Vater-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2)
Vetland Hyd Primary Indic: Surface \ High Wat Saturatio Water Ma	Irology Indicators ators (minimum of of Water (A1) ter Table (A2) in (A3) arks (B1)		Water-Sta MLRA Salt Crusi Aquatic Ir Hydrogen	ained Leav 1, 2, 4A, t (B11) nvertebrate Sulfide C	and 4B) es (B13) dor (C1)		v	Vater-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (
Vetland Hyd Primary Indic: Surface N High Wat Saturatio Water Ma Sedimen Drift Dep	Irology Indicators ators (minimum of of Water (A1) ter Table (A2) in (A3) arks (B1) t Deposits (B2)		Water-Sta MLRA Salt Crusi Aquatic Ir Hydrogen	ained Leav 1, 2, 4A, t (B11) nvertebrate s Sulfide C Rhizosphe	es (B13) dor (C1) eres along	Living Roo	V	Vater-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2)
Vetland Hyd rimary Indic: Surface \ High Wat Saturatio Water Ma Sedimen Drift Dep Algal Mat	Irology Indicators ators (minimum of a Mater (A1) ter Table (A2) in (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4)		Water-Sta MLRA Salt Crusi Aquatic Ir Hydrogen Oxidized Presence	ained Leav 1, 2, 4A, t (B11) nvertebrate a Sulfide C Rhizosphe of Reduc	es (B13) dor (C1) eres along ed Iron (C	Living Roo	- V	Vater-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Baturation Visible on Aerial Imagery (Geomorphic Position (D2)
Vetland Hyd Primary Indic: Surface \ High Wat Saturatio Water Ma Sedimen Drift Dep Algal Mat	Irology Indicators ators (minimum of a Mater (A1) ter Table (A2) in (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4)		Water-Sta MLRA Salt Crus Aquatic Ir Hydrogen Oxidized Presence Recent In	ained Leaven 1, 2, 4A, t (B11) invertebrate in Sulfide C Rhizosphe of Reduction Reduct	es (B13) dor (C1) eres along ed Iron (Co ion in Tille	Living Roo	- V - C - C - C - S - C - S - S - S - S - S - S - S - S - S - S	Vater-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Prainage Patterns (B10) Pry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3)
Vetland Hyd Primary Indice Surface N High Wat Saturatio Water Ma Sedimen Drift Dep Algal Mai Iron Depo	Irology Indicators ators (minimum of a Mater (A1) ter Table (A2) in (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5)	one required	Water-Sta MLRA Salt Crus Aquatic Ir Hydrogen Oxidized Presence Recent In Stunted of	ained Leav 1, 2, 4A, t (B11) nvertebrate Sulfide C Rhizosphe of Reduct or Stressed	es (B13) dor (C1) eres along ed Iron (C- tion in Tille I Plants (D	Living Roo 4) d Soils (Ce	V C S ots (C3) S S S S S	Vater-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5)
Vetland Hyd Primary Indice Surface \(\) High Wat Saturatio Water Mater	Irology Indicators ators (minimum of ele Mater (A1) ter Table (A2) in (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6)	one required	Water-Stand Range R	ained Leav 1, 2, 4A, t (B11) nvertebrate Sulfide C Rhizosphe of Reduct or Stressed	es (B13) dor (C1) eres along ed Iron (C- tion in Tille I Plants (D	Living Roo 4) d Soils (Ce	V C S ots (C3) S S S S S	Vater-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Vetland Hyd Primary Indice Surface \(\) High Wat Saturatio Water Mater	Irology Indicators ators (minimum of ele Water (A1) ter Table (A2) in (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) in Visible on Aerial Vegetated Concav	one required	Water-Stand Range R	ained Leav 1, 2, 4A, t (B11) nvertebrate Sulfide C Rhizosphe of Reduct or Stressed	es (B13) dor (C1) eres along ed Iron (C- tion in Tille I Plants (D	Living Roo 4) d Soils (Ce	V C S ots (C3) S S S S S	Vater-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Vetland Hyd Primary Indice Surface \(\) High Wat Saturatio Water Ma Sedimen Drift Dep Algal Ma Iron Depo Surface S Inundatio Sparsely	Irology Indicators ators (minimum of ele Mater (A1) ter Table (A2) in (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) in Visible on Aerial Vegetated Concav rations:	one required Imagery (B re Surface (I	Water-Stand Range R	ained Leav 1, 2, 4A, t (B11) vertebrate a Sulfide C Rhizosphe of Reduct or Reduct or Stressec plain in Re	es (B13) dor (C1) eres along ed Iron (C- tion in Tille I Plants (D	Living Roo 4) d Soils (Ce	V C S ots (C3) S S S S S	Vater-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Vetland Hyd Primary Indice Surface \(\) High Wat Saturatio Water Ma Sedimen Drift Dep Algal Ma Iron Depo Surface S Inundatio Sparsely	Irology Indicators ators (minimum of ele Mater (A1) ter Table (A2) in (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) in Visible on Aerial Vegetated Concav rations:	Imagery (B' e Surface (l	Water-Sta MI RA Salt Crusi Aquatic Ir Hydrogen Oxidized Presence Recent In Stunted of Other (Ex B8) No Depth (ir	ained Leavanne Leavan	es (B13) dor (C1) eres along ed Iron (C- tion in Tille I Plants (D	Living Roo 4) d Soils (Ce	V C S ots (C3) S S S S S	Vater-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Vetland Hyd Primary Indice Surface N High Wat Saturatio Water Ma Sedimen Drift Dep Algal Mai Iron Dep Surface S Inundatio Sparsely Field Observ Surface Wate Vater Table I Staturation Princludes cap	Irology Indicators ators (minimum of a Water (A1) ter Table (A2) in (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) in Visible on Aerial Vegetated Concav rations: art Present?	Imagery (B' ve Surface (I Yes Yes	Water-Sta MLRA Salt Crusi Aquatic Ir Hydrogen Oxidized Presence Recent In Stunted of Other (Ex B8) No Depth (ir No Depth (ir	ained Leavanne Leavan	es (B13) dor (C1) eres along ad Iron (C- tion in Tille I Plants (D emarks)	Living Roo 4) d Soils (Ci 1) (LRR A	V	Vater-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Vetland Hyd Primary Indice Surface N High Wat Saturatio Water Ma Sedimen Drift Dep Algal Mai Iron Dep Surface S Inundatio Sparsely Field Observ Surface Wate Vater Table I Staturation Princludes cap	Irology Indicators ators (minimum of a Water (A1) ter Table (A2) in (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) in Visible on Aerial Vegetated Concav rations: art Present?	Imagery (B' ve Surface (I Yes Yes	Water-Sta MLRA Salt Crusi Aquatic Ir Hydrogen Oxidized Presence Recent In Stunted of Other (Ex B8) No Depth (ir	ained Leavanne Leavan	es (B13) dor (C1) eres along ad Iron (C- tion in Tille I Plants (D emarks)	Living Roo 4) d Soils (Ci 1) (LRR A	V C S obts (C3) S S S S F	Vater-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) SAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Vetland Hyd Primary Indice Surface N High Wat Saturatio Water Ma Sedimen Drift Dep Algal Mai Iron Dep Surface S Inundatio Sparsely Field Observ Surface Wate Vater Table I Staturation Princludes cap	Irology Indicators ators (minimum of a Water (A1) ter Table (A2) in (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) in Visible on Aerial Vegetated Concav rations: art Present?	Imagery (B' ve Surface (I Yes Yes	Water-Sta MLRA Salt Crusi Aquatic Ir Hydrogen Oxidized Presence Recent In Stunted of Other (Ex B8) No Depth (ir No Depth (ir	ained Leavanne Leavan	es (B13) dor (C1) eres along ad Iron (C- tion in Tille I Plants (D emarks)	Living Roo 4) d Soils (Ci 1) (LRR A	V C S obts (C3) S S S S F	Vater-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (Geomorphic Position (D2) Shallow Aquitard (D3) SAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)

Project/Site: Yosemite National Park - Siesta Lake		City/Cour	nty:		Sampling Date: 09/09/02010
Applicant/Owner: National Park Service				State: CA	Sampling Point: SP23
Charles Cabarrage		Section.		nge:	
2.00			ACCOUNTAGE OF THE PARTY		Slope (%): 2
				Long: 119 39 31 W	Datum: NAD83
Soil Map Unit Name: Typic Cryopsamments-Humic Dystrocryepts com					
Are climatic / hydrologic conditions on the site typical for t					
Are Vegetation N , Soil N , or Hydrology N					present? Yes X No
Are Vegetation N, Soil N, or Hydrology N				eded, explain any answe	
SUMMARY OF FINDINGS – Attach site ma				0 3 5	,
Hydrophytic Vegetation Present? Yes	No_X		119763	-	
Hydric Soil Present? Yes	No X		the Sampled		No X
Wetland Hydrology Present? Yes	No X	w	ithin a Wetlan	10? Yes	NO ^
Remarks:					
NWI mapped as PFO.	Photo	: CS	S20.		
VEGETATION – Use scientific names of pla					
VEGETATION – Ose scientific flames of pia	Absolute	Domino	nt Indicator	Dominance Test work	kchoot:
Tree Stratum (Plot size: 5 m radius			? Status	Number of Dominant S	
1. Pinus contorta	2	N	FAC	That Are OBL, FACW,	
2. Abies magnifica	10	Y	FACU	Total Number of Domir	nant
3				Species Across All Str	
4				Percent of Dominant S	Species
Sapling/Shrub Stratum (Plot size: 3 m radius	12	= Total (Cover	That Are OBL, FACW,	
1. Pinus contorta	5	Y	FAC	Prevalence Index wo	rksheet:
2.				1.	Multiply by:
3.				I .	x 1 =
4.				FACW species	x 2 =
5					x 3 =
2	5	= Total (Cover		x 4 =
Herb Stratum (Plot size: 2 x 1 meter 1. Veratrum californicum	15	N	OBL	Column Totals:	x 5 = (B)
2. Senecio triangularis	15	N	OBL	Column Totals.	(^) (b)
3. Deschampsia cespitosa	30	Y	FACW	0.0000000000000000000000000000000000000	x = B/A =
Senecio scorzonella	20	Y	UPL	Hydrophytic Vegetati	
5. Perideridia parishii	5	N	FACW	1 - Rapid Test for 2 - Dominance Te	Hydrophytic Vegetation
6. Carex athrostachya	7	N	FACW	3 - Prevalence Ind	
7. Lupinus polyphyllus	3	N	FACW		Adaptations ¹ (Provide supporting
8.				data in Remark	(s or on a separate sheet)
9				5 - Wetland Non-V	/ascular Plants ¹
10					ophytic Vegetation¹ (Explain)
11				Indicators of hydric so be present, unless dist	oil and wetland hydrology must
Woody Vine Stratum (Plot size:)	95	= Total C	Cover	be present, unless dist	dibed of problematic.
1					
2.				Hydrophytic Vegetation	
		= Total C	Cover	Present? Ye	es No_X
% Bare Ground in Herb Stratum 5					
Remarks:					

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SOIL					Sampling Point: SP23
Profile Des	cription: (Describ	e to the dept	h needed to document the indicator or co	nfirm the absenc	
Depth	Matrix		Redox Features		
(inches)	Color (moist)	%	Color (moist) % Type Lo	c ² Texture	Remarks
0-3	10YR 2/2	100		loamy sand	thick roots/high organic content
3-19	10YR 2/2	100		loamy sand	low organic
19-24	10YR 4/4	100		sand	multicolored sand grains
	:			_	- 8 (
					<u> </u>
¹ Type: C=C	concentration, D=De	pletion, RM=	Reduced Matrix, CS=Covered or Coated Sar	nd Grains. ² L	ocation: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators: (Appl	icable to all I	RRs, unless otherwise noted.)	Indica	tors for Problematic Hydric Soils ³ :
Histoso			Sandy Redox (S5)		cm Muck (A10)
	pipedon (A2)		Stripped Matrix (S6)		ed Parent Material (TF2)
	listic (A3)		Loamy Mucky Mineral (F1) (except MLR		ery Shallow Dark Surface (TF12)
	en Sulfide (A4)	(444)	Loamy Gleyed Matrix (F2)	_ Ot	her (Explain in Remarks)
_	ed Below Dark Surfa ark Surface (A12)	ice (ATT)	Depleted Matrix (F3) Redox Dark Surface (F6)	3Indica	tors of hydrophytic vegetation and
	Mucky Mineral (S1)		Depleted Dark Surface (F7)		land hydrology must be present.
_	Gleyed Matrix (S4)		Redox Depressions (F8)		ess disturbed or problematic.
	Layer (if present):				
Type:			_		
Depth (in	nches):		_	Hydric So	il Present? Yes No X
HYDROLO	GY				
Wetland Hy	drology Indicators	s:			
Primary Indi	cators (minimum of	one required	; check all that apply)	Sec	ondary Indicators (2 or more required)
Surface	Water (A1)		Water-Stained Leaves (B9) (except	t	Water-Stained Leaves (B9) (MLRA 1, 2,
High W	ater Table (A2)		MLRA 1, 2, 4A, and 4B)		4A, and 4B)
Saturat	ion (A3)		Salt Crust (B11)	_	Drainage Patterns (B10)
Water N	vlarks (B1)		Aquatic Invertebrates (B13)	_	Dry-Season Water Table (C2)
_	nt Deposits (B2)		Hydrogen Sulfide Odor (C1)		Saturation Visible on Aerial Imagery (C9)
_	posits (B3)		 Oxidized Rhizospheres along Living 		Geomorphic Position (D2)
	at or Crust (B4)		Presence of Reduced Iron (C4)		Shallow Aquitard (D3)
_	posits (B5)		Recent Iron Reduction in Tilled Soil		FAC-Neutral Test (D5)
_	Soil Cracks (B6)		Stunted or Stressed Plants (D1) (LI		Raised Ant Mounds (D6) (LRR A)
_	ion Visible on Aeria		_	_	Frost-Heave Hummocks (D7)
	y Vegetated Conca	ve Surface (E	(8)		
Field Obser		V '	lo X Depth (inches):		
Water Table			lo X Depth (inches):	Mintlemal Unidentic	gy Present? YesNo X
Saturation F (includes ca	resent? pillary fringe)	Yes	lo A Deptin (inches):	wetiand Hydrolo	gy Present? Yes No
Describe Re	ecorded Data (strea	m gauge, mo	nitoring well, aerial photos, previous inspecti	ons), if available:	
Remarks:			Nat automatical		
Surrace	moist from m	orning de	ew. Not saturated.		

Project/Site: Yosemite National Park - Porcupine Flat		City/County:			_ Sampling Date: 09/09/2010		
Applicant/Owner: National Park Service				State: CA	Sampling Point:	SP24 Wet38	
Investigator(s): Scheuerman, Stevens		Section, Township, Range:					
Landform (hillslope, terrace, etc.): hillslope		Local relief (concave, convex, none): none Slope (%				oe (%): 5	
				Long: 119 33 52.51 W			
Soil Map Unit Name: Canisrocks-Xeric Dystrocryepts association.							
Are climatic / hydrologic conditions on the site typical for t		500					
Are Vegetation N , Soil N , or Hydrology N				'Normal Circumstances" p		No	
Are Vegetation N, Soil N, or Hydrology N	_naturally pro	blematic?	(If ne	eded, explain any answer	rs in Remarks.)		
SUMMARY OF FINDINGS – Attach site map	showing	samplin	g point l	ocations, transects	, important fe	atures, etc.	
Hydrophytic Vegetation Present? Yes X	No						
Hydric Soil Present? Yes X Wetland Hydrology Present? Yes X	No		e Sampled				
Wetland Hydrology Present? Yes X	No	with	in a Wetlar	na? Yes <u>*</u>	No	•	
Remarks:							
Photo: CS26							
VEGETATION – Use scientific names of pla	ınts.						
Tree Stratum (Plot size: 5 m radius)	Absolute % Cover	Dominant Species?		Dominance Test work	sheet:		
1 Pinus contorta	10	Y	FAC	Number of Dominant Sp That Are OBL, FACW, of		(A)	
2.				20.00.000.000.000.000.000.00		(4)	
3.				Total Number of Domini Species Across All Stra		(B)	
4.							
-	10	= Total Co	ver	Percent of Dominant Sp That Are OBL, FACW, of		(A/B)	
Sapling/Shrub Stratum (Plot size: 3 m radius			540	Prevalence Index worl		(, , ,	
1. Pinus contorta	_ 7	<u>Y</u>	FAC	Total % Cover of:		v bv:	
2				OBL species			
3				FACW species			
4				FAC species			
5	7			FACU species	x 4 =		
Herb Stratum (Plot size: 2 x 1 meter		= Total Co	ver	UPL species			
1. Senecio scorzonella	20	Υ	UPL	Column Totals:	(A)	(B)	
2. Ranunculus alismifolius	40	<u>Y</u>	FACW	Prevalence Index	= B/A =		
3. Perideridia parishii	10	N	FACW	Hydrophytic Vegetation	5 525 5 552		
4. Deschampsia cespitosa	5	N	FACW	1 - Rapid Test for H	lydrophytic Veget	ation	
5. Calamagrostis canadensis	10	N	FACW	X 2 - Dominance Tes	t is >50%		
6. Erigeron peregrinus	_ 4	<u>N</u>	FACW	3 - Prevalence Inde	ex is ≤3.01		
7. Caltha leptosepala	15	N	OBL	4 - Morphological A	daptations (Prov	ide supporting	
8. Muhlenbergia filiformis		<u>Y</u>	FACW		or on a separate	sneet)	
9. Polygonum bistortoides		N	OBL	5 - Wetland Non-Va		(Evoluin)	
10				Problematic Hydrop Indicators of hydric soil			
11	129	T-1-1-0		be present, unless distu			
Woody Vine Stratum (Plot size:)	123	= Total Cov	er				
1				Hydrophytic			
2.				Vegetation	ν		
		= Total Cov	er	Present? Yes	s <u>X</u> No _	_	
% Bare Ground in Herb Stratum 0							
Remarks:							

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SOIL								Sampling Point: SP24 Wet38
Profile Des	cription: (Describ	e to the de	pth needed to doc	ument the	e indicato	r or confir	m the absence	of indicators.)
Depth	Matrix			dox Featu				
(inches)	Color (moist)		Color (moist)	%_	Type'	Loc ²	Texture	Remarks
0-3	10YR 2/2	100			-	-	sandy loam	thick roots
3-12	7.5YR 2.5/2	95	2.5YR 3/6	_ 5	_ <u>c</u>	_ M	sandy loam	
12-13	2.5Y 5/4	95	7.5YR 5/8	_ 5	_ <u>C</u>	M	sand	
13-24	10YR 3/3	98	10YR 5/8	2	С	M	sand	
		-		- "				
								-
				- 0				
					_			-
	-	_	-	_	_	-		-
			M=Reduced Matrix, (II LRRs, unless oth			ted Sand G		cation: PL=Pore Lining, M=Matrix. ors for Problematic Hydric Soils ³ :
	2.25	icable to a	15		otea.)			-
Histosol	pipedon (A2)		Sandy Redox Stripped Matr					m Muck (A10) d Parent Material (TF2)
	istic (A3)		Loamy Mucky		F1) (exce	ot MLRA 1		y Shallow Dark Surface (TF12)
	en Sulfide (A4)		Loamy Gleye					ner (Explain in Remarks)
_	d Below Dark Surfa	ice (A11)	Depleted Mat					
	ark Surface (A12)		X Redox Dark S					ors of hydrophytic vegetation and
_	Mucky Mineral (S1)		Depleted Dan Redox Depre					and hydrology must be present,
	Gleyed Matrix (S4) Layer (if present):		Redox Depre	SSIONS (FO)		unie	ss disturbed or problematic.
Type:	zayor (ii prosoni).							
Depth (in	ches):						Hydric Soi	I Present? Yes X No
Remarks:								
HYDROLO	GY							
775 15 775	drology Indicators							
Primary Indi	cators (minimum of	one require	ed; check all that ap	ply)			Seco	ndary Indicators (2 or more required)
The state of the s	Water (A1)				aves (B9) (except	- '	Nater-Stained Leaves (B9) (MLRA 1, 2,
	ater Table (A2)			constitution from	, and 4B)			4A, and 4B)
Saturati	14 15		Salt Cru		tee (D12)			Orainage Patterns (B10)
_	/larks (B1) nt Deposits (B2)		Aquatic Hydroge				_	Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9)
	posits (B3)					a Living Ro		Geomorphic Position (D2)
	at or Crust (B4)			December 19	ced Iron (C			Shallow Aquitard (D3)
	posits (B5)					ed Soils (C		FAC-Neutral Test (D5)
Surface	Soil Cracks (B6)		Stunted	or Stresse	ed Plants (D1) (LRR A		Raised Ant Mounds (D6) (LRR A)
Inundati	ion Visible on Aeria	I Imagery (I	B7) Other (E	xplain in f	Remarks)		F	Frost-Heave Hummocks (D7)
Sparsel	y Vegetated Conca	ve Surface	(B8)					
Field Obser			~					
Surface Wat			No X Depth (— I		
Water Table			No X Depth (
	pillary fringe)		No X Depth (- 20 -				gy Present? Yes X No
	1		-					
Remarks:								
Forestec	area with m	atrix of	water channe	els runi	ning thr	ough it.		

Project/Site: Yosemite National Park - Porcupine Flat		City/County	:		Sampling Date: 09/09/2010
Applicant/Owner: National Park Service				State: CA	Sampling Point: SP25
Investigator(s): Scheuerman, Stevens		Section, To	wnship, Ra	nge:	
Landform (hillslope, terrace, etc.): hillsope		Local relief	(concave,	convex, none): none	Slope (%): 5
Subregion (LRR): MLRA 22A	Lat: 37 4	48 27.88 N		Long: 119 33 52.51 W	Datum: NAD83
Soil Map Unit Name: Canisrocks-Xeric Dystrocryepts association					
Are climatic / hydrologic conditions on the site typical for					
Are Vegetation N, Soil N, or Hydrology N					resent? Yes X No
Are Vegetation N, Soil N, or Hydrology N				eded, explain any answer	
SUMMARY OF FINDINGS – Attach site ma					
Hydrophytic Vegetation Present? Yes	No X				
Hydric Soil Present? Yes	No X		e Sampled		X
Wetland Hydrology Present? Yes	No X	With	in a Wetlar	10? Yes	No X
Remarks:					
VEGETATION – Use scientific names of pla					
Tree Stratum (Plot size: 5 m radius	Absolute % Cover	Dominant Species?		Dominance Test works	
1. Pinus contorta	80	Y	FAC	Number of Dominant Sp That Are OBL, FACW, of	
2.				Total Number of Domina	ant
3				Species Across All Strat	
4	_			Percent of Dominant Sp	necies
One line (Oberta Otentura (Oberta)	80	= Total Co	ver	That Are OBL, FACW, o	
Sapling/Shrub Stratum (Plot size:)				Prevalence Index work	sheet:
1				Total % Cover of:	Multiply by:
2				OBL species	x 1 =
4				FACW species	x 2 =
5.				(1)	x 3 =
		= Total Co	ver		x 4 =
Herb Stratum (Plot size: 2 x 1 meter)					x 5 =
1. Carex raynoldsii	_ 10	Y	FAC	Column Totals:	(A) (B)
2. Achnatherum lemmonii 3. Carex multicostata	<u>12</u> 10	Y Y	UPL	Prevalence Index	= B/A =
	10		UPL	Hydrophytic Vegetatio	n Indicators:
4				1 - Rapid Test for H	
5			$\overline{}$	2 - Dominance Test	
6				3 - Prevalence Inde	
7				4 - Morphological A data in Remarks	daptations ¹ (Provide supporting or on a separate sheet)
8 9				5 - Wetland Non-Va	The same of the sa
10				treat consists that what the	ohytic Vegetation¹ (Explain)
11.				¹ Indicators of hydric soil	and wetland hydrology must
200	32	= Total Cov	/er	be present, unless distu	rbed or problematic.
Woody Vine Stratum (Plot size:)		-			
1				Hydrophytic	
2				Vegetation Present? Yes	s No_X
% Bare Ground in Herb Stratum 60		_= Total Cov	/er		
Remarks:					

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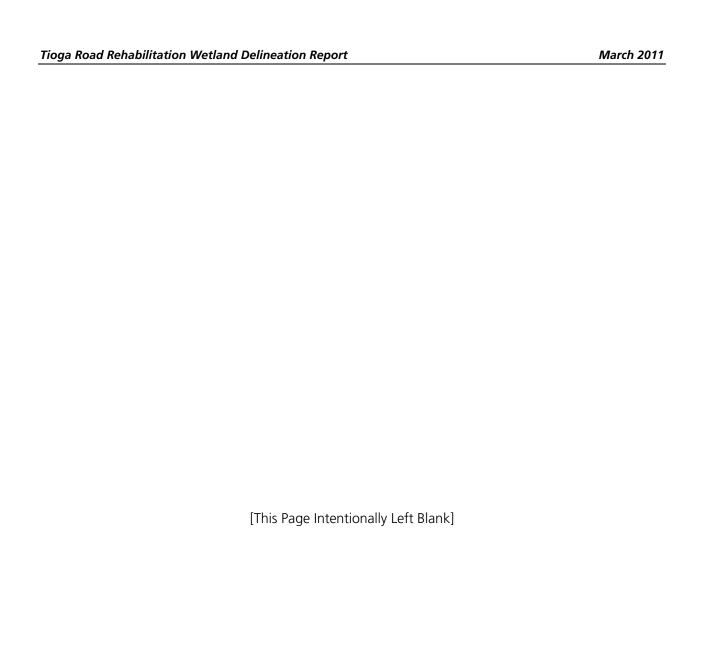
SOIL						Sampling Point: SP25
Profile Des	cription: (Describ	e to the depth r	needed to document the indicator or c	onfirm th	e absence	
Depth	Matrix		Redox Features			
(inches)	Color (moist)	%	Color (moist) % Type ¹ L	.oc²	Texture	Remarks
0-4	10YR 2/1	100		S	andy loam	high organic content/root fibers
4-20	10YR 2/2	100		lo	amy sand	
						·
						1
1T. may C=C	Consentration D-D		duced Matrix, CS=Covered or Coated Si	and Crain	21.0	antion : DI - Dave Lining Mahatriy
			duced Matrix, CS=Covered or Coated Si Rs, unless otherwise noted.)	and Grain		cation: PL=Pore Lining, M=Matrix. prs for Problematic Hydric Soils ³ :
Histoso	22.2					
_	pipedon (A2)	_	Sandy Redox (S5) Stripped Matrix (S6)		_	n Muck (A10) I Parent Material (TF2)
_	listic (A3)	_	Loamy Mucky Mineral (F1) (except ML	RA 1)		y Shallow Dark Surface (TF12)
	en Sulfide (A4)	_	Loamy Gleyed Matrix (F2)			er (Explain in Remarks)
Deplete	ed Below Dark Surfa	ace (A11)	Depleted Matrix (F3)			
Thick D	ark Surface (A12)	_	Redox Dark Surface (F6)		3Indicate	ors of hydrophytic vegetation and
	Mucky Mineral (S1)	_	Depleted Dark Surface (F7)			nd hydrology must be present,
	Gleyed Matrix (S4)		Redox Depressions (F8)		unles	s disturbed or problematic.
	Layer (if present)	:				
Type:			-			Y
Depth (in Remarks:	nches):		_	'	Hydric Soil	Present? Yes No X
HYDROLO	OGY					
and the same of th	drology Indicator	6.				
0.000.000.000.000.000	icators (minimum o		heck all that apply)		Seco	ndary Indicators (2 or more required)
	Water (A1)	one required, ci	Water-Stained Leaves (B9) (exce	nt		Vater-Stained Leaves (B9) (MLRA 1, 2,
	ater Table (A2)		MLRA 1, 2, 4A, and 4B)	ρι	_ '	4A, and 4B)
Saturati			Salt Crust (B11)		-	Prainage Patterns (B10)
_	Varks (B1)		Aquatic Invertebrates (B13)			Pry-Season Water Table (C2)
_	ent Deposits (B2)		Hydrogen Sulfide Odor (C1)			saturation Visible on Aerial Imagery (C9)
_	eposits (B3)		Oxidized Rhizospheres along Livin	na Roots	_	
	lat or Crust (B4)		Presence of Reduced Iron (C4)			ihallow Aquitard (D3)
	posits (B5)		Recent Iron Reduction in Tilled Sc	ils (C6)		AC-Neutral Test (D5)
	Soil Cracks (B6)		Stunted or Stressed Plants (D1) (I	LRR A)	_ R	aised Ant Mounds (D6) (LRR A)
Inundat	tion Visible on Aeria	I Imagery (B7)	Other (Explain in Remarks)		F	rost-Heave Hummocks (D7)
Sparsel	ly Vegetated Conca	ive Surface (B8)				
Field Obse	rvations:					
Surface Wa	ter Present?	Yes No.	X Depth (inches):			
Water Table	e Present?	Yes No	X Depth (inches):			
Saturation F			X Depth (inches):	Wetland	d Hydrolog	y Present? YesNo X
	ipillary fringe) ecorded Data (strea	m gauge, monito	oring well, aerial photos, previous inspec	tions), if a	vailable:	
Remarks:						
1						

Project/Site: Yosemite National Park - E of Olmstead Point		City/County:			Sampling Date: 09/09/2010	
Applicant/Owner: National Park Service				State: CA		
Investigator(s): Scheuerman, Stevens	Section, Tov	wnship, Ran	nge:			
		Local relief	(concave, c	convex, none): non	Slope (%): 0	
Subregion (LRR): MLRA 22A				Long: 119 28 30.01 W	Datum: NAD83	
Soil Map Unit Name: Canisrocks-Xeric Dystrocryepts association, 5 to						
Are climatic / hydrologic conditions on the site typical for this						
Are Vegetation N, Soil N, or Hydrology N sig					esent? Yes X No	
Are Vegetation N, Soil N, or Hydrology N na				eded, explain any answers		
SUMMARY OF FINDINGS – Attach site map s	153111					
•			, po	, , , , , , , , , , , , , , , , , , , ,	portunit routuros, oto:	
Hydrophytic Vegetation Present? Yes X No Hydric Soil Present? Yes No No	X	Is the	e Sampled			
Wetland Hydrology Present? Yes X No		withi	in a Wetlan	d? Yes	No X	
Remarks:						
VEGETATION – Use scientific names of plants	5.					
		Dominant Species?		Dominance Test works	heet:	
1	76 COVEL	Species?	Status	Number of Dominant Sp. That Are OBL, FACW, or		
_	_					
3.				Total Number of Domina Species Across All Strate		
4.		_				
		= Total Cov	/er	Percent of Dominant Spe That Are OBL, FACW, or		
Sapling/Shrub Stratum (Plot size:)				Prevalence Index work	sheet:	
1				Total % Cover of:	Multiply by:	
2					x 1 =	
4.				Account to the second s	x 2 =	
5.				(3)	x 3 =	
		= Total Cov	/er		x 4 =	
Herb Stratum (Plot size: 1 x 1 meter 1 Carex vesicaria	80	Υ	OBL	UPL species	X 5 = (B)	
Salex vesicara Aster alpigenus	15	N	OBL	Column Totals.	(A) (B)	
3. Deschampsia cespitosa	15	N	FACW	Prevalence Index	10110	
4				Hydrophytic Vegetation X 1 - Rapid Test for Hy	U Principal Control of	
5.				2 - Dominance Test		
6.		_		3 - Prevalence Index		
7				4 - Morphological Ad	daptations ¹ (Provide supporting	
8				data in Remarks	or on a separate sheet)	
9				5 - Wetland Non-Va		
10					hytic Vegetation¹ (Explain)	
11	110	-1.75		be present, unless distur	and wetland hydrology must bed or problematic.	
Woody Vine Stratum (Plot size:)	110	= Total Cov	er			
1				Hydrophytic		
2				Vegetation	Χ ν-	
W Born Count die Harb Glad 10		= Total Cov	er	Present? Yes	XNo	
% Bare Ground in Herb Stratum 10 Remarks:						

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				Sampling Point: SP26
Profile Desc	cription: (Describe	e to the depth	needed to document the indicator or co	nfirm the absence of indicators.)
Depth	Matrix		Redox Features	-
(inches)	Color (moist)		Color (moist) % Type¹ Loc	C ² Texture Remarks
0-4	10YR 2/1	_ 100 _		sandy loam thick roots
4-13	10YR 2/1	100		sandy loam
13-14	2.5Y 7/2	100		loamy sand
13-24	10YR 2/1	100		loam
	-			
1Tumpi 0=0	an contration D-Da		educed Matrix, CS=Covered or Coated Sar	nd Grains. ² Location: PL=Pore Lining, M=Matrix.
			Rs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ³ :
Histosol	121.2		Sandy Redox (S5)	2 cm Muck (A10)
_	pipedon (A2)		Stripped Matrix (S6)	Red Parent Material (TF2)
Black H	istic (A3)	_	Loamy Mucky Mineral (F1) (except MLR	A 1) Very Shallow Dark Surface (TF12)
	en Sulfide (A4)		Loamy Gleyed Matrix (F2)	Other (Explain in Remarks)
1 —	d Below Dark Surfa ark Surface (A12)	ce (A11)	Depleted Matrix (F3) Redox Dark Surface (F6)	3Indicators of hydrophytic vegetation and
	Mucky Mineral (S1)	_	Depleted Dark Surface (F7)	wetland hydrology must be present,
	Gleyed Matrix (S4)	_	Redox Depressions (F8)	unless disturbed or problematic.
Restrictive	Layer (if present):			
Type:			_	
Depth (in	ches):		_	Hydric Soil Present? Yes No X
Remarks:				·
HYDROLO				
	GY			
to the state of th	Steel to	s:		
Wetland Hy	drology Indicators		theck all that apply)	Secondary Indicators (2 or more required)
Wetland Hy Primary India	drology Indicators cators (minimum of		theck all that apply) Water-Stained Leaves (B9) (except	Secondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2.
Wetland Hy Primary India Surface	drology Indicators cators (minimum of Water (A1)		Water-Stained Leaves (B9) (except	Water-Stained Leaves (B9) (MLRA 1, 2,
Wetland Hy Primary India Surface	rdrology Indicators cators (minimum of Water (A1) ater Table (A2)			
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APPENDIX F
PHOTOGRAPH LOG



Tioga Road Rehabilitation Project Wetland Report Photo Log

Photo Number	Wetland ID	Description
1	Wet1a	PEMA, looking SW toward Tioga Road
2	Wet1a	PEMA, looking E
3	Wet1a	Upland transition outside of PEMA
4	Wet1b	PEMA, looking SW
5	Wet2	PEMC adjacent to stream
6	Wet3a	PEMA with scattered patches of PSS
7	Wet4	PSSC occurring in seasonally flooded finger of Tuolumne River
8	Wet6	Upland soil pit (SP7) outside PEMA
9	Wet7	PEMC dominated by <i>Carex vesicaria</i> , looking W
10	Wet8	PEMC with small area of ponded water and walking trail disturbance
11	Wet9a	PEMC depression near road
12	Wet9b	R4SB3 that connects Wet9a to non-wet meadow
13	Wet11a,e	Mosaic of PEMA and R4SB2 habitats
14	Wet12	PEMC with R4SB2 meandering through
15	Wet13a	PEMA dominated by Carex vesicaria, surrounded by lodgepole pines
16	Wet13f	R4SB2 that drains to PEMA
17	Wet14a	PEMA dominated by Carex athrostachya
18	Wet16a	PEMC adjacent to Tuolumne River and SW of Lembert Dome
19	Wet16b	R3RB2 portion of Tuolumne River
20	Wet17	PEMA on south side of Tioga Road, adjacent to Tuolumne River
21	Wet18	Small channels of PEMA dominated by Carex utriculata
22	Wet20a	PEMF with ponded water and submerged vegetation (Sparganium angustifolium)
23	Wet21	PUBF with fringing monoculture of Carex vesicaria
24	Wet22	PUBF surrounded by PEMF
25	Wet25	PEMC marsh mosaic with multiple riverine drainages
26	Wet26a	PEMC adjacent to Crane Flat gas station
27	Wet27	PEMC, looking S
28	Wet28a	PEMB along roadside, surrounded by lodgepole pine and red fir forest
29	Wet28c	PEMB dominated by Carex vesicaria
30	Wet28c	Culvert that connects Wet28c to Wet28a
31	Wet29	PEMB with high herbaceous species diversity

Tioga Road Rehabilitation Project Wetland Report Photo Log

Photo Number	Wetland ID	Description
32	Wet30	Small roadside PEMC
33	Wet31	Large creek (R4SB1) runs through culvert under road (photo from N of road)
34	Wet32a,b	R4SB3 with fringing riparian and wetland vegetation
35	Wet33	PEMB dominated by Deschampsia cespitosa
36	Wet34a	Siesta Lake (PUBH) with emergent vegetation along margins
37	Wet34b	Edge of PFOB, adjacent to Siesta Lake
38	Wet35	PEMB saturated to surface and dominated by Carex vesicaria
39	Wet37a	PEMB adjacent to stream (R4SB3)
40	Wet37b	R4SB3 runs underneath road
41	Wet39	PEMB surrounded by lodgepole pine and red fir forest
42	Wet40b	Dry creek bed (R4SB4) connects to Wet40a through culvert under road
43	Wet41	R4SB3 with banks dominated by Calamagrostis canadensis
44	Wet42b	PFOB dominated by lodgepole pine
45	Wet42d	PEMA very wet and bog-like
46	Wet42e	R4SB5 with standing water and covered by emergent vegetation
47	Wet43	PEMA with sporadic lodgepole pines and pockets of water
48	Wet44b	PFOC in McSwain Meadows dominated by lodgepole pines
49	Wet45a	R4SB2 with minimal fringe wetland/riparian vegetation
50	Wet45c	R4SB3 that is part of Wet45 stream matrix on both sides of road
51	Wet46	R3UB1 portion of Tuolumne River

Photo 1



Photo 2



Photo 3



Photo 4



Photo 5



Photo 6



Photo 7



Photo 8



Photo 9



Photo 10



Photo 11



Photo 12



Photo 13



Photo 14



Photo 15



Photo 16



Photo 17



Photo 18



Photo 19



Photo 20



Photo 21



Photo 22



Photo 23



Photo 24



Photo 25



Photo 26



Photo 27



Photo 28



Photo 29



Photo 30



Photo 31



Photo 32



Photo 33



Photo 34



Photo 35



Photo 36



Photo 37



Photo 38



Photo 39



Photo 40

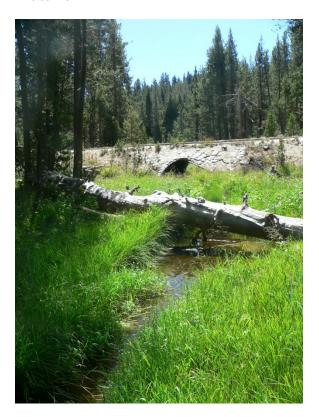


Photo 41



Photo 42



Photo 43



Photo 44



Photo 45



Photo 46



Photo 47



Photo 48



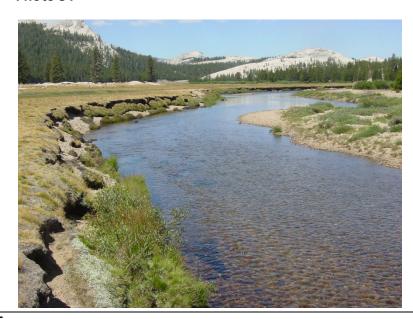
Photo 49



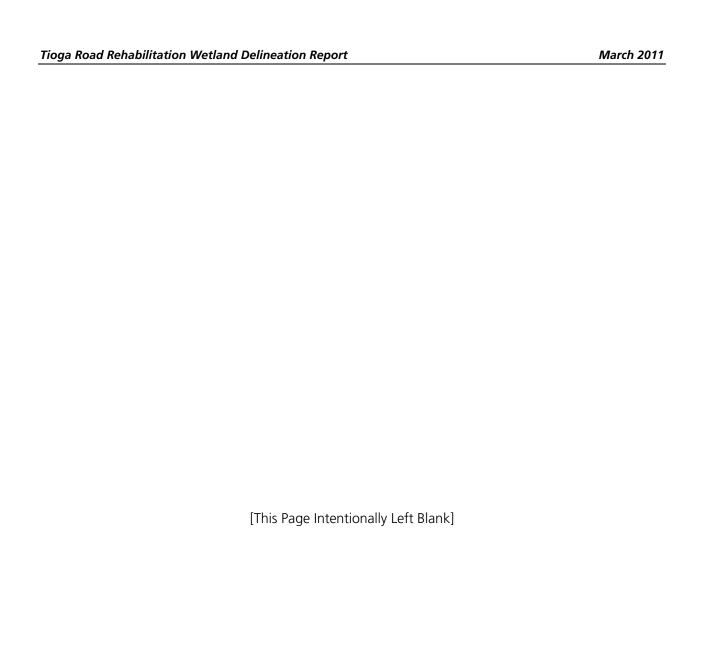
Photo 50



Photo 51



APPENDIX G
FUNCTIONAL ASSESSMENT WORKSHEETS



Structural Patch Richness and Topographic Complexity

Based on California Rapid Assessment Method (CRAM) for Wetlands Definitions (Collins et al. 2008)

Definition: Patch richness is the number of different obvious types of physical surfaces or features that may provide habitat for aquatic, wetland, or riparian species. Physical patches can be natural or unnatural. Topographic complexity refers to the arrangement of these structural patches within a given area.

Patch Type Definitions:

<u>Animal mounds and burrows</u>: Many vertebrates make mounds or holes as a consequence of their foraging, denning, predation, or other behaviors. The resulting soil disturbance helps to redistributes soil nutrients and influences plant species composition and abundance. To be considered a patch type there should be evidence that a population of burrowing animals has occupied the area. A single burrow or mound does not constitute a patch.

Bank slumps or undercut banks in channels or along shoreline: A bank slump is a portion of a depressional, estuarine, or lacustrine bank that has broken free from the rest of the bank but has not eroded away. Undercuts are areas along the bank or shoreline of a wetland that have been excavated by waves or flowing water.

<u>Cobble and boulders</u>: Cobble and boulders are rocks of different size categories. The long axis of cobble ranges from about 6 cm to about 25 cm. A boulder is any rock having a long axis greater than 25 cm. Submerged cobbles and boulders provide abundant habitat for aquatic macroinvertebrates and small fish. Exposed cobbles and boulders provide roosting habitat for birds and shelter for amphibians. They contribute to patterns of shade and light and air movement near the ground surface that affect local soil moisture gradients, deposition of seeds and debris, and overall substrate complexity.

<u>Concentric or parallel high water marks</u>: Repeated variation in water level in a wetland can cause concentric zones in soil moisture, topographic slope, and chemistry that translate into visible zones of different vegetation types, greatly increasing overall ecological diversity. The variation in water level might be natural (e.g., seasonal) or anthropogenic.

Debris jams: A debris jam is an accumulation of drift wood and other flotage across a channel that partially or completely obstructs surface water flow.

<u>Hummocks or sediment mounds</u>: Hummocks are mounds created by plants in slope wetlands, depressions, and along the banks and floodplains of fluvial and tidal systems. Hummocks are typically less than 1m high. Sediment mounds are similar to hummocks but lack plant cover.

Islands (exposed at high-water stage): An island is an area of land above the usual high water level and, at least at times, surrounded by water in a riverine, lacustrine, estuarine, or playa system. Islands differ from hummocks and other mounds by being large enough to support trees or large shrubs.

Macroalgae and algal mats: Macroalgae occurs on benthic sediments and on the water surface of all types of wetlands. Macroalgae are important primary producers, representing the base of the food web in some wetlands. Algal mats can provide abundant habitat for macro-invertebrates, amphibians, and small fishes.

Non-vegetated flats (sandflats, mudflats, gravel flats, etc.): A flat is a non-vegetated area of silt, clay, sand, shell hash, gravel, or cobble that adjoins the wetland foreshore and is a potential resting and feeding area for fishes, shorebirds, wading birds, and other waterbirds. Flats can be similar to large bars (see definitions of point bars and inchannel bars below), except that they lack the convex profile of bars and their compositional material is not as obviously sorted by size or texture.

<u>Pannes or pools on floodplain</u>: A panne is a shallow topographic basin lacking vegetation but existing on a well-vegetated wetland plain. Pannes fill with water at least seasonally due to overland flow. They commonly serve as foraging sites for waterbirds and as breeding sites for amphibians.

Point bars and in-channel bars: Bars are sedimentary features within intertidal and fluvial channels. They are patches of transient bedload sediment that form along the inside of meander bends or in the middle of straight channel reaches. They sometimes support vegetation. They are convex in profile and their surface material varies in size from small on top to larger along their lower margins. They can consist of any mixture of silt, sand, gravel, cobble, and boulders.

<u>Pools in channels</u>: Pools are areas along tidal and fluvial channels that are much deeper than the average depths of their channels and that tend to retain water longer than other areas of the channel during periods of low or no surface flow.

<u>Riffles or rapids</u>: Riffles and rapids are areas of relatively rapid flow and standing waves in tidal or fluvial channels. Riffles and rapids add oxygen to flowing water and provide habitat for many fish and aquatic invertebrates.

Secondary channels on floodplains or along shorelines: Channels confine riverine or estuarine flow. A channel consists of a bed and its opposing banks, plus its floodplain. Estuarine and riverine wetlands can have a primary channel that conveys most flow, and one or more secondary channels of varying sizes that convey flood flows. The systems of diverging and converging channels that characterize braided and anastomosing fluvial systems usually consist of one or more main channels plus secondary channels. Tributary channels that originate in the wetland and that only convey flow between the wetland and the primary channel are also regarded as secondary channels. For example, short tributaries that are entirely contained within the survey area are regarded as secondary channels.

Shellfish beds: Oysters, clams and mussels are common bivalves that create beds on the banks and bottoms of wetland systems. Shellfish beds influence the condition of their environment by affecting flow velocities, providing substrates for plant and animal life, and playing particularly important roles in the uptake and cycling of nutrients and other water-borne materials.

Soil cracks: Repeated wetting and drying of fine grain soil that typifies some wetlands can cause the soil to crack and form deep fissures that increase the mobility of heavy metals, promote oxidation and subsidence, while also providing habitat for amphibians and macroinvertebrates.

Standing snags: Tall, woody vegetation, such as trees and tall shrubs, can take many years to fall to the ground after dying. These standing .snags. they provide habitat for many species of birds and small mammals. Any standing, dead woody vegetation that is at least 3 m tall is considered a snag.

<u>Submerged vegetation</u>: Submerged vegetation consists of aquatic macrophytes such as *Elodea* canadensis (common elodea), and *Zostera marina* (eelgrass) that are rooted in the sub-aqueous

substrate but do not usually grow high enough in the overlying water column to intercept the water surface. Submerged vegetation can strongly influence nutrient cycling while providing food and shelter for fish and other organisms.

<u>Swales on floodplain or along shoreline</u>: Swales are broad, elongated, vegetated, shallow depressions that can sometimes help to convey flood flows to and from vegetated marsh plains or floodplains. But, they lack obvious banks, regularly spaced deeps and shallows, or other characteristics of channels. Swales can entrap water after flood flows recede. They can act as localized recharge zones and they can sometimes receive emergent groundwater.

<u>Variegated or crenulated foreshore</u>: As viewed from above, the foreshore of a wetland can be mostly straight, broadly curving (i.e., arcuate), or variegated (e.g., meandering). In plain view, a variegated shoreline resembles a meandering pathway. Variegated shorelines provide greater contact between water and land.

<u>Wrackline or organic debris in channel or on floodplain</u>: Wrack is an accumulation of natural or unnatural floating debris along the high water line of a wetland.

					1			
				t.: Long.:	Date:_	08/24/2010	Area_Tuolomne	
Dominant Cowardin Wetland Types Present PEMA								
	Other Aquatic Habitats Present R4SB2 Contiguous Undeveloped Buffer Zone Present (Y/N/Partial) Partial							
		-		fer Zone, Explain Soutern portion of	of meadow adjac	ent to Tioga Road		
ID Tea	ım Obse	ervers	St	tevens, Scheuerman, Dungan				
Functi	ional C	hecklist						
Yes	No	N/A	#		HYDROLOGY			
X			1	Natural feature				
			2	Natural surface or subsurface flo	ow patterns are	not altered by ma	inmade objects/disturbance	
X			Δ	(e.g., hoof action, dams, culverts	s, dikes, trails,	roads, rills, gullies	s, drilling activities)	
X			3	Feature is not degraded by erosi	on from upland	l watershed		
Yes	No	N/A			VE	GETATION		
X			4	Vegetation dominated by native Ocular estimate (Native cover:_		al cover	x 100 =)	
X			5	Diverse plant species composition (Answer should be site specific		ies should be note	ed in remarks)	
				Diverse age-class distribution/st	-		,	
X			6	(Presence of seedlings/saplings			eous growth)	
Yes	No	N/A			EROSIC	ON/DEPOSITIO	N	
X			7	Shoreline and substrate appear s	stable (no exces	ssive erosion or se	dimentation)	
X			8	Amount of bare soil appears to b	be natural/norm	nal		
Riotic	Structi	uro						
Diotic	Structi	ui C						
				least 5% of survey area:				
	aquatic	S	hort (<	(0.5 m)medium (0.5-1.5 n	n) tall (1.5-3m)ve	ery tall (>3m)	
a								
Struct	ural Pa	itch Rich	nness a	and Topographic Complexity				
Patch	Types/	Indicato	rs Pre	sent:				
_X	Animal	Mounds	and B	urrows	XPools	in Channels		
_X]	Bank Sl	lumps/Ur	ndercu	t Banks	Riffles	s or Rapids		
	Cobble	and Bou	lders		Secon	dary Channels on	Floodplains/Along Shorelines	
	Concen	tric or Pa	rallel l	High Water Marks	Shellfi	ish Beds		
]	Debris .	Jams			Soil C	racks		
_X]	Hummo	ocks or S	edimer	nt Mounds	Standi	ing Snags		
	Islands					erged Vegetation		
		lgae/Alg		S			Above Shoreline	
		getated F				gated or Crenulate		
				oodplains	Wrack	line/Organic Deb	ris in Channel/Floodplain	
]	Point B	ars and I	n-chan	nel Bars				

Recreational/Educational/Uniqueness Value (Explain):	Very high value. Accessible parking, trails, and views. Popular tourist
destination within the park. Pothole dome is to the North.	

Item Name/Number	Remarks			
Photo Identification Numbers and Description				

Non-native Species:

Photo ID No.	Direction	Latitude	Longitude	Datum
1				
2				
3				
4				

Site ID: Wet2 Lat.: Long.: Date: 08/24/2010 Area Tuolomne Dominant Cowardin Wetland Types Present PEMC Other Aquatic Habitats Present R4UB3 Contiguous Undeveloped Buffer Zone Present (Y/N/Partial) Yes If Partial/No Contiguous Buffer Zone, Explain ID Team Observers Stevens, Dungan, Scheuerman							
		nal Checklist					
Yes	No	N/A	#	HYDROLOGY Natural facture			
X			1	atural feature			
X			2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)			
X			3	Feature is not degraded by erosion from upland watershed			
Yes	No	N/A		VEGETATION			
X			4	Vegetation dominated by native species Ocular estimate (Native cover: / Total cover x 100 =)			
X			5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)			
X			6	Diverse age-class distribution/stratification of vegetation (Presence of seedlings/saplings and/or continuous robust herbaceous growth)			
Yes	No	N/A		EROSION/DEPOSITION			
100	X	1 1/12	7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)			
	X		8	Amount of bare soil appears to be natural/normal			
			Ü	Timount of our bon appears to be natural normal			
Biotic	Structi	<u>ure</u>					
				east 5% of survey area:			
8	quatic	<u>X</u> s	hort (<	0.5 m)medium (0.5-1.5 m) tall (1.5-3m)very tall (>3m)			
a							
Struct	ural Pa	itch Ricl	nness a	and Topographic Complexity			
		Indicato					
		Mounds					
		umps/Ui					
		and Bou		Secondary Channels on Floodplains/Along Shorelines			
			arallel I	High Water MarksShellfish Beds			
	Debris J		adimar	Soil Cracks			
	aummo slands	CKS OF S	euimer	t MoundsStanding Snags Submerged Vegetation			
		lgae/Alg	al Mate	v v			
		getated F		Swales on Produptant of Above ShorenneSwales on Produptant of Above ShorenneSwales on Produptant of Above Shorenne			
	•	_					

Recreational/Educational/Uniqueness Value (Explain):	Very high. Part of Tuolumne Meadows. Easily accessible tourist site.
Cathedral lakes parking. Scenic mosaic of aquatic, wetland, and	d upland habitats.

Item Name/Number	Remarks
Tem Name/Number	ACHIGI KS
7	Erosion is occurring along parking area and Cathedral Lakes trail.
8	High amount of bare soil being deposited by water flow through culvert and from parking area.
	*Trout present in creek
Photo Identification	Numbers and Description
Photo ID No.	Description
5	PEMC adjacent to stream

Non-native Species:

Wetlands and Other Aquatic Habitats

Site ID):We	t3	La		Tuolumne		
	Dominant Cowardin Wetland Types Present PEMA dominant, PSSA mixed in						
	Other Aquatic Habitats Present N/A Contiguous Undeveloped Buffer Zone Present (Y/N/Partial) Yes						
	If Partial/No Contiguous Buffer Zone, Explain						
ID Tea	ID Team Observers Stevens, Scheuerman, Dungan						
E45	I C	11.1!4					
_	Functional Checklist						
Yes	No	N/A	#	HYDROLOGY			
X			1	Natural feature	1' . 1		
X			2	Natural surface or subsurface flow patterns are not altered by manmade objects/ (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activity			
X			3	Feature is not degraded by erosion from upland watershed			
Yes	No	N/A		VEGETATION			
X			4	Vegetation dominated by native species Ocular estimate (Native cover:/ Total coverx 100 =)		
X			5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)			
			(Diverse age-class distribution/stratification of vegetation	_		
X			6	(Presence of seedlings/saplings and/or continuous robust herbaceous growth)			
Yes	No	N/A		EROSION/DEPOSITION			
		X	7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)			
X			8	Amount of bare soil appears to be natural/normal			
Riotic	Struct	ure					
	-	_	_	least 5% of survey area:			
	aquatic	S	hort (<	<0.5 m)medium (0.5-1.5 m)tall (1.5-3m)very tall (>3m)			
Struct	ural Pa	atch Rich	ness a	and Topographic Complexity			
Patch	Types/	Indicato	rs Pre	esent:			
<u>X</u>	Animal	Mounds	and B	BurrowsPools in Channels			
		lumps/Ur					
		and Boul		Secondary Channels on Floodplains/Al	ong Shorelines		
			ırallel l	High Water Marks Shellfish Beds			
	Debris .		1.	Soil Cracks			
		ocks or So	edimei	nt MoundsStanding Snags			
	Islands Maaraa	1000/A10	ol Mot	Submerged Vegetation Supplies on Flooding or Above Shoreli	na		
		lgae/Alga getated F		Swales on Floodplain or Above Shoreli Variegated or Crenulated Foreshore	IIC		
		-		oodplainsvariegated of Crentiated Poteshore Wrackline/Organic Debris in Channel/I	Floodplain		
				nnel Bars	100 aprain		
Recrea	Recreational/Educational/Uniqueness Value (Explain): Very high. Easy access. Cathedral lakes parking. Upland buffer allows for						

viewing/walking around wetlands. Mosaic of wetlands, transitional areas, and uplands. Abundant ground squirrels.

Non-native Species: None observed.					
	.				
Item Name/Number	Remarks				
	Abundant ground squirrels in upland buffer areas.				
	Multiple old channel banks and sediment deposits throughout wetland.				
_					
_					
Photo Identification	Photo Identification Numbers and Description				
Photo ID No.	Description				
6	PEMA with scattered patches of PSS				

Wedands and Other Aquade Habitats					
Site ID):We	t10	La	t.: Long.:Date:08/25/2010 Area Tuolumne	
Dominant Cowardin Wetland Types Present PEMC dominant, PSSC and PFOC					
Other .	Aquatic	Habitats	s Prese	ntR4SB2Contiguous Undeveloped Buffer Zone Present (Y/N/Partial)Y	
If Part	ial/No (Contiguo	us Buf	fer Zone, Explain	
ID Tea	ım Obse	ervers		Scheuerman, Dungan, Stevens	
Functi	onal C	hecklist			
Yes	No	N/A	#	HYDROLOGY	
X			1	Natural feature	
X			2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)	
X			3	Feature is not degraded by erosion from upland watershed	
Yes	No	N/A		VEGETATION	
				Vegetation dominated by native species	
X			4	Ocular estimate (Native cover:/ Total coverx 100 =)	
X			5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)	
			6	Diverse age-class distribution/stratification of vegetation	
X			Ü	(Presence of seedlings/saplings and/or continuous robust herbaceous growth)	
Yes	No	N/A		EROSION/DEPOSITION	
X			7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)	
X			8	Amount of bare soil appears to be natural/normal	
Riotic	Structi	ire			
	-	_	_	east 5% of survey area:	
	aquatic	_Xsl	hort (<	(0.5 m) X medium (0.5-1.5 m) X tall (1.5-3m) X very tall (>3m)	
Struct	ural De	toh Diel	nnocc (and Topographic Complexity	
Struct	urai Pa	iten Kiel	mess a	ind Topographic Complexity	
		Indicato			
		Mounds			
		lumps/Ur			
		and Boul		Secondary Channels on Floodplains/Along Shorelines	
			ırallel l	High Water Marks Shellfish Beds	
	Debris J			Soil Cracks	
		ocks or Se	edimer	nt MoundsStanding Snags	
	Islands	. /	136.	Submerged Vegetation	
		lgae/Alga			
	•	getated F		Variegated or Crenulated Foreshore	
		or Pools		· · · · · · · · · · · · · · · · · · ·	
	Point B	ars and I	n-cnan	nel Bars	
ъ		/E. I	1/7	The Description I which have a few course to Trademan Manhama	
Kecre	ational/	Education	onal/U	Iniqueness Value (Explain): Recreational value is high because of easy access to Tuolumne Meadows.	
ı					

Non-native Species:	None observed.					
Item Name/Number		Remarks				
Photo Identification	Photo Identification Numbers and Description					
Photo ID No.		Description				

				wedands and Other Aquadic Habitats		
Site ID):We	t11	La	t.: Long.:Date:08/25/2010 Area Tuolumne		
	Dominant Cowardin Wetland Types Present PEMA					
Other Aquatic Habitats Present R4SB3 Contiguous Undeveloped Buffer Zone Present (Y/N/Partial) No						
		_		fer Zone, Explain Wetland borders road. Watercourse goes under road.		
ID Tea	am Obse	ervers	Ste	vens, Scheuerman, Dungan		
_	ional C	<u>hecklist</u>				
Yes	No	N/A	#	HYDROLOGY		
X			1	Natural feature		
X			2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)		
X			3	Feature is not degraded by erosion from upland watershed		
Yes	No	N/A		VEGETATION		
X			4	Vegetation dominated by native species Ocular estimate (Native cover: 100 / Total cover 100 x 100 = 100%)		
X			5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)		
X			6	Diverse age-class distribution/stratification of vegetation (Presence of seedlings/saplings and/or continuous robust herbaceous growth)		
Yes	No	N/A		EROSION/DEPOSITION		
X			7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)		
X			8	Amount of bare soil appears to be natural/normal		
D: //	G, ,					
Biotic	Structi	<u>ure</u>				
	•	_	_	east 5% of survey area:		
<u>X</u> 8	aquatic	X_{Sl}	hort (<	(0.5 m) X medium $(0.5-1.5 m)$ X tall $(1.5-3 m)$ very tall $(>3 m)$		
Struct	ural Pa	tch Rich	ness a	and Topographic Complexity		
Patch	Types/	Indicato	rs Pre	sent:		
		Mounds				
		lumps/Ur		·		
		and Boul		X Secondary Channels on Floodplains/Along Shorelines		
			ırallel l	High Water MarksShellfish Beds		
	Debris .		1.	Soil Cracks		
		ocks or Se	edimer	nt MoundsStanding Snags		
	Islands	1 / 4 1	13.5	Submerged Vegetation		
		lgae/Alga				
		getated F		Variegated or Crenulated Foreshore		
		or Pools ars and Iı		- · · · · · · · · · · · · · · · · · · ·		
	i Oillt D	ars allu II	ıı-cııall	iici Daio		
D.	-49 - 1	/ID-1	1 / * :	L Valar (Familian)		
Kecrea	ational/	Educati	onal/U	Uniqueness Value (Explain): Very high due to accessibility, proximity to road, and mosaic of habitat types.		

Item Name/Number	Remarks
Photo Identification	Numbers and Description
Photo ID No.	Description
13	Mosaic of PEMA and R4SB2 habitats

Non-native Species: None observed.

0'4- ID	N. Wat	1.4	т.	Deter 00/06/2010		
Site ID: Wet14 Lat.: Long.: Date: 08/26/2010 Area Tuolumne Dominant Cowardin Wetland Types Present PEMA						
Other Aquatic Habitats Present N/A Contiguous Undeveloped Buffer Zone Present (Y/N/Partial) Yes						
				fer Zone, Explain		
		_		Scheuerman, Stevens, Dungan		
Functi	ional C	<u>hecklist</u>				
Yes	No	N/A	#	HYDROLOGY		
X			1	Natural feature		
X			2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)		
X			3	Feature is not degraded by erosion from upland watershed		
Yes	No	N/A		VEGETATION		
			4	Vegetation dominated by native species		
X			4	Ocular estimate (Native cover:/ Total coverx 100 =100%)		
X			5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)		
			6	Diverse age-class distribution/stratification of vegetation		
X			0	(Presence of seedlings/saplings and/or continuous robust herbaceous growth)		
Yes	No	N/A		EROSION/DEPOSITION		
	X		7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)		
X	X 8 Amount of bare soil appears to be natural/normal					
Biotic	Struct	ure				
			4.1	4.50/ 6		
				east 5% of survey area: 0.5 m) X medium (0.5-1.5 m) X tall (1.5-3m) X very tall (>3m)		
	aquatic		11011 (>	0.5 iii) iiiediuiii (0.5-1.5 iii) taii (1.5-5iii) very taii (>5iii)		
Struct	ural Pa	atch Rich	nness a	and Topographic Complexity		
		Indicato				
Animal Mounds and BurrowsPools in Channels						
Bank Slumps/Undercut BanksRiffles or Rapids						
	X Cobble and Boulders Secondary Channels on Floodplains/Along Shorelines Concentric or Parallel High Water Marks Shellfish Beds					
Debris Jams Concentric of Parallel High Water Marks Soil Cracks						
	Hummocks or Sediment Mounds Standing Snags					
	Islands			Submerged Vegetation		
		lgae/Alga	al Mat			
		getated F		Variegated or Crenulated Foreshore		
		or Pools				
		ars and I				
Recreational/Educational/Uniqueness Value (Explain): Minimal. Easily accessible - across from campground.						

Item Name/Number	Remarks
Photo Identification	Numbers and Description
·	
Photo ID No.	Description
17	PEMA dominated by Carex athrostachya

Non-native Species:

Site ID): Wet	16a	La	t.: Long.: Date: 08/26/2010 Area Tuolumne 1 Types Present PEMC dominant, PFOC on fringes		
Other If Parti	Aquatic ial/No (am Obse	Habitats	s Prese us Buf	nt Contiguous Undeveloped Buffer Zone Present (Y/N/Partial) No Scheuerman, Dungan, Stevens		
Functi	ional C	hecklist				
Yes	No	N/A	#	HYDROLOGY		
X			1	Natural feature		
	X		2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)		
X			3	Feature is not degraded by erosion from upland watershed		
Yes	No	N/A		VEGETATION		
X			4	Vegetation dominated by native species Ocular estimate (Native cover:/ Total coverx 100 =100%)		
X			5	Diverse plant species composition Answer should be site specific – wetland species should be noted in remarks)		
X			6	riverse age-class distribution/stratification of vegetation Presence of seedlings/saplings and/or continuous robust herbaceous growth)		
Yes	No	N/A		EROSION/DEPOSITION		
	X		7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)		
	X		8	Amount of bare soil appears to be natural/normal		
Biotic	Struct	ure				
			na at l	east 5% of survey area		
Plant layers comprising at least 5% of survey area:aquatic _X _short (<0.5 m) _X _medium (0.5-1.5 m) _X _ tall (1.5-3m) _X _very tall (>3m)						
Struct	ural Pa	tch Rick	nness a	and Topographic Complexity		
		Indicato				
	X Animal Mounds and Burrows X Pools in Channels					
	X Bank Slumps/Undercut Banks Riffles or Rapids Cobble and Boulders Secondary Channels on Floodplains/Along Shorelines					
	Concentric or Parallel High Water Marks Secondary Channels on Floodplains/Along Shorelines Shellfish Beds					
	Debris Jams Soil Cracks					
	X Hummocks or Sediment Mounds Standing Snags					
	Islands	1 / 4 1	13.5	X Submerged Vegetation		
		lgae/Alga getated F		Swales on Floodplain or Above Shoreline Variegated or Crenulated Foreshore		
		-		odplainsVariegated of Crentifated Poleshore Wrackline/Organic Debris in Channel/Floodplain		
		ars and I				
Recrea	ational	/Educati	onal/U	Uniqueness Value (Explain): Recreational value is high - adjacent to Lembert Dome and Tuolumne River.		

Non-native Species: None observed.		
Item Name/Number	Remarks	
2	Unpaved trail runs through wetland area.	
7	Erosional channel draining out of wetland to main river.	
8	Heavy use of trail has created bare patches in wetland.	
	*Multiple channels draining through wetland.	
Photo Identification	Numbers and Description	
Photo ID No.	Description	
18	PEMC adjacent to Tuolumne River and SW of Lembert Dome	

Wetlands and Other Aquatic Habitats

Domir Other If Part	nant Cov Aquatic ial/No (wardin W Habitats Contiguo	Vetland S Prese us Buf	tt.: 37 52 33.77 N Long.: 119 21 21.05 W Date: 08/26/2010 Area Tuolumne River Types Present None R3RB2 dominant Contiguous Undeveloped Buffer Zone Present (Y/N/Partial) Partial Fer Zone, Explain Adjacent to road and campground ungan, Scheuerman, Stevens		
	ional C	<u>hecklist</u>				
Yes	No	N/A	#	HYDROLOGY		
X			1	Natural feature		
X			2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)		
X			3	Feature is not degraded by erosion from upland watershed		
Yes	No	N/A		VEGETATION		
X			4	Vegetation dominated by native species Ocular estimate (Native cover:/ Total coverx 100 =100%)		
X			5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)		
X			6	Diverse age-class distribution/stratification of vegetation (Presence of seedlings/saplings and/or continuous robust herbaceous growth)		
Yes	No	N/A		EROSION/DEPOSITION		
X			7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)		
X			8	Amount of bare soil appears to be natural/normal		
Biotic Structure Plant layers comprising at least 5% of survey area:aquaticXshort (<0.5 m)Xmedium (0.5-1.5 m)X tall (1.5-3m)Xvery tall (>3m)						
Structural Patch Richness and Topographic Complexity						
Patch Types/Indicators Present:						
	Animal Mounds and BurrowsXPools in Channels					
						
	X Cobble and Boulders X Secondary Channels on Floodplains/Along Shorelines					
	X Concentric or Parallel High Water Marks Shellfish Beds					
	Debris J		edime	Soil Cracks nt Mounds X Standing Snags		
	riumino Islands	CKS OF SO	Camilei	Submerged Vegetation		
		lgae/Alga	al Mat			
		getated F		XVariegated or Crenulated Foreshore		
		_		odplains X Wrackline/Organic Debris in Channel/Floodplain		
Point Bars and In-channel Bars						

Popular fishing, picnic, and camping area adjacent to road and

Recreational/Educational/Uniqueness Value (Explain): Very high.

campground.

Non-native Species:	None observed.	
Item Name/Number	Remarks	
5 and 6	Diverse species and habitat composition along river corridor.	
1		
Photo Identification	Numbers and Description	
Photo ID No.	Description	
10	D2DD2	
19	R3RB2 portion of Tuolumne River	

Domir	ant Co	wardin W	Vetland	t.:37 52 02.89 N	
Other Aquatic Habitats Present Contiguous Undeveloped Buffer Zone Present (Y/N/Partial)Yes If Partial/No Contiguous Buffer Zone, Explain					
		-		• •	
ID Tea	illi Obs	ervers		Scheuerman, Dungan	
Funct	ional C	hecklist			
Yes	No	N/A	#	HYDROLOGY	
X			1	Natural feature	
X			2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)	
X			3	Feature is not degraded by erosion from upland watershed	
Yes	No	N/A		VEGETATION	
X			4	Vegetation dominated by native species Ocular estimate (Native cover: 100 / Total cover 100 x 100 = 100%)	
X			5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)	
X			6	Diverse age-class distribution/stratification of vegetation (Presence of seedlings/saplings and/or continuous robust herbaceous growth)	
Yes	No	N/A		EROSION/DEPOSITION	
X			7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)	
X			8	Amount of bare soil appears to be natural/normal	
Dietie	Structi	1100			
				east 5% of survey area:	
	aquatic _Xshort (<0.5 m) _Xmedium (0.5-1.5 m) _Xtall (1.5-3m) _Xvery tall (>3m)				
Struct	ural Pa	atch Ricl	nness a	and Topographic Complexity	
		Indicato			
		Mounds			
	Bank Slumps/Undercut BanksRiffles or Rapids				
	Cobble and BouldersSecondary Channels on Floodplains/Along Shorelines				
	X Concentric or Parallel High Water Marks Shellfish Beds				
	X Debris Jams Soil Cracks Hummocks or Sediment Mounds Standing Snags				
	running Islands	ocks of S	eamie	nt MoundsStanding Snags X Submerged Vegetation	
		lgae/Alg	al Mat		
		getated F		X Variegated or Crenulated Foreshore	
	Pannes or Pools on FloodplainsWrackline/Organic Debris in Channel/Floodplain				
Point Bars and In-channel Bars					
Recre	ational	/Educati	onal/t	Jniqueness Value (Explain): Uniqueness value is high - small PUBF is unique along roadside.	

Non-native Species: None observed.		
T/ N/ /N/ 1	D 1	
Item Name/Number	Remarks	
4-6	Pinus contorta surrounding PEMA and PUBF.	
	Carex vesicaria occurs as almost monoculture around the edge of the water.	
	Other dominants include Veratrum californicum, Mimulus primuloides, Deschampsia cespitosa,	
	and Polygonum bistortoides.	
	Wet21 and Wet22 are adjacent to each other, and thus, have the same functional assessment.	

Photo Identification Numbers and Description

Photo ID No.	Description
23	Wet21 - PUBF with fringing monoculture of Carex vesicaria
24	Wet22 - PUBF surrounded by PEMF

Site ID: Wet25 Dominant Cowardin V Other Aquatic Habita If Partial/No Contigue ID Team Observers	Wetland s Prese ous Buf	nt_PUB3Contiguous Undeveloped Buffer Zone Present (Y/N/Partial)_Partial
Functional Checklist	4	
Yes No N/A	#	HYDROLOGY
X	1	Natural feature
X	2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)
X	3	Feature is not degraded by erosion from upland watershed
Yes No N/A		VEGETATION
X	4	Vegetation dominated by native species Ocular estimate (Native cover: 100 / Total cover 100 x 100 = 100%)
X	5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)
X	6	Diverse age-class distribution/stratification of vegetation (Presence of seedlings/saplings and/or continuous robust herbaceous growth)
Yes No N/A		EROSION/DEPOSITION
X	7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)
X	8	Amount of bare soil appears to be natural/normal
		east 5% of survey area: (0.5 m) X medium (0.5-1.5 m) X tall (1.5-3m) X very tall (>3m)
		and Topographic Complexity
Patch Types/Indicate X	s and B indercu ilders arallel Sediment gal Mat Flats s on Flo	urrows

Recreational/Educational/Uniqueness Value (Explain):	High. Unique mosaic of small marshes and ponded waters.
Aesthetically pleasing.	

m Name/Number	Remarks
4-6	-Dominant plant species include Eriophorum criniger, multiple Carex spp., Vaccinium cespitosum,
	Deschampsia cespitosa, and Pinus contorta as dominant tree species.
	-Large area with surface water dominated by Carex vesicaria.
Photo Identification N	fumbers and Description
Photo ID No.	Description
25	PEMC march mosaic with multiple rivering drainages

Non-native Species:

	The state of the s						
Site ID): Wet2	26	La	t.: Long.:Date:09/08/2010 AreaCrane Flat			
Dominant Cowardin Wetland Types Present PEMC							
Other .	Other Aquatic Habitats Present Contiguous Undeveloped Buffer Zone Present (Y/N/Partial) Partial						
If Part	ial/No (Contiguo	us Buf	fer Zone, Explain Wetland abuts Crane Flat gas station parking area			
ID Tea	ım Obse	ervers	S	Scheuerman, Stevens			
Functi	ional C	hecklist					
			,,	TWINDOX O.GV.			
Yes	No	N/A	#	HYDROLOGY			
X			1	Natural feature			
	X		2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)			
X			3	Feature is not degraded by erosion from upland watershed			
	N.T.	DT/A	3				
Yes	No	N/A		VEGETATION			
X			4	Vegetation dominated by native species Ocular estimate (Native cover: 99 / Total cover 100 x 100 = 99%)			
X			5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)			
X			6	Diverse age-class distribution/stratification of vegetation (Presence of seedlings/saplings and/or continuous robust herbaceous growth)			
Yes	No	N/A		EROSION/DEPOSITION			
	110	11///	7				
X			7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)			
X			8	Amount of bare soil appears to be natural/normal			
Diotio	Structi	1100					
biotic	Structi	ure					
				least 5% of survey area:			
aquatic _X _short (<0.5 m) _X _ medium (0.5-1.5 m) tall (1.5-3m)very tall (>3m)							
Struct	ural Pa	tch Rich	nness a	and Topographic Complexity			
		Indicato					
		Mounds					
		lumps/Ur					
		and Bou		Secondary Channels on Floodplains/Along Shorelines			
			ırallel	High Water MarksShellfish Beds			
	Debris JamsSoil Cracks						
		ocks or S	edimer	nt Mounds X Standing Snags			
	Islands			Submerged Vegetation			
		lgae/Alg					
		getated F		Variegated or Crenulated Foreshore			
	Pannes or Pools on FloodplainsWrackline/Organic Debris in Channel/Floodplain						
	Point Bars and In-channel Bars						
Recre	ational	/Educati	onal/I	Iniqueness Value (Explain): Not an important recreational area, nor unique to area. It is adjacent to parking			

Recreational/Educational/Uniqueness Value (Explain):	Not an important recreational area, nor unique to area. It is adjacent to parking
area, though.	

Non-native Species:	Small amount of Cirsium vulgare along edges of wetland and along road in upland area.
Item Name/Number	Remarks
Photo Identification	Numbers and Description
Photo ID No.	Description
26	Wet26a - PEMC adjacent to Crane Flat gas station

Site II	Site ID: Wet28 Lat.: Long.: Date: 09/08/2010 Area Crane Flat					
				d Types Present PEMB dominant, PSSB occurs in center of Wet28c		
				entContiguous Undeveloped Buffer Zone Present (Y/N/Partial) Partial		
				ffer Zone, Explain Wetland abuts road Scheuerman, Stevens		
ID 16	am Ous	ervers		Scheuerman, Stevens		
Funct	ional C	hecklist				
Yes	No	N/A	#	HYDROLOGY		
X			1	Natural feature		
	X		2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)		
X			3	Feature is not degraded by erosion from upland watershed		
Yes	No	N/A		VEGETATION		
X			4	Vegetation dominated by native species Ocular estimate (Native cover:/ Total cover x 100 =100%)		
X			5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)		
X			6	Diverse age-class distribution/stratification of vegetation (Presence of seedlings/saplings and/or continuous robust herbaceous growth)		
Yes	No	N/A	<u> </u>	EROSION/DEPOSITION		
X			7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)		
X			8	Amount of bare soil appears to be natural/normal		
Biotic Structure						
				least 5% of survey area:		
aquatic _X _short (<0.5 m) _X _medium (0.5-1.5 m) _X _ tall (1.5-3m)very tall (>3m)						
Struct	ural Pa	atch Rich	ness a	and Topographic Complexity		
Patch	Types/	Indicato	rs Pre	esent:		
		Mounds				
· .	Bank S	lumps/Ur	ndercu	t BanksRiffles or Rapids		
		and Boul		Secondary Channels on Floodplains/Along Shorelines		
			ırallel l	High Water MarksShellfish Beds		
	Debris .		_	Soil Cracks		
		ocks or Se	edimer	nt MoundsStanding Snags		
	Islands	. / 4.1	136	Submerged Vegetation		
		lgae/Alga				
		getated F		Variegated or Crenulated Foreshore		
				podplainsWrackline/Organic Debris in Channel/Floodplain		
Point Bars and In-channel Bars						
Recreational/Educational/Uniqueness Value (Explain): Adjacent to road. Large system of connected wetlands is unique to area.						
Kecre	ational	Education	onai/C	Uniqueness Value (Explain): Adjacent to road. Large system of connected wetlands is unique to area.		

Item Name/Number	Remarks
İ	
İ	
2	Wetland 28b and 28c are connected by culverts to 28a.
İ	
j	*0 11
	*Small aspen groves near road on border of wetland 28c.
_ i	
i	
İ	
	
i	<u></u>
İ	

Photo Identification Numbers and Description

Non-native Species:

Photo ID No.	Description
28	Wet28a - PEMB along roadside, surrounded by lodgepole pine and red fir forest
29	Wet28c - PEMB dominated by Carex vesicaria
30	Wet28c - Culvert that connects Wet28c to Wet28a

				Wedanus and Other Aquatic Habitats				
		t29						
Dominant Cowardin Wetland Types Present PEMB								
Other Aquatic Habitats Present Contiguous Undeveloped Buffer Zone Present (Y/N/Partial)Yes								
		_		fer Zone, Explain				
ID Tea	m Obs	ervers		Scheuerman, Stevens				
<u>Functi</u>	onal C	<u>hecklist</u>						
Yes	No	N/A	#	HYDROLOGY				
X			1	Natural feature				
X			2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)				
X			3	Feature is not degraded by erosion from upland watershed				
Yes	No	N/A		VEGETATION				
			4	Vegetation dominated by native species				
X			4	Ocular estimate (Native cover: 100 / Total cover 100 x 100 = 100%)				
X			5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)				
			6	Diverse age-class distribution/stratification of vegetation				
X			0	(Presence of seedlings/saplings and/or continuous robust herbaceous growth)				
Yes	No	N/A		EROSION/DEPOSITION				
X			7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)				
X			8 Amount of bare soil appears to be natural/normal					
Biotic	Structi	ura						
	-	_	_	east 5% of survey area:				
8	iquatic	S	hort (<	(0.5 m) X medium (0.5-1.5 m) tall (1.5-3m) very tall (>3m)				
C4 04-	al De	Aak Dial		and Tono quantic Commission				
				and Topographic Complexity				
		Indicato						
		Mounds						
		lumps/Ur		·				
		and Boul		Secondary Channels on Floodplains/Along Shorelines				
			irallel l	High Water MarksShellfish Beds				
	Debris .			Soil Cracks				
		ocks or So	edimei	nt Mounds X Standing Snags				
	slands	1 / 4 1	1364	Submerged Vegetation				
		lgae/Alga						
		getated F		Variegated or Crenulated Foreshore				
	Pannes or Pools on FloodplainsWrackline/Organic Debris in Channel/Floodplain Point Bars and In-channel Bars							
l	oint B	ars and II	ıı-cnan	HEI DAIS				
			=					
Recrea	Recreational/Educational/Uniqueness Value (Explain): Low - not easily accessible.							

Non-native Species: None observed.		
Item Name/Number	Remarks	
item Name/Number	Remarks	
	- Wetland appears to be healthy and is saturated near to surface. No flowing/standing water.	
	- High amount of bracken fern surrounding wetland.	
	- Soil is very wet/boggy in middle of wetland.	
Photo Identification N	Numbers and Description	
Photo ID No.	Description	
31	PEMB with high herbaceous species diversity	

Site ID: Wet31 Lat.: Long.: Date: 09/08/2010 Area East of Gin Flat Dominant Cowardin Wetland Types Present R4SB1 Other Aquatic Habitats Present Fringe riparian habitat Contiguous Undeveloped Buffer Zone Present (Y/N/Partial) Partial If Partial/No Contiguous Buffer Zone, Explain Creek goes under road ID Team Observers Stevens, Scheuerman					
<u>Functi</u>	onal C	<u>hecklist</u>			
Yes	No	N/A	#	HYDROLOGY	
X			1	Natural feature	
	X		2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)	
X			3	Feature is not degraded by erosion from upland watershed	
Yes	No	N/A		VEGETATION	
X			4	Vegetation dominated by native species Ocular estimate (Native cover:/ Total cover x 100 =100%)	
X			5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)	
X			6	Diverse age-class distribution/stratification of vegetation (Presence of seedlings/saplings and/or continuous robust herbaceous growth)	
Yes	No	N/A		EROSION/DEPOSITION	
X			7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)	
X			8	Amount of bare soil appears to be natural/normal	
				•	
Biotic Structure Plant layers comprising at least 5% of survey area:aquatic _X _short (<0.5 m) _X _medium (0.5-1.5 m) _X _ tall (1.5-3m) _X _very tall (>3m)					
Struct	ural Da	atch Rick	nacc c	and Topographic Complexity	
Patch Types/Indicators Present: Animal Mounds and Burrows					
	Pograntianal/Educational/Uniqueness Value (Evaluin): High uniqueness value granita bottom stream parallels road				

Item Name/Number	Remarks
	- Trout visible in stream
	- Riparian vegetation along banks of stream
	- Water flowing over granite entire length of stream.
Photo Identification N	Numbers and Description
Photo ID No.	Description
22	Laure analy must through sulvent under road (whote from N of road)

Non-native Species:

Site ID: Wet32 Lat.: Long.: Date: 09/08/2010 Area West of Siesta Lake							
	Dominant Cowardin Wetland Types Present R4SB3 (creek) dominant habitat, PEMC/PFOC scattered on fringes						
	Other Aquatic Habitats Present Contiguous Undeveloped Buffer Zone Present (Y/N/Partial) N						
	-			fer Zone, Explain Creek flows under road			
		ervers		cheuerman, Stevens			
Functi	ional C	<u>hecklist</u>					
Yes	No	N/A	#	HYDROLOGY			
X			1	Natural feature			
	X		2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)			
X			3	Feature is not degraded by erosion from upland watershed			
Yes	No	N/A		VEGETATION			
X			4	Vegetation dominated by native species Ocular estimate (Native cover: / Total cover x 100 =100%)			
X			5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)			
X			6	Diverse age-class distribution/stratification of vegetation (Presence of seedlings/saplings and/or continuous robust herbaceous growth)			
Yes	No	N/A		EROSION/DEPOSITION			
X			7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)			
X			8	Amount of bare soil appears to be natural/normal			
71				11			
Biotic	Biotic Structure						
Plant l	Plant layers comprising at least 5% of survey area:						
aquatic _X _short (<0.5 m) _X _medium (0.5-1.5 m) _X _ tall (1.5-3m) _X _very tall (>3m)							
G, ,	1.0	. 1 D. 1					
Struct	ural Pa	itch Rich	ness a	and Topographic Complexity			
Patch	Types/	Indicato	rs Pre	sent:			
	Animal	Mounds	and B	urrows X Pools in Channels			
	Bank Sl	umps/Ur	ndercut	t BanksRiffles or Rapids			
_X(Cobble	and Boul	lders	Secondary Channels on Floodplains/Along Shorelines			
_X(X Concentric or Parallel High Water MarksShellfish Beds						
_X]	X Debris Jams Soil Cracks						
_Xl	Hummo	cks or S	edimer	nt MoundsStanding Snags			
]	Íslands			X Submerged Vegetation			
l	Macroa	lgae/Alga	al Mat	Swales on Floodplain or Above Shoreline			
]	Non-vegetated Flats X Variegated or Crenulated Foreshore						
]	Pannes or Pools on Floodplains X Wrackline/Organic Debris in Channel/Floodplain						
]	Point Bars and In-channel Bars						
Recres	Recreational/Educational/Uniqueness Value (Explain): Low - not much recreational use or uniqueness value						

Item Name/Number	Remarks				
2	Water flows through culvert under road.				
	- Wetland fringe bordering creek is roughly 5 feet on each side.				
	- Wettaild Thinge bordering effect is foughly 3 feet on each side.				
	- Dominated by Pinus contorta, Pinus lambertiana, and Abies magnifica at tree level.				
	- Dominated by Senecio triangularis, Carex vesicaria, and Caltha leptosepala at the herbaceous level.				
	- Dominated by Senecio triangularis, Carex vesicaria, and Canna reprosepara at the neroaceous rever.				
1					
Dhata Idantification Numbers and Description					
Photo Identification Numbers and Description					
Photo ID No.	Description				

R4SB3 with fringing riparian and wetland vegetation

Non-native Species: None observed.

34

				Wettanus and Other Aquatic Habitats		
		33				
Dominant Cowardin Wetland Types PresentPEMB						
Other Aquatic Habitats PresentContiguous Undeveloped Buffer Zone Present (Y/N/Partial)Yes						
If Partial/No Contiguous Buffer Zone, Explain						
ID Team Observers Scheuerman, Stevens						
		<u>hecklist</u>				
Yes	No	N/A	#	HYDROLOGY		
X			1	Natural feature		
	X		2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)		
X			3	Feature is not degraded by erosion from upland watershed		
Yes	No	N/A		VEGETATION		
			4	Vegetation dominated by native species		
X			4	Ocular estimate (Native cover:/ Total coverx 100 =100%)		
X			5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)		
			6	Diverse age-class distribution/stratification of vegetation		
X			U	(Presence of seedlings/saplings and/or continuous robust herbaceous growth)		
Yes	No	N/A		EROSION/DEPOSITION		
X			7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)		
X			8	Amount of bare soil appears to be natural/normal		
Biotic Structure						
Plant layers comprising at least 5% of survey area:						
$\underline{\underline{}}$ aquatic $\underline{\underline{}}$ short (<0.5 m) $\underline{\underline{}}$ medium (0.5-1.5 m) $\underline{\underline{}}$ tall (1.5-3m) $\underline{\underline{}}$ very tall (>3m)						
Struct	ural Pa	tch Rich	nness a	nd Topographic Complexity		
Patch	Types/	Indicato	rs Pre	sent:		
_X	Animal	Mounds	and B	urrowsPools in Channels		
I	Bank Sl	lumps/Ur	ndercu	BanksRiffles or Rapids		
(Cobble	and Boul	lders	Secondary Channels on Floodplains/Along Shorelines		
(Concentric or Parallel High Water MarksShellfish Beds					
	Debris .			Soil Cracks		
		ocks or S	edimer	t MoundsStanding Snags		
	slands			Submerged Vegetation		
Macroalgae/Algal MatsSwales on Floodplain or Above Shoreline						
Non-vegetated FlatsVariegated or Crenulated Foreshore						
	Pannes or Pools on FloodplainsWrackline/Organic Debris in Channel/Floodplain					
Point Bars and In-channel Bars						
Recreational/Educational/Uniqueness Value (Explain): Very low - small roadside meadow.						

Non-native Species:	None observed.
Item Name/Number	Remarks
2	Water flows under culvert.
	Water Hows didder curvets.
	,
Photo Identification	Numbers and Description
Photo ID No.	Description
35	PEMB dominated by Deschampsia cespitosa

Site II	Site ID: Wet34					
Dominant Cowardin Wetland Types Present PUBH is dominant, PEMC and PFOC surround the lake						
	Other Aquatic Habitats Present (Y/N/Partial) Partial					
	-			fer Zone, Explain Lake and fringe wetlands are adjacent to road		
	am Obs	_		Stevens, Scheuerman		
Funct	ional C	hecklist				
Yes	No	N/A	#	HYDROLOGY		
X			1	Natural feature		
X			2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)		
X			3	Feature is not degraded by erosion from upland watershed		
Yes	No	N/A		VEGETATION		
			4	Vegetation dominated by native species		
X			4	Ocular estimate (Native cover:/ Total cover x 100 =100%)		
X			5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)		
X			6	Diverse age-class distribution/stratification of vegetation (Presence of seedlings/saplings and/or continuous robust herbaceous growth)		
Yes	No	N/A		EROSION/DEPOSITION		
X			7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)		
X			8	Amount of bare soil appears to be natural/normal		
D: /:	G					
Biotic	Structi	<u>ure</u>				
				east 5% of survey area:		
_X	aquatic	_X_s	hort (<	0.5 m) X medium (0.5-1.5 m) X tall (1.5-3m) X very tall (>3m)		
Struct	tural Pa	tch Ricl	hness a	and Topographic Complexity		
Patch	Types/	Indicato	rs Pre	sent:		
		Mounds				
	Bank S	umps/Ui	ndercu	BanksRiffles or Rapids		
X	Cobble	and Bou	lders	Secondary Channels on Floodplains/Along Shorelines		
X	Concen	tric or Pa	arallel l	High Water MarksShellfish Beds		
Debris JamsSoil Cracks						
Hummocks or Sediment Mounds X				t Mounds X Standing Snags		
IslandsX Submerged Vegetation						
X						
X Non-vegetated Flats X Variegated or Crenulated Foreshore						
X	Pannes	or Pools	on Flo	odplainsWrackline/Organic Debris in Channel/Floodplain		
Point Bars and In-channel Bars						
_						

Recreational/Educational/Uniqueness Value (Explain):	Very high - popular tourist spot. Large body of water with pullout and
information for visitors.	

tem Name/Number	Remarks
	- Lake surrounded by Abies magnifica and Pinus contorta dominated forest.
	- Carex vesicaria dominant along shore and into water.
	- Aquatic vegetation mats in middle of lake
	- Adjacent to PFOB wetland.

Photo Identification Numbers and Description

Non-native Species:

Photo ID No.	Description
36	Wet34a - Siesta Lake (PUBH) with emergent vegetation along margins
37	Wet34b - Edge of PFOB, adjacent to Siesta Lake

				t.: Long.:			
	Dominant Cowardin Wetland Types Present PEMB dominant, with PFOB and PSSB as components Others A great to Habitate Present (V/N/Partial) Partial Others A great to Habitate Present (V/N/Partial) Partial						
	Other Aquatic Habitats Present R4SB3 Contiguous Undeveloped Buffer Zone Present (Y/N/Partial) Partial If Partial/No Contiguous Buffer Zone, Explain Wetland abuts road						
		ervers		tevens, Scheuerman	rau		
11) 16a	iii Oose	ervers		tevens, geneuerman			
_		<u>hecklist</u>	1				
Yes	No	N/A	#		HY	DROLOGY	
X			1	Natural feature			
	X		2	Natural surface or subsurface flow (e.g., hoof action, dams, culverts,			
X			3	Feature is not degraded by erosion	n from upland	l watershed	
Yes	No	N/A			VE	GETATION	
X			4	Vegetation dominated by native spocular estimate (Native cover:1		al cover100	_x 100 =100%)
X			5	Diverse plant species composition (Answer should be site specific –		ies should be noted	in remarks)
X			6	Diverse age-class distribution/stra (Presence of seedlings/saplings an			us growth)
Yes	No	N/A			EROSIC	ON/DEPOSITION	
X			7	Shoreline and substrate appear sta	ble (no exces	sive erosion or sedi	imentation)
X			8	Amount of bare soil appears to be	-		,
				The second secon			
Biotic	Structi	<u>ire</u>					
Plant l	ayers o	omprisi	ng at l	east 5% of survey area:			
				0.5 m) X medium (0.5-1.5 m)	_X tall (1.5-3m) X ver	y tall (>3m)
Struct	ural Pa	tch Rich	nness a	and Topographic Complexity			
Datch	Types/	Indicato	rc Dra	sont.			
					Pools	in Channels	
XAnimal Mounds and BurrowsBank Slumps/Undercut Banks						s or Rapids	
						-	loodplains/Along Shorelines
X Concentric or Parallel High Water Marks						sh Beds	roodplams/r flong shoremies
Debris Jams Soil Cracks							
X Hummocks or Sediment Mounds Standing Snags							
X Islands							
X Macroalgae/Algal Mats Swales on Floodplain or Above Shoreline					Above Shoreline		
		getated F				gated or Crenulated	
	Pannes or Pools on Floodplains Wrackline/Organic Debris in Channel/Floodplain						
	Point Bars and In-channel Bars						

Recreational/Educational/Uniqueness Value (Explain):	Low - PEMB and stream edge are dominated by Calamagrostis canadensis that
overhangs the water and makes it difficult to see the actual stre	eam.

Item Name/Number	Remarks
_	- Main stream channel has willow along east edge. Portions of west edge have scattered Pinus contorta.
	- Water flows under road via culvert.
	- Trout are visible in stream
	- Calamagrostis canadensis overhangs much of the stream(s) and covers them from sight
	- GPS: wetland a (main stream), b (PEMB), c (stream in forest), d (north side stream)
	

Photo Identification Numbers and Description

Non-native Species:

Photo ID No.	Description
39	Wet37a - PEMB adjacent to stream (R4SB3)
40	Wet37b - R4SB3 runs underneath road

				Wedands and Other Aquade Habitats	
				at.: Long.: Date:09/09/2010 Area West of Olmstead Point	
Dominant Cowardin Wetland Types Present PEMB					
Other	Aquatic	2 Habitats	s Prese	entContiguous Undeveloped Buffer Zone Present (Y/N/Partial)_Yes	
				ffer Zone, Explain	
ID Tea	ım Obse	servers		Stevens, Scheuerman	
Franct	'amal C	YI- caldigt			
	1	Checklist N/A	#	T HWDDAI ACV	
Yes	No	N/A		HYDROLOGY Notional factors	
X	 	<u> </u>	1	Natural feature	
X		<u> </u>	2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)	
X	!		3	Feature is not degraded by erosion from upland watershed	
Yes	No	N/A		VEGETATION	
X			4	Vegetation dominated by native species Ocular estimate (Native cover:/ Total coverx 100 =100%)	
X			5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)	
X			6	Diverse age-class distribution/stratification of vegetation (Presence of seedlings/saplings and/or continuous robust herbaceous growth)	
Yes	No	N/A		EROSION/DEPOSITION	
X			7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)	
X			8	Amount of bare soil appears to be natural/normal	
	<u></u>			*** AA	
Plant		 comprisi		least 5% of survey area: <0.5 m) X medium (0.5-1.5 m) X tall (1.5-3m) X very tall (>3m)	
Struct	ural Pa	atch Rich	nness a	and Topographic Complexity	
	• -	/Indicato			
	•	l Mounds			
	•	lumps/Ur			
	•	and Boul		Secondary Channels on Floodplains/Along Shorelines	
			arallel !	High Water Marks Shellfish Beds	
	Debris .		3.	Soil Cracks	
	•		edimer	nt Mounds X Standing Snags	
IslandsSubmerged Vegetation					
		algae/Alga			
		egetated F		_XVariegated or Crenulated Foreshore	
		or Pools Bars and I		· · · · · · · · · · · · · · · · · · ·	
	Politic	ars and n	n-cnan	iner Bars	
D	4	(TO 1 4)	-1/T		
Kecre	<u>ationai/</u>	/Educau	onai/t	Uniqueness Value (Explain): Low - near road, but steep incline to access. There is no good turnout near wetland	
i					

Item Name/Number	Remarks
	- Matrix of many small streams (1-2 feet wide) with vegetated banks hanging over
	- Pinus contorta and Abies magnifica upland island on east end with large boulders and stream
	- Dominants include Veratrum californicum, Deschampsia cespitosa, Senecio triangularis, Luzula parviflora,
	and Allium validum.
Photo Identification	Numbers and Description
Photo ID No.	Description
41	PEMB surrounded by lodgepole pine and red fir forest

Non-native Species:

Site ID: Wet41 Lat.: Long.: Date: 09/09/2010 Area Tenaya Dominant Cowardin Wetland Types Present R4SB3 Other Aquatic Habitats Present Contiguous Undeveloped Buffer Zone Present (Y/N/Partial) Yes If Partial/No Contiguous Buffer Zone, Explain ID Team Observers Scheuerman, Stevens						
Functi	ional C	<u>hecklist</u>				
Yes	No	N/A	#	HYDROLOGY		
X			1	Natural feature		
	X		2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)		
X			3	Feature is not degraded by erosion from upland watershed		
Yes	No	N/A		VEGETATION		
X			4	Vegetation dominated by native species Ocular estimate (Native cover: 100 / Total cover 100 x 100 = 100%)		
X			5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)		
X			6	Diverse age-class distribution/stratification of vegetation (Presence of seedlings/saplings and/or continuous robust herbaceous growth)		
Yes	No	N/A		EROSION/DEPOSITION		
X			7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)		
X			8	amount of bare soil appears to be natural/normal		
Plant 1	-	— comprisi	_	east 5% of survey area: 0.5 m) _X _ medium (0.5-1.5 m) _X _ tall (1.5-3m) _X _ very tall (>3m)		
Structural Patch Richness and Topographic Complexity						
Patch Types/Indicators Present:XAnimal Mounds and BurrowsXPools in ChannelsXBank Slumps/Undercut BanksRiffles or RapidsXCobble and BouldersSecondary Channels on Floodplains/Along ShorelinesXConcentric or Parallel High Water MarksShellfish BedsXDebris JamsSoil CracksXHummocks or Sediment MoundsXStanding SnagsIslandsSubmerged VegetationMacroalgae/Algal MatsSwales on Floodplain or Above ShorelineXNon-vegetated FlatsXVariegated or Crenulated ForeshorePannes or Pools on FloodplainsXWrackline/Organic Debris in Channel/FloodplainXPoint Bars and In-channel Bars						

Recreational/Educational/Uniqueness Value (Explain):
Moderate - Scenic roadside creek, but tall Calamagrostis canadensis makes it difficult to see.

Non-native Species: None observed.			
Item Name/Number	Remarks		
2	Culverts feed water into creek.		
	-This area is NWI mapped as PFO, but soil samples and analysis of vegetation show this not to be		
	a wetland.		
Photo Identification N	Numbers and Description		
Photo ID No.	Description		
43	R4SB3 with banks dominated by Calamagrostis canadensis		

Domin Other A If Parti ID Tea	ant Cov Aquatic al/No (am Obso	wardin W Habitats Contiguo	etland Prese us Buf	fer Zone, Explain Wetlands abut road Stevens, Scheuerman HYDROLOGY Natural feature					
	X		2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)					
X			3	Feature is not degraded by erosion from upland watershed					
Yes	No	N/A		VEGETATION					
X			4	Vegetation dominated by native species Ocular estimate (Native cover: 100 / Total cover 100 x 100 = 100%)					
X			5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)					
X			6	Diverse age-class distribution/stratification of vegetation Presence of seedlings/saplings and/or continuous robust herbaceous growth)					
Yes	No	N/A		EROSION/DEPOSITION					
X			7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)					
X			8	Amount of bare soil appears to be natural/normal					
Biotic Structure Plant layers comprising at least 5% of survey area:aquatic _Xshort (<0.5 m) _Xmedium (0.5-1.5 m) _Xtall (1.5-3m) _Xvery tall (>3m)									
Structural Patch Richness and Topographic Complexity Patch Tomog/Indicators Property									
Patch Types/Indicators Present: X Animal Mounds and Burrows X Pools in Channels									
_X]									
	Cobble and BouldersSecondary Channels on Floodplains/Along Shorelines								
X Concentric or Parallel High Water MarksShellfish Beds									
	Debris JamsSoil Cracks								
Hummocks or Sediment Mounds X Islands Submerged Vegetation									
Submerged VegetationSubmerged VegetationSubmerged VegetationSubmerged VegetationSubmerged VegetationSubmerged Vegetation									
Non-vegetated Flats Non-vegetated Flats X Variegated or Crenulated Foreshore									
Pannes or Pools on FloodplainsWrackline/Organic Debris in Channel/Floodplain									
	Point Bars and In-channel Bars								

Recreational/Educational/Uniqueness Value (Explain):	
Moderate - not easily accessed, and hidden from view.	

Non-native Species:	None observed.	
Itom Nama/Number		Domorks

Item Name/Number	Remarks			
	- Vaccinium uliginosum is dominant on the east side with Calamagrostis. Calamagrostis is dominant on the west side.			
	- 42a is stream from culvert to culvert			
	- 42b is PFOB on east side, along with various other meandering secondary streams within the wetland			
	- 42d and 42e on the north side of road are connected by culverts and have standing water.			

Photo Identification Numbers and Description

Photo ID No.	Description
44	Wet42b - PFOB dominated by lodgepole pine
45	Wet42d - PEMA very wet and bog-like
46	Wet42e - R4SB5 with standing water and covered by emergent vegetation

Wetlands and Other Aquatic Habitats

Sita II). Wet₄	13	Ιο	t.: Long.: Date: 09/09/2010 Area McSwain Meadows					
				Types Present PFOB dominant, PEMB and PEMF also present					
Other Aquatic Habitats Present Contiguous Undeveloped Buffer Zone Present (Y/N/Partial) Yes									
If Partial/No Contiguous Buffer Zone, Explain									
ID Tea	am Obse	ervers		Stevens, Scheuerman					
_	1	<u>hecklist</u>							
Yes	No	N/A	#	HYDROLOGY					
X			1	Natural feature					
X			2	Natural surface or subsurface flow patterns are not altered by manmade objects/disturbance (e.g., hoof action, dams, culverts, dikes, trails, roads, rills, gullies, drilling activities)					
X			3	Feature is not degraded by erosion from upland watershed					
Yes	No	N/A		VEGETATION					
X			4	Vegetation dominated by native species Ocular estimate (Native cover: 100 / Total cover 100 x 100 = 100%)					
X			5	Diverse plant species composition (Answer should be site specific – wetland species should be noted in remarks)					
X			6	Diverse age-class distribution/stratification of vegetation (Presence of seedlings/saplings and/or continuous robust herbaceous growth)					
Yes	No	N/A		EROSION/DEPOSITION					
X			7	Shoreline and substrate appear stable (no excessive erosion or sedimentation)					
X 8 Amount of bare soil appears to be natural/normal									
	11 Timoditi of oute out appears to be natural normal								
Riotic Structure									
	Biotic Structure								
				east 5% of survey area: 0.5 m) X medium (0.5-1.5 m) X tall (1.5-3m) X very tall (>3m)					
Struct	tural Pa	tch Rich	ness a	and Topographic Complexity					
Patch	Types/	Indicato	rs Pre						
		Mounds							
		umps/Ur							
		and Boul		XSecondary Channels on Floodplains/Along Shorelines					
	Concentric or Parallel High Water MarksShellfish Beds Debris Jams Soil Cracks								
	Soil Cracks Hummocks or Sediment Mounds X Standing Snags								
Islands									
X									
	Non-vegetated Flats Variegated or Crenulated Foreshore								
	Point Bars and In-channel Bars								
Recre	Recreational/Educational/Uniqueness Value (Explain):								

High - Scenic portion of McSwain meadow with mosaic of wetland and aquatic habitats.

Non-native Species: None observed.				
Item Name/Number	Remarks			
	- Dominated by multiple Juncus and Carex species at the herbaceous level.			
	- Surrounded by Pinus contorta dominated forest.			
	-Large pockets of standing water (ponds)			
	Vaccinium uliginosum dominates the border			
Photo Identification	Numbers and Description			
Photo ID No.	Description			
47	PEMA with sporadic lodgepole pines and pockets of water			



As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public land and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values

of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging Stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

