PRELIMINARY BIOLOGICAL RESOURCE ASSESSMENT WITH PRELIMINARY BOTANICAL SURVEY FOR THE HANSON PROPERTY

APNs 009-022-67, 011-055-20 & 011-055-21

LAKE COUNTY, CA

May 30, 2020

Prepared by

Northwest Biosurvey

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May 30, 2020

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1.0 PROJECT DESCRIPTION

1.1 Proposed Project: This preliminary biological assessment and survey has been prepared at the request of the client. It covers 182 acres within three parcels. The preliminary assessment is limited to a review of current databases and literature combined with on-site mapping of vegetation types and other habitat characteristics. Vegetation types are mapped for the entire property. This assessment includes a Corps of Engineers protocol delineation of waters of the U.S.

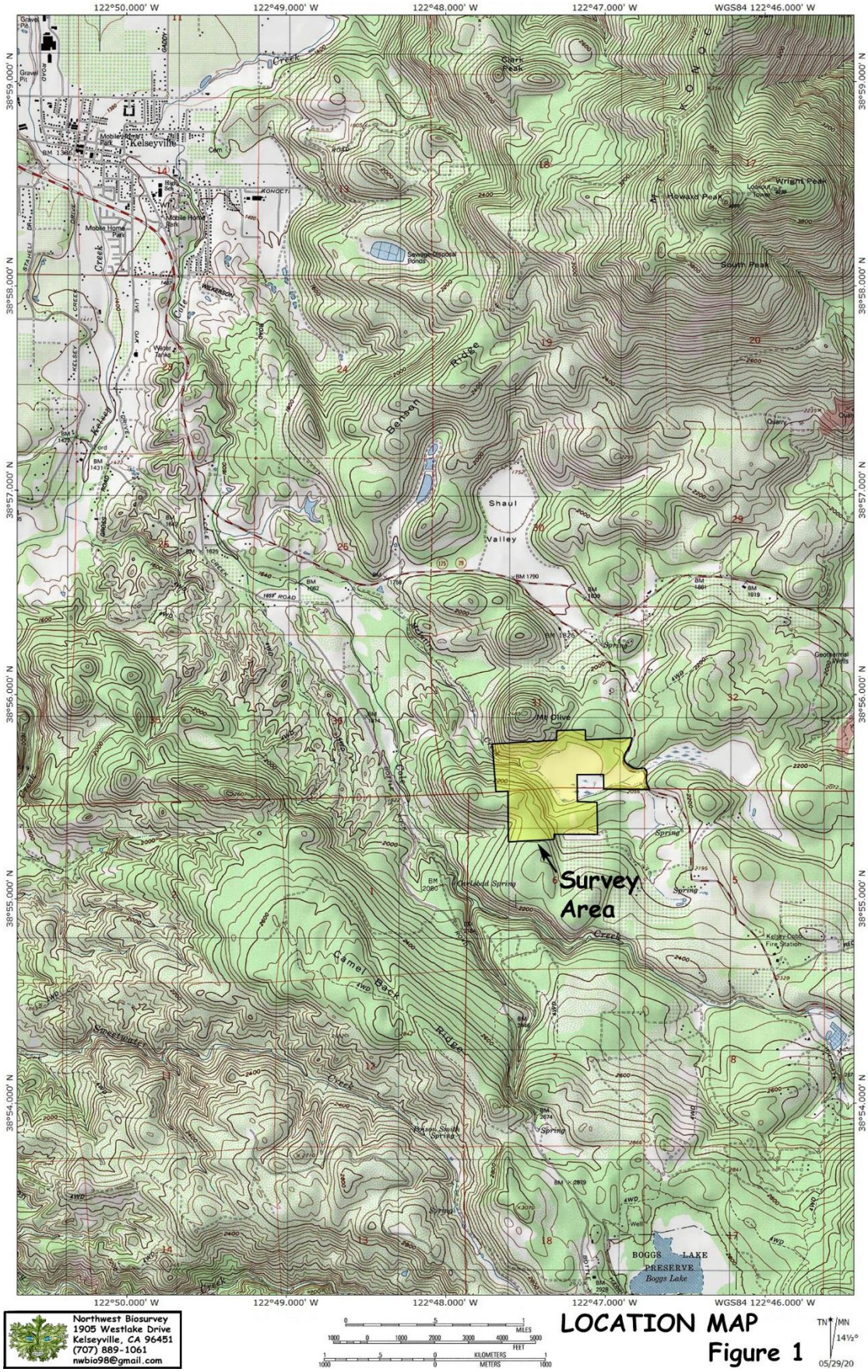
The assessment focused on the potential for the property to contain sensitive plant and animal species or sensitive habitats based on a comparison of the habitat requirements of known sensitive species in the region with the habitats present on the property. These are sensitive[1] species requiring mitigation under the California Environmental Quality Act or National Environmental Policy Act (NEPA). As used here, the terms sensitive plant or wildlife includes all state or federal rare, threatened, or endangered species and all species listed in the California Natural Diversity Database (CNDDB) list of "Special Status Plants, Animals, and Natural Communities".

This is a preliminary biological assessment with a client-requested submittal in spring of 2020. Consequently, it does not contain a complete in-season, floristic-level botanical survey, although the report contains a table of plant taxa identified during the spring surveys.

A delineation of waters of the U.S. was conducted due to the presence of wetlands and waterways within the property. Due to the fact that wetland delineations are prepared with a standard format for U.S. Army Corps of Engineers review, the delineation is provided separately in **Appendix C**.

1.2 Location: The project site is located on Highway 175 south of the intersection with Highway 29 on APNs 009-022-67, 011-055-20 & 21, Kelseyville, California (T12N R8W Sec. 4 & 5, T13N R8W Sec. 31, 32 & 33; Kelseyville, Calif. 7½' Topographic Map). A location map is provided in **Figure 1**.

[1] As used here, the term sensitive plant or wildlife includes all state or federal rare, threatened, or endangered species and all species listed in the California Natural Diversity Database (CNDDB) list of "Special Status Plants, Animals, and Natural Communities".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38°59.000' N
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38°54.000' N
Survey Area
Kelseyville
Clark Peak
Howard Peak
Wright Peak
South Peak
Bensen Ridge
Shaul Valley
Mid Drive
Camel Back Ridge
BOGGS LAKE PRESERVE
Boggs Lake
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MILES
FEET
KILOMETERS
METERS
LOCATION MAP
Figure 1
TN
MN
14½°
05/29/20

2.0 ASSESSMENT METHODOLOGY

The basis of the biological resource assessment is a comparison of existing habitat conditions within the project boundaries to the geographic range and habitat requirements of sensitive plants and wildlife. It includes all sensitive species that occupy habitats similar to those found in the project area and whose known geographic ranges encompass it. The approach is conservative in that it tends to over-estimate the actual number of sensitive species potentially present. The analysis includes the following site characteristics:

- Location of the project area with regard to the geographic range of sensitive plant and wildlife species
- Location(s) of known populations of sensitive plant and wildlife species as mapped in the California Natural Diversity Database (CNDDB)
- Soils of the project area
- Elevation
- Presence or absence of special habitat features such as vernal pools and serpentine soils
- Plant communities existing within the project area

In addition to knowledge of the local plants and wildlife, the following computer databases were used to analyze the suitability of the site for sensitive species:

- California Department of Fish and Wildlife (CDFW), *California Natural Diversity Database (CNDDB)*; RareFind 5, 2020
- California Native Plant Society's (CNPS) *Electronic Inventory of Rare and Endangered Vascular Plants of California* (2020 edition)
- California Department of Fish and Wildlife, *California Wildlife Habitat Relationships System (CWHR)*, Version 9.0

The **CNDDB** and **RareFind 5** databases consist of maps and records of all known populations of sensitive plants and wildlife in California. This data is continually updated by the CDFW with new sensitive species population data.

The **CNPS** database produces a list of sensitive plants potentially occurring at a site based on the various site characteristics listed above. While use of the CNPS inventory does not in itself eliminate the need for an in-season botanical survey, it can, when used in conjunction with other information, provide a very good indication of the suitability of a site as habitat for sensitive plant species.

The **WHR database** operates on the same basis as the CNPS inventory. Input includes geographic area, plant community (including development stage), soil structure, and special features such as presence of water, snags, cover, and food (fruit, seeds, insects, etc.).

2.1 Botanical Survey Methods: A preliminary botanical survey was conducted for the project site. CNDDB information and maps for the Kelseyville quadrangle were referenced prior to the survey. Vegetation communities were identified based on the nomenclature of *A Manual of California Vegetation* (Sawyer et al. 2009) as modified by the California Native Plant Society (CNPS) and mapped on a 1"=250' aerial photo. Vegetation community names are based on an assessment of dominant cover species.

Plants occurring on the site were identified using *The Jepson Manual of Higher Plants of California*. Where necessary, species names were updated based on the 6th edition, *CNPS Inventory of Rare and Endangered Plants of California*. A map of the vegetation types is provided in **Figure 2.**

2.2 Delineation Methods: The delineation was conducted as prescribed in the *Corps of Engineers Wetlands Delineation Manual,* January 1987, and the *Arid West 2008 Supplement.* Plant taxonomy and nomenclature is from the *Jepson Manual, Higher Plants of California*, 2012. Other texts, such as Munz's *A California Flora and Supplement*, 1973, and Mason's *Flora of the Marshes of California,*1957, were used as supplemental texts. The survey included use of lidar mapped overlays and an extensive foot survey.

2.3 Field Assessment Dates: Site visits for mapping and the delineation were made on February 26, March 3, and April 30, 2020.

2.4 Biological Assessment Staff: Field surveys, plant taxonomy, and the delineation were conducted by Steve Zalusky, Northwest Biosurvey principal biologist. Mr. Zalusky has a Master of Science Degree in Biology from the California State University at Northridge and a Bachelor of Science Degree in Zoology from the University of California at Santa Barbara. Mr. Zalusky has over 35 years of experience as a biologist in the government and private sectors.

Mr. Zalusky was assisted with fieldwork, mapping, and the delineation by Leigh Zalusky. Leigh Zalusky has a Bachelor of Science Degree in Engineering from the University of California, Davis. He has also developed extensive skills in plant taxonomy and ecology while managing and assisting in the development of the Seigler Valley Wetland Mitigation Bank and while assisting Northwest Biosurvey staff in field surveys and vegetation mapping over the past several years.

Database review and report preparation were conducted by Danielle Zalusky, Northwest Biosurvey principal planner. Ms. Zalusky has 15 years of experience as a planner in local government and the private sector and 17 years as a field biologist. She has a Bachelor of Arts Degree all course work toward an M.A. Degree in Rural and Town Planning from Chico State University.

3.0 SITE CHARACTERISTICS

3.1 Topography and Drainage: The Hanson property is located in the Mayacamas Mountains within the Clear Lake Basin. It occupies a small mountain valley and the adjacent slopes between Camel Back Ridge and Mount Olive. The valley is at an elevation of approximately 2,040 feet msl (mean sea level). The property rises to an elevation of 2,280 feet msl on the ridgetop to the west. It drains to McIntire Creek which has its confluence with Kelsey Creek approximately three miles to the northwest. Kelsey Creek drains to Clear Lake through the Big Valley. The basin drains east to the Sacramento River via Cache Creek. The topography is shown in **Figure 1**.

3.2 Soils: The property contains the following soil types:

- **Aiken-Sobrante Association, 5-15% slopes (soil unit 101):**
- **Aiken-Sobrante Association, 15-30% slopes (soil unit 102);**

  These map units are on hills and mountains. They contain Aiken loam (on north- and east-facing slopes) and Sobrante loam (on south- and west-facing slopes). The Aiken soil is very deep and well drained; it formed in material weathered from basalt. Permeability is relatively slow; surface runoff is medium, and the hazard of erosion is moderate. The Sobrante loam is moderated deep and well drained. It formed in material weathered from basalt. Permeability is moderate. Surface runoff is medium, and the hazard of erosion is moderate. These soil units occur within the wooded areas between the two wetlands and the woodland west of the main wetland.

- **Benridge-Konocti association, 15-30% slopes (soil unit 112):**
- **Benridge-Konocti association, 30-50% slopes (soil unit 113):**

  These map units are on hills and mountains. They are comprised of 40% Benridge loam, 20-30% Konocti cobbly loam, and 15-20% Konocti stony loam. The Konocti soils are on the upper part of side slopes, on ridgetops, and in ravines. Some Rock outcrop and boulders are including in this association. Typical vegetation is brush on south-and east-facing slopes, and brush with scattered conifers and hardwoods on north- and west-facing slopes, including manzanita, chamise, and California scrub oak with some areas of knobcone pine. Both soils are moderately deep to very deep and well-drained. They formed in materials derived from volcanic ash, andesite, basalt, or dacite. Permeability is moderately slow, runoff is rapid, and the hazard of erosion is severe. These soils occur on the western parts of the property.

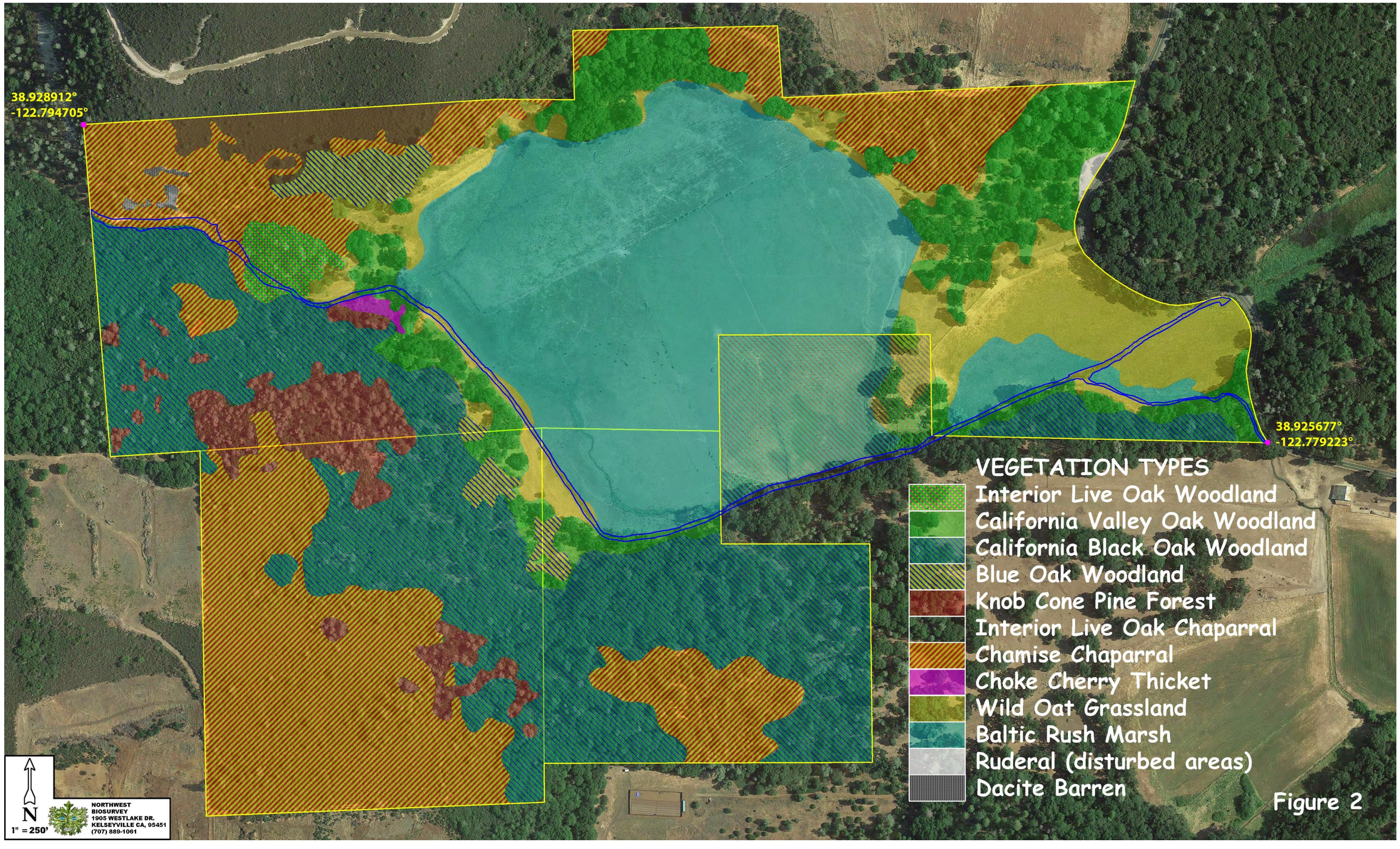
- **Bottlerock-Glenview-Arrowhead complex, 5-30% slopes (soil unit 117):**

  This map unit is on volcanic hills. Vegetation is mainly brush, including manzanita and ceanothus, with scattered conifers. The complex consists of about 50% Bottlerock extremely gravelly loam, 20% Glenview very gravelly loam, and 15% Arrowhead

extremely gravelly sandy loam. All soils are deep and well drained and formed in material weathered from obsidian. Permeability ranges from slow to moderately slow, runoff is rapid, and the hazard of erosion is moderate to severe. This soil complex is located in the woodland west of the highway.

- **Clear Lake Variant clay, drained (soil unit 122):**
  This very deep soil is in basins. It formed under poorly drained conditions; however, drainage has been improved as a result of entrenchment of stream channels. The soil formed in lacustrine deposits derived from mixed rock sources. The soil consists of clay or clay loam to more than 72 inches in depth. Permeability of this soil is slow. Surface runoff is slow, and the hazard of erosion is slight. The soil is subject to rare periods of flooding and ponding during prolonged storms. The shrink-swell potential is high. Natural vegetation includes annual grasses, forbs, and scattered oaks. The soil occurs within the two wetlands on the property.

3.3 <u>Vegetation Types:</u> This project contains ten plant communities or vegetation types based on or derived from the "Standardized Classification" scheme described in the California Native Plant Society (CNPS) *A Manual of California Vegetation.* These vegetation types and other cover types are listed in **Table 1.** They are described below and shown in the vegetation map provided in **Figure 2.**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38.925677°
-122.779223°
VEGETATION TYPES
Interior Live Oak Woodland
California Valley Oak Woodland
California Black Oak Woodland
Blue Oak Woodland
Knob Cone Pine Forest
Interior Live Oak Chaparral
Chamise Chaparral
Choke Cherry Thicket
Wild Oat Grassland
Baltic Rush Marsh
Ruderal (disturbed areas)
Dacite Barren
N
1" = 250'
NORTHWEST
BIOSURVEY
1905 WESTLAKE DR.
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Figure 2

TABLE 1. PLANT COMMUNITIES AND OTHER COVER TYPES PRESENT

COVER TYPE	Total Acres of Cover Type on Property	Percent of Property Supporting Cover Type
Interior Live Oak Woodland	1.78	0.96
California Valley Oak Woodland	18.76	10.13
California Black Oak Woodland	45.70	24.68
Blue Oak Woodland	3.16	1.71
Knob Cone Pine Forest	7.71	4.16
Interior Live Oak Chaparral	43.22	23.35
Chamise Chaparral	3.49	1.89
Choke Cherry Thicket	0.29	0.16
Wild Oat Grassland	15.80	8.54
Baltic Rush Marsh	44.80	24.20
Ruderal (Disturbed Areas)	0.18	0.10
Dacite Barren	0.23	0.12
	185.12	**100.00**

- **Interior Live Oak Woodland:**

  Interior live oak woodland occupies the low slopes along McIntire Creek as it drains west from the central wetland. The community is dominated by Interior live oak trees (*Quercus wislizeni var. wislizeni*) but includes scattered California black oak (*Quercus kelloggii*) and California bay (*Umbellularia californica*). The shrub layer includes common manzanita (*Arctostaphylos manzanita ssp. manzanita*) and co-dominant poison oak (*Toxicodendron diversilobum*). The ground cover is primarily duff but includes some of the more mesic (moist soil) grasses from the adjacent wild oat grassland. These include hedgehog dogtail (*Cynosurus echinatus*) and blue wild rye (*Elymus glaucus ssp. glaucus*). Forbs include grand hounds' tongue (*Cynoglossum grande*) and bowl-tubed iris (*Iris macrosiphon*).

- **California Valley Oak Woodland:**

  Valley oak woodland is limited to flat terrain surrounding the central wetlands and consequently forms a narrow strip of woodland between the wetlands and upland forests and woodlands. The average diameter of the valley oaks (*Quercus lobata*) is approximately 20 inches wide although some trunks reach 60 inches diameter. Occasional interior live oaks occur in this woodland. The ground cover in spring is dominated by bulbous blue grass (*Poa bulbosa*), baby blue eyes (*Nemophila*

menziesii var. atomaria), rancher's fireweed (*Amsinckia menziesii*), cut-leaf geranium (*Geranium dissectum*), many-stemmed sedge (*Cyperus eragrostis*), pine violet (*Viola lobata ssp. integrifolia*), goose grass (*Galium aparine*), and field hedge parsley (*Torilis arvensis*).

- **California Black Oak Woodland:**

  This community includes an upper canopy of mature California black oak, with some trunks reaching 48" dbh (diameter at breast height). Ponderosa pine (*Pinus ponderosa*) is scattered throughout but does not reach a level of co-dominance. The shrub layer consists of poison oak, as well as common, Konocti, and Eastwood's manzanita (*Arctostaphylos manzanita ssp. manzanita, A. manzanita ssp. elegans, and A. glandulosa ssp. glandulosa*). California bay and birch-leaf mountain mahogany (*Cercocarpus betuloides var. betuloides*) are also present.

  The ground cover includes California tule pea (*Lathyrus jepsonii var. californicus*), purple sanicle (*Sanicula bipinnatifida*), bowl-tubed iris, red larkspur (*Delphinium nudicaule*), green mule ears (*Wyethia glabra*), gray mule ears (*Wyethia helenioides*), and low-lying poison oak. Other species present include California fescue (*Festuca californica*), woodland brome (*Bromus laevipes*), grand hounds tongue, mountain sweet cicely (*Osmorhiza berteroi*), and big-flower agoseris (*Agoseris grandiflora*).

- **Blue Oak Woodland:**

  This community consists of moderate-aged blue oaks (*Quercus douglasii*). The canopy cover is 60%. The community is open and lacks a shrub layer. The ground cover is the same as that described for the interior live oak forest.

- **Knobcone Pine Forest:** While knobcone pine (*Pinus attenuata*) occur scattered throughout the chamise chaparral community, it provides a dominant tree canopy above this community on the steep slopes in the southwestern quarter of the property. The shrub canopy and ground cover layers are the same as those of the adjacent chamise chaparral community.

- **Interior Live Oak Chaparral:**

  This community occurs on south-facing slopes and ridges on the on the more exposed slopes surrounding the central wetland. It includes dominant interior live oak (*Quercus wislizeni var. frutescens*) as a shrub canopy to 15 feet canopy height. Chamise (*Adenostoma fasciculatum*), Konocti and Eastwood's manzanita, deerbrush (*Ceanothus integerrimus*), birch-leaf mountain mahogany, scrub oak (*Quercus berberidifolia*), and California bay are also present. Scattered ghost pines

and knobcone pines are present in some areas. Ground cover consists of leaf litter and bare ground due to the density of the shrub canopy. Poison oak is also present.

- **Chamise Chaparral:**

  This xeric (dry soil) shrub community occupies the south-facing slopes of Mt. Olive along the northwestern edge of the property. The community is a dense and nearly homogenous canopy of chamise. As a consequence, the ground cover is primarily duff. Community edges support a ground cover similar to that of the interior live oak chaparral.

- **Choke Cherry Thicket:**

  The Choke Cherry Thicket community consists of a homogenous dense canopy of western choke cherry (*Prunus virginiana var. demissa*) along the southern bank of McIntire Creek. The ground cover here is leaf litter.

- **Wild Oat Grassland:**

  Grasslands are primarily limited to the valley bottoms surrounding the wetlands and below the surrounding woodlands and chaparral communities. The species mix varies with the amount of shade available from the adjacent valley oak woodlands and the saturation of soils adjacent to wetlands. The species mix includes: soft chess (*Bromus hordeaceus*), creeping wild rye (*Elymus triticoides*), annual bluegrass (*Poa annua*), bulbous bluegrass (*Poa bulbosa*), California brome (*Bromus carinatus var. carinatus*), hedgehog dogtail, annual dogtail (*Cynosurus echinatus*), California poppy (*Eschscholzia californica*), sun cup (*Taraxia ovata*), common yarrow (*Achillea millefolium*), and milkmaids (*Cardamine californica var. californica*).

- **Baltic Rush Marsh:**

  Baltic rush (*Juncus balticus*) forms a broad cover over most of the central wetland. While it can form a homogenous herb canopy, it is often interrupted by small, heterogenous islands of other wetland species depending on slight variations in ground elevations and hydrology. These other species occupy a wide range of hydrologic conditions. Tule or "bulrush" (*Schoenopluctus acutus var. occidentalis*) occupies the deepest areas, generally within excavated drainage ditches and depressions within the wetland. The edges of ponded water support, blunt spikerush (*Eleocharis obtusa*), and creeping spikerush (*Eleocharis macrostachya*). Areas of high saturation support Santa Barbara sedge (*Carex barbarae*) and Pacific bog rush (*Juncus effusus var. pacificus*). Other hydrophytic (wetland plants) include tall flat sedge (*Cyperus eragrostis*), and clustered field sedge (*Carex praegracilis*),

- **Ruderal (disturbed areas):**

  At the time of the survey ruderal areas were limited to a pull-out along State Highway 175 and ranch roadway in the eastern half of the property.

- **Dacite Barren:**

  This white, rocky substrate is limited to an area of exposed dacite bedrock in the extreme northwestern corner of the property. It lacks vegetative cover.

4.0 PRE-SURVEY RESEARCH RESULTS

4.1 <u>CNPS Electronic Inventory Analysis</u>: A California Native Plant Society (CNPS) analysis was conducted for all plants with federal and state regulatory status, and all non-status plants on the CNPS Rare Plant Ranks 1B through 4. The query included all plants within this area of Lake County occurring within the plant communities identified on the project site. The inventory lists species potentially occurring at the site; these are listed in **Table 2**. These species were included in the list of potentially sensitive species specifically searched for during field surveys.

<u>Note</u>: *The CNPS list is used to broaden the list of sensitive species considered during the subsequent field surveys; however, it must be used with discretion because the database search does not allow fine-tuning for specific soil types or for many specific habitats required by sensitive plant taxa (e.g. vernal pools or serpentine soils). Consequently, the CNPS list generated for a site may include several taxa for which the required habitat is not present.*

4.2 <u>California Natural Diversity Database</u>: The California Natural Diversity Database (CNDDB) and CDFW RareFind 5 data and maps for the Kelseyville 7½' quadrangle map were reviewed for this project. **Table 3** presents a list of sensitive plant and wildlife species known to occur in the quadrangle. In addition to listing the species present within the quadrangle, the table provides a brief descriptor of the habitat requirements and blooming season, along with an assessment of whether the project area contains the necessary habitat requirements for each species. **Appendix A** at the end of this report lists the species within the nine quadrangles in the vicinity of this property.

TABLE 2. CALIFORNIA NATIVE PLANT SOCIETY'S INVENTORY OF RARE AND ENDANGERED PLANTS

Selected CNPS Plants by Scientific Name:

Hanson Property

Scientific Name	Common Name	Family	Lifeform	CRPR	CESA*	FESA*	Blooming Period	Habitat
Amsinckia lunaris	bent-flowered fiddleneck	Boraginaceae	ann herb	1B.2	None	None	Mar-Jun	Coastal bluff scrub, Cismontane woodland, Valley and foothill grassland
Arctostaphylos manzanita ssp. elegans	Konocti manzanita	Ericaceae	per everg shrub	1B.3	None	None	(Jan)Mar-May(Jul)	Chaparral, Cismontane woodland, Lower montane coniferous forest; volcanic
Arctostaphylos stanfordiana ssp. raichei	Raiche's manzanita	Ericaceae	per everg shrub	1B.1	None	None	Feb-Apr	Chaparral, Lower montane coniferous forest (openings); rocky, often serpentinite
Astragalus breweri	Brewer's milk-vetch	Fabaceae	ann herb	4.2	None	None	Apr-Jun	Chaparral, Cismontane woodland, Meadows and seeps, Valley and foothill grassland (open, often gravelly); often serpentinite, volcanic
Azolla microphylla	Mexican mosquito fern	Azollaceae	ann / per herb	4.2	None	None	Aug	Marshes and swamps (ponds, slow water)
Brasenia schreberi	watershield	Cabombaceae	per rhizom herb (aquatic)	2B.3	None	None	Jun-Sep	Marshes and swamps (freshwater)
Calyptridium quadripetalum	four-petaled pussypaws	Montiaceae	ann herb	4.3	None	None	Apr-Jun	Chaparral, Lower montane coniferous forest; sandy or gravelly, usually serpentinite
Clarkia gracilis ssp. tracyi	Tracy's clarkia	Onagraceae	ann herb	4.2	None	None	Apr-Jul	Chaparral (openings, usually serpentinite)
Cordylanthus tenuis ssp. brunneus	serpentine bird's-beak	Orobanchaceae	ann herb (hemi-parasitic)	4.3	None	None	Jul-Aug	Closed-cone coniferous forest, Chaparral, Cismontane woodland; usually serpentinite
Cryptantha dissita	serpentine cryptantha	Boraginaceae	ann herb	1B.2	None	None	Apr-Jun	Chaparral (serpentinite)
Eriastrum brandegeeae	Brandegee's eriastrum	Polemoniaceae	ann herb	1B.1	None	None	Apr-Aug	Chaparral, Cismontane woodland; volcanic, sandy
Gratiola heterosepala	Boggs Lake hedge-hyssop	Plantaginaceae	ann herb	1B.2	SE	None	Apr-Aug	Marshes and swamps (lake margins), Vernal pools; clay

Scientific Name	Common Name	Family	Lifeform	CRPR	CESA*	FESA*	Blooming Period	Habitat
Harmonia hallii	Hall's harmonia	Asteraceae	ann herb	1B.2	None	None	Apr-Jun	Chaparral (serpentinite)
Hesperolinon adenophyllum	glandular western flax	Linaceae	ann herb	1B.2	None	None	May-Aug	Chaparral, Cismontane woodland, Valley and foothill grassland; usually serpentinite
Horkelia bolanderi	Bolander's horkelia	Rosaceae	per herb	1B.2	None	None	(May)Jun-Aug	Chaparral, Lower montane coniferous forest, Meadows and seeps, Valley and foothill grassland; edges, vernally mesic areas
Lasthenia burkei	Burke's goldfields	Asteraceae	ann herb	1B.1	SE	FE	Apr-Jun	Meadows and seeps (mesic), Vernal pools
Layia septentrionalis	Colusa layia	Asteraceae	ann herb	1B.2	None	None	Apr-May	Chaparral, Cismontane woodland, Valley and foothill grassland; sandy, serpentinite
Legenere limosa	legenere	Campanulaceae	ann herb	1B.1	None	None	Apr-Jun	Vernal pools
Leptosiphon acicularis	bristly leptosiphon	Polemoniaceae	ann herb	4.2	None	None	Apr-Jul	Chaparral, Cismontane woodland, Coastal prairie, Valley and foothill grassland
Limnanthes floccosa ssp. floccosa	woolly meadowfoam	Limnanthaceae	ann herb	4.2	None	None	Mar-May(Jun)	Chaparral, Cismontane woodland, Valley and foothill grassland, Vernal pools; vernally mesic
Lupinus sericatus	Cobb Mountain lupine	Fabaceae	per herb	1B.2	None	None	Mar-Jun	Broadleafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest
Micropus amphibolus	Mt. Diablo cottonweed	Asteraceae	ann herb	3.2	None	None	Mar-May	Broadleafed upland forest, Chaparral, Cismontane woodland, Valley and foothill grassland; rocky
Navarretia leucocephala ssp. pauciflora	few-flowered navarretia	Polemoniaceae	ann herb	1B.1	ST	FE	May-Jun	Vernal pools (volcanic ash flow)
Navarretia leucocephala ssp. plieantha	many-flowered navarretia	Polemoniaceae	ann herb	1B.2	SE	FE	May-Jun	Vernal pools (volcanic ash flow)
Orcuttia tenuis	slender Orcutt grass	Poaceae	ann herb	1B.1	SE	FT	May-Sep(Oct)	Vernal pools; often gravelly
Sidalcea oregana ssp. hydrophila	marsh checkerbloom	Malvaceae	per herb	1B.2	None	None	(Jun)Jul-Aug	Meadows and seeps, Riparian forest; mesic

Scientific Name	Common Name	Family	Lifeform	CRPR	CESA*	FESA*	Blooming Period	Habitat
Streptanthus barbiger	bearded jewelflower	Brassicaceae	ann herb	4.2	None	None	May-Jul	Chaparral (serpentinite)
Trichostema ruygtii	Napa bluecurls	Lamiaceae	ann herb	1B.2	None	None	Jun-Oct	Chaparral, Cismontane woodland, Lower montane coniferous forest, Valley and foothill grassland, Vernal pools

KEY FOR TABLE 2: ** See Table 3 for abbreviations*

CNPS Rare Plant-Threat Rank Definitions:

CRPR= California Rare Plant Rank
1B.1 = Rare, threatened, or endangered in California and elsewhere; seriously threatened in California
1B.2 = Rare, threatened, or endangered in California and elsewhere; fairly threatened in California
1B.3 = Rare, threatened, or endangered in California and elsewhere; not very threatened in California
2A = Presumed extinct in California, but extant elsewhere
2B.1 = Rare, threatened, or endangered in Calif., but more common elsewhere; seriously threatened in Calif.
2B.2 = Rare, threatened, or endangered in Calif., but more common elsewhere; fairly threatened in Calif.
2B.3 = Rare, threatened, or endangered in Calif., but more common elsewhere; not very threatened in Calif.
3 = Plants about which we need more information (Review List)
3.1 = Plants about which we need more information (Review List); seriously threatened in California
3.2 = Plants about which we need more information (Review List); fairly threatened in California
3.3 = Plants about which we need more information (Review List); not very threatened in California
4.1 = Plants of limited distribution (watch list); seriously threatened in California
4.2 = Plants of limited distribution (watch list); fairly threatened in California
4.3 = Plants of limited distribution (watch list); not very threatened in California

State and Federal Status:

CESA = California Endangered Species Act
FESA = Federal Endangered Species Act
FE/FT = Federal Endangered/Threatened
SE/ST = State Endangered/Threatened

ann = annual
per = perennial
everg = evergreen
rhizo = rhizomatous

TABLE 3. CNDDB SENSITIVE PLANT AND WILDLIFE SPECIES WITHIN THE KELSEYVILLE, CALIF. 7½' QUADRANGLE

Habitat Type	Habitat Present
Northern Volcanic Ash Vernal Pool	no
Clear Lake Drainage Cyprinid/Catostomid Stream	no
Clear Lake Drainage Seasonal Lakefish Spawning Stream	no
Clear Lake Drainage Resident Trout Stream	no

Plant Species	Common Name	Habitat Requirements/ Fed-State-CNPS* Status	Blooming Season/Form	Habitat Present
Amsinckia lunaris	bent-flowered fiddleneck	Coastal bluff scrub, cismontane woodland, valley & foothill grassland; --/--/1B.2	March-June ann. herb	habitat present in survey area
Arctostaphylos manzanita ssp. elegans	Konocti manzanita	Chaparral, cismontane woodland, lower montane conif. forest/volcanic; --/--/1B.3	March-May everg. shrub	habitat present in survey area
Arctostaphylos stanfordiana ssp. raichei	Raiche's manzanita	Chaparral, lower montane coniferous forest/rocky, often serpentine; --/--/1B.1	Feb.-April ann. herb	habitat present in survey area
Astragalus breweri	Brewer's milk-vetch	Chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland (open, often gravelly)/often serpentinite, volcanic; --/--/4.2	April-June ann. herb	habitat present in survey area
Azolla microphylla	Mexican mosquito-fern	Marshes and swamps (ponds, slow water); --/--/4.2	August ann./per. herb	habitat present in survey area
Brasenia schreiberi	watershield	Marshes & swamps/freshwater; --/--/2.3	March-Sept; rhizom. herb	habitat present in survey area
Calyptridium quadripetalum	four-petaled pussypaws	Chaparral, lower montane coniferous forest/sandy or gravelly, usually serpentinite; --/--/4.3	April-June ann. herb	poor habitat present in survey area
Clarkia gracilis ssp. tracyi	Tracy's clarkia	Chaparral (openings, usually serpentinite); --/--/4.2	April-June ann. herb	poor habitat present in survey area
Cordylanthus tenuis ssp. brunneus	serpentine bird's-beak	Closed-cone coniferous forest, chaparral, cismontane woodland/usually serpentinite; --/ --/4.3	July-Aug. ann. herb	poor habitat present in survey area
Eriastrum brandegeeae	Brandegee's eriastrum	Chaparral, cismontane woodland, valley & foothill grassland/barren volcanic soils, often in open areas; --/--/1B.1	April-Aug. ann. herb	habitat present in survey area
Gratiola heterosepala	Boggs Lake hedge-hyssop	Freshwater marsh, marshes & swamps (freshwater), vernal pools, sometimes lake margins/clay --/SE/1B.2	April-Aug. ann. herb	moderate habitat present in survey area

Plant Species	Common Name	Habitat Requirements/ Fed-State-CNPS* Status	Blooming Season/Form	Habitat Present
Harmonia hallii	Hall's harmonia	Chaparral/serpentine hills & ridges, open rocky areas; --/--/1B.2/G2/S2	April-June ann. herb	habitat not present in survey area
Hesperolinon adenophyllum	glandular western flax	Chaparral, cismontane woodland, valley & foothill grassland/usually serpentine chaparral; --/--/1B.2	May-Aug. ann. herb	habitat not present in survey area
Horkelia bolanderi	Bolander's horkelia	Lower montane conif. forest, chaparral, meadows & seeps, valley & foothill grassland/grassy margins of vernal pools and meadows; --/ --/1B.2	June-Aug. per. herb	habitat present in survey area
Lasthenia burkei	Burke's goldfields	Meadows and seeps, vernal pools and swales; FE/SE/1B.1	April-June ann. herb	moderate habitat present in survey area
Layia septentrionalis	Colusa layia	Chaparral, cismontane woodland, valley & foothill grassland/sandy or serpentine; --/--/1B.2	April-May, ann. herb	habitat not present in survey area
Legenere limosa	legenere	In beds of vernal pools; --/--/1B.1	April-June ann. herb	habitat not present in survey area
Leptosiphon acicularis	bristly leptisiphon	Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland; --/--/4.2	April-July ann. herb	habitat present in survey area
Limnanthes floccosa ssp. floccosa	woolly meadowfoam	Chaparral, cismontane woodland, valley & foothill grassland, vernal pools/vernally mesic; --/--/4.2	March-May (June) ann. herb	habitat not present in survey area
Micropus amphibolus	Mt. Diablo cottonweed	Broadleaved upland forest, chaparral, cismontane woodland, valley & foothill grassland /rocky; --/--/3.2	March-May ann. herb	habitat present in survey area
Monardella viridis	green monardella	Broadleaved upland forest, chaparral, cismontane woodland; --/--/4.3	June-Sept. rhizom. herb	habitat present in survey area
Navarretia leucocephala ssp. pauciflora	few-flowered navarretia	Volcanic ash flow vernal pools; FE/ST/1B.1	May-June ann. herb	habitat not present in survey area
Navarretia leucocephala ssp. plieantha	many-flowered navarretia	Volcanic ash flow vernal pools; FE/SE/1B.2	May-June ann. herb	habitat not present in survey area
Orcuttia tenuis	slender Orcutt grass	Vernal pools/often in gravelly substrate; FT/SE/1B.1	May-Oct. ann. herb	habitat not present in survey area

Plant Species	Common Name	Habitat Requirements/ Fed-State-CNPS* Status	Blooming Season/Form	Habitat Present
Potamogeton zosteriformis	eel-grass pondweed	Rooted submerged plant with long, thin leaves, may be 3-4 feet long; occurs in marshes & swamps, ponds, lakes & streams; --/--/2B.2	June-July ann. herb (aquatic)	moderate habitat present in survey area
Sidalcea oregana ssp. hydrophila	marsh checkerbloom	Marshes & seeps, riparian forest/wet soil of streambanks, meadows; --/--1B.2	July-Aug. per. herb	habitat present in survey area
Streptanthus barbiger	bearded jewelflower	Chaparral: serpentine; --/--/4.2	May-July ann. herb	habitat not present in survey area
Trichostema ruygtii	Napa bluecurls	Chaparral, cismontane woodland, lower montane conif. forest, valley & foothill grassland, vernal pools; --/--/1B.2	June-Oct. ann. herb	moderate habitat present in survey area

*See CNPS list for key

Wildlife Species	Common Name	Habitat Requirements, Status	Season Present	Habitat Present
Calasellus californica	an isopod	Aquatic: freshwater wells & springs. Known from Lake, Napa, Marin, Santa Cruz, and Santa Clara counties. One occurrence from Kelseyville in 1931; G2/S2	year-round	habitat not present in survey area
Linderiella occidentalis	California linderiella	Freshwater fairy shrimp found in seasonally ponded habitat types such as vernal pools, ephemeral drainages, stock ponds, reservoirs, ditches, and vehicle ruts; G3G4/S2S3	year-round	habitat not present in survey area
Bombus caliginosus	obscure bumble bee	A black and yellow bee found in California, Oregon, Washington. Food plant genera: Baccharis, Cirsium, Lupinus, Lotus, Grindelia, Phacelia; G3G4/CA-SNR	year-round	poor habitat present in survey area
Hydrochara rickseckeri	Ricksecker's water scavenger beetle	Aquatic beetle that lives in slow-flowing streams, shallow open water, springs, stagnant ponds, & vernal pools; G2/S2	year-round	habitat not present in survey area
Lavinia exilicauda chi	Clear Lake hitch	Found only in Clear Lake, Lake County and assoc. ponds. Spawns in streams flowing to Clear Lake; SSC/ST/G4/S1	year-round	habitat not present in survey area
Lavinia symmetricus ssp. 4	Clear Lake – Russian River roach	Closely-related species found either in tributaries to Clear Lake, Lake County, or the Russian River and its tributaries; SSC/G4(T2-Imperiled)/S2S3	year-round	habitat not present in survey area

Wildlife Species	Common Name	Habitat Requirements, Status	Season Present	Habitat Present
Rana boylii	foothill yellow-legged frog	Riparian/aquatic: partly-shaded, shallow streams & riffles with a rocky substrate in variety of habitats; SSC/SCT/G3/S2S3	year-round	habitat may be present in survey area
Taricha rivularis	red-bellied newt	Occurs near high to moderate gradient streams and rivers, riffles, pools. Burrows in soil or debris near water, emerges during fall rains to water to breed; SSC/G4/SNR	year-round	habitat may be present in survey area
Emys marmorata	western pond turtle	Aquatic turtle found in ponds, lakes, rivers, creeks, marshes & irrigation ditches with abundant vegetation and rocky or muddy bottoms; In woodland, forest, & grasslands; SSC/G3G4/S3	year-round	poor habitat present in survey area
Pandion haliaetus	osprey	Large, fish-bearing waters usually in mixed conifer habitats/typically nests are within 15 miles of good fish-producing body of water; WL/G5/S4	sometimes migratory	habitat may be present in survey area
Progne subis	purple martin	Open woodland near water. Nests in old woodpecker cavities in isolated trees, sometimes in human-made structures; SSC/G5/S3	migratory in winter	habitat may be present in survey area
Erethizon dorsatum	North American porcupine	Occurs in a wide variety of coniferous and mixed woodland habitats in Sierra Nevada, Cascade, and Coast Ranges; G5/S3	year-round	habitat may be present in survey area

Key:

SE/ST/SD=State Endangered/Threatened/Delisted
SC/SCD=State Candidate for Listing/Delisting
SSC=CDFW Species of Special Concern
SFP=CDFW Fully Protected
WL=CDFW Watch List
FE/FT/FD=Federal Endangered/Threatened/Delisted
FPE/FPT/FPD/FP=Federal Proposed Endangered/Threatened/Delisting
FC=Federal Candidate

NatureServe Conservation Status:

G1/S1 = Global/State Critically Imperiled
G2/S2 = Global/State Imperiled
G3/S3 = Global/State Vulnerable
G4/S4 = Global/State Apparently Secure
G5/S5 = Global/State Secure
SNR=Not rated

4.3 Wildlife Habitat Analysis Results: The Wildlife Habitat Relationships analysis lists a number of native species with sensitive and non-sensitive status as potentially occurring on the site based on the geographic location and wildlife habitats present. This list is included as **Appendix B.**

4.4 Wildlife Assessment: Based on the pre-survey research conducted for this study, a total of 14 sensitive wildlife species need to be accounted for within the project area. These consist of the species identified as present within the Kelseyville quadrangle by the CNDDB; these include a wide variety of animal species including insects, crustaceans, fish, amphibians, birds, and mammals. Many of the species listed in the CNDDB for this quadrangle are endemic to habitats that do not occur on or in the vicinity of the property, such as vernal pools or Clear Lake and its perennial tributaries. White-tailed kite, northern harrier, and pallid bat are added due to presence of appropriate habitat. Accepted protocol requires that all CNDDB species in the surrounding U.S.G.S. quadrangle be discussed even through suitable habitat may not occur on the site.

The following species would not occur within the project area because of the lack of appropriate habitat:

- *Calasellus californica* – an Isopod (requires freshwater springs)
- *Linderiella occidentalis* - California linderiella (not present in area)
- *Hydrochara rickseckeri*- Ricksecker's water scavenger beetle (habitat not present on property)
- *Lavinia exilicauda chi* - Clear Lake hitch (habitat not present on property)
- *Lavinia symmetricus ssp. 4*- Clear Lake – Russian River roach (habitat not present on property)

Habitat for the following species is poor to moderate on the site:

- **Obscure bumble bee (*Bombus oliginosus*):**
  This bumblebee is native to the west coast; in the Coast Range it inhabits meadows. It is similar in appearance and co-exists with the common *Bombus vosnesenskii* and may be mistaken for this bee. *B. oliginosus* is threatened by climate change and loss of habitat and does not thrive in developed urban or agricultural areas. There is a low potential habitat for this species to occur here because of a lack of preferred food plants.

- **Foothill yellow-legged frog (*Rana boylii*):**
  These frogs are relatively common along the shaded banks of perennial headwater streams. They are heavily dependent on the presence of perennial water and are

seldom far from pools where they can seek shelter from predation. The larvae require three to four months to mature, making most ephemeral (seasonal) streams unsuitable as breeding sites. There is a potential for this species to occur on the property within intermittent segments of McIntire Creek within the steep canyon west of the central wetland. This channel supports a boulder and pool channel structure which is ideal for this species.

- **Red-bellied newt (*Taricha rivularis*):**

  This species is often found under rocks, logs, soil or duff, or in rodent burrows in coastal woodlands and redwood forests. Newts occur near high-to-moderate gradient streams and rivers, in riffles, and pools. They usually breed in flowing water. These animals burrow in soil or debris near water and emerge to water during fall rains to breed; they may migrate up to a mile or more between terrestrial habitat and stream breeding sites. They have been identified in the Cobb Mountain area along Bottle Rock Road. There is a potential for this species to occur on the property within intermittent segments of McIntire Creek within the steep canyon west of the central wetland. This channel supports a boulder and pool channel structure which is ideal for this species.

- **Western pond turtle (*Actinemys marmorata*):**

  These turtles prefer slow or ponded water with sheltering vegetation but will range widely through less suitable habitat in search of these sites. Eggs are laid on land in sheltered nests. Young overwinter in the nest and emerge the following spring in Northern California. When present, pond turtles are readily observed basking along shorelines or on logs in shallow water. Intermittent ponded water along the northern edge of the wetland and along excavated drainage channels provides suitable seasonal habitat for this species. McIntire Creek would provide a seasonal transit corridor for this species through the McIntire Creek watershed and to longer duration ponds on the property east of State Highway 175.

- **Osprey (*Pandion haliaetus*):**

  This species occurs near large, fish-bearing waters in ponderosa pine or mixed conifer habitats where it feeds on open waters for fish, although it also takes small birds and mammals. It hunts over wide expanses of open water and usually nests in the tops of large isolated trees near shorelines. Nests are made on platforms of sticks on top of large snags, dead-topped trees, or man-made structures, usually within close proximity of large fish-producing water bodies. The stick nests constructed by this species are readily apparent when present. While this site may contain suitable nesting habitat for the osprey in taller trees in the woodlands or forest, fish are not present in McIntire Creek in the size and species makeup that would provide suitable prey for these raptors. Consequently, they are unlikely to be present. This species'

sensitive status pertains to nesting pairs. Osprey no longer has sensitive status but is protected under the Migratory Bird Treaty Act and California Department of Fish and Game code.

- **White-tailed kite (*Elanus leucurus*)**:

  Usually found near agricultural areas, the kite prefers open terrain near woodlands and water. These raptors hunt over open country and prefer large, deciduous trees surrounded by expanses of grassland, meadows, farmland, and/or wetlands for nesting and roosting sites. They feed mostly on small diurnal mammals, but will sometimes eat birds, insects, amphibians, and reptiles. The extensive open wetland habitat and grasslands on this property provide ideal hunting habitat for these raptors. The adjacent valley oak woodlands provide very good nesting habitat. The California Fully Protected status of these raptors pertains to nesting pairs with an emphasis on protecting nesting habitat.

- **Northern harrier (*Circus cyaneus hudsonius*):**

  This raptor occurs in annual grassland and is also found at high elevations. It inhabits meadows, open grasslands and rangelands, and emergent wetlands but is seldom found in wooded or agricultural areas. Formerly called the "marsh hawk", it nests on the ground in dense shrubby vegetation in and near wetlands. The harrier feeds on insects and small mammals, birds, etc., and competes with the red-tailed hawk for food. It prefers habitat such as the broad, open grasslands and wetlands of the Sacramento Valley where this species is commonly seen. The extensive wetland and grassland habitat on the property provides ideal hunting habitat for these raptors. The availability of adjacent brushy nesting habitat is limited due to extensive cattle grazing. There is a high potential for these raptors to hunt here but a limited potential for nesting. These raptors nest from April to August and have California Species of Concern status during that period.

- **Pallid bat (*Antrozous pallidus*):**

  Optimal habitat for these bats consists of open, dry habitats with rocky areas in the southwestern U.S., but the bats are also found in oak savanna grasslands, and in open forest and woodlands with access to riparian and open water for feeding and drinking in northern California. These bats prefer the cool summer temperatures of caves, crevices, and mines as roosting sites where they are known to wedge themselves into small spaces, but they will also roost in buildings, bridges, and hollow trees. Foraging occurs over open country. The oak woodlands and pine forest on the property may provide moderate roosting habitat for this bat.

- **North American porcupine (*Erethizon dorsatum*):**
  This species prefers conifer and hardwood forests and woodlands but is also found in forested wetlands and chaparral. It uses downed logs and debris, as well as snags and tree hollows, as cover. The porcupine breeds from September to November or December, giving birth in the spring. One offspring is reared a year. *E. dorsatum* is herbivorous; its diet consists of many parts of trees and other plants including bark, needles, flowers, roots, berries, leaves, and seeds. It is mostly nocturnal. This species is listed in the CNDDB as "G5" (Global Secure) and "SNR" (Species not Rated-California). It is therefore not a species with sensitive regulatory status although its local accounts are included in the database.

Raptors and passerines with non-sensitive status are likely to nest on the property due to the diverse woodland and forest habitats there. These birds would include red-tailed hawks, crows and ravens, Cooper's hawks, woodpeckers, yellow-breasted chats, and yellow warblers. Much of the wetlands and grasslands have been grazed since historical times. All nesting raptors are protected under the Migratory Bird Treaty Act and Fish and Game Code.

5.0 FIELD SURVEY RESULTS

5.1 Plant Field Survey Results: Table 4 presents a list of plant species that were identified during the springs surveys. This list does not constitute a floristic-level botanical survey within the survey area, as no late season surveys were conducted. This list contains 78 plant taxa, including native and introduced plants.

One plant taxon with sensitive status was identified during the site visits:

- **Konocti manzanita (*Arctostaphylos manzanita ssp. elegans;* CNPS Rank 1B.3):** Konocti manzanita occurs within the interior live oak chaparral and black oak woodland. Plants ranked 1B are considered by regulatory agencies to qualify as rare under Section 15380(d) of the California Environmental Quality Act (CEQA) and thus require consideration and subsequent mitigation during CEQA review.

TABLE 4. PLANT TAXA IDENTIFIABLE DURING SITE VISITS

Habit	Species	Common Name	Family	Origin
forb	*Ligusticum apiifolium*	celeryleaf licorice root	Apiaceae	N
forb	*Torilis arvensis*	field hedge parsley	Apiaceae	A
forb	*Achillea millefolium*	common yarrow	Asteraceae	N
forb	*Agoseris grandiflora*	California dandelion, big-flower agoseris	Asteraceae	N
forb	*Artemesia douglasiana*	mugwort	Asteraceae	N
forb	*Centaurea solstitialis*	yellow star thistle	Asteraceae	A
forb	*Cynara cardunculus*	artichoke thistle	Asteraceae	A
forb	*Amsinckia menziesii*	small-flowered fiddleneck, rancher's fireweed	Boraginaceae	N
forb	*Cardamine californica var. californica*	milkmaids	Brassicaceae	N
forb	*Nasturtium officianale*	watercress	Brassicaceae	N
forb	*Cerastium glomeratum*	mouse-ear chickweed, sticky mouse-ear	Caryophyllaceae	A
forb	*Carex barbarae*	Santa Barbara sedge	Cyperaceae	N
forb	*Carex praegracilis*	clustered field sedge	Cyperaceae	N
forb	*Carex multicaulis*	forest sedge, many-stem sedge	Cyperaceae	N
forb	*Cyperus eragrostis*	tall flat sedge	Cyperaceae	N
forb	*Eleocharis macrostachya*	creeping spikerush, pale spikerush	Cyperaceae	N
forb	*Eleocharis obtusa*	blunt spikerush	Cyperaceae	N
forb	*Schoenopluctus acutus var. occidentalis*	tule, bulrush	Cyperaceae	N
forb	*Lotus corniculatus*	bird's-foot trefoil	Fabaceae	A
forb	*Lathyrus jepsonii var. californicus*	California tule pea	Fabaceae	N
forb	*Sanicula bipinnatifida*	purple sanicle	Apiaceae	N
forb	*Trifolium campestre*	hop clover	Fabaceae	A
forb	*Trifolium hirtum*	rose clover	Fabaceae	A
forb	*Trifolium subterraneum*	subterranean clover	Fabaceae	A
forb	*Geranium dissectum*	cut-leaved geranium	Geraniaceae	A

Habit	Species	Common Name	Family	Origin
forb	*Nemophila menziesii var. atomaria*	baby blue eyes	Hydrophyllaceae	N
forb	*Juncus balticus*	Baltic rush	Juncaceae	N
forb	*Juncus effusus var. pacificus*	Pacific bog rush	Juncaceae	N
forb	*Lemna aequinoctialis*	duckweed	Lemnaceae	N
forb	*Taraxia (Camissonia) ovata*	sun cup	Onagraceae	N
forb	*Eschscholzia californica*	California poppy	Papaveraceae	N
forb	*Rumex crispus*	curly dock	Polygonaceae	A
forb	*Ranunculus occidentalis*	western buttercup	Ranunculaceae	N
forb	*Galium porrigens var. porrigens*	climbing bedstraw, graceful bedstraw	Rubiaceae	N
forb	*Pedicularis densiflora*	warrior's plume, Indian warrior	Scrophulariaceae	N
forb	*Urtica dioica ssp. gracilis*	stinging nettle	Urticaceae	N
forb	*Viola lobata ssp. integrifolia*	pine violet, delta leaved forest violet	Violaceae	N
grass	*Alopecurus aegualis*	short-awn foxtail	Poaceae	N
grass	*Anthoxanthum odoratum*	sweet vernal grass	Poaceae	N
grass	*Bromus carinatus var. carinatus*	California brome	Poaceae	N
forb	*Galium aparine*	goose grass, common bedstraw	Rubiaceae	N
grass	*Bromus hordeaceus*	soft chess	Poaceae	A
grass	*Cynosurus echinatus*	hedgehog dogtail, annual dogtail	Poaceae	A
grass	*Elymus triticoides*	creeping wild rye	Poaceae	N
grass	*Festuca arundinacea*	reed fescue, tall fescue	Poaceae	A
grass	*Festuca perennis*	perennial ryegrass, Italian rye grass	Poaceae	A
grass	*Bromus laevipes*	woodland brome	Poaceae	N
grass	*Festuca californica*	California fescue	Poaceae	N
grass	*Hordeum brachyantherum ssp. brachyantherum*	meadow barley, northern barley	Poaceae	N
grass	*Poa annua*	annual bluegrass	Poaceae	A
grass	*Poa bulbosa*	bulbous bluegrass	Poaceae	A
grass	*Polypogon monspeliensis*	rabbits-foot grass, annual beardgrass	Poaceae	A

Habit	Species	Common Name	Family	Origin
shrub	*Toxicodendron diversilobum*	poison oak	Anacardiaceae	N
shrub	*Arctostaphylos glandulosa ssp. glandulosa*	Eastwood's manzanita	Ericaceae	N
shrub	***Arctostaphylos manzanita ssp. elegans***	**Konocti manzanita, CNPS Rank 1B.3**	**Ericaceae**	**N**
shrub	*Arctostaphylos manzanita ssp. manzanita*	common manzanita	Ericaceae	N
shrub	*Cercis occidentalis*	western redbud	Fabaceae	N
forb	*Osmorhiza berteroi*	mountain sweet cicely	Apiaceae	N
shrub	*Quercus berberidifolia*	California scrub oak	Fagaceae	N
shrub	*Quercus wislizeni var. frutescens*	interior live oak	Fagaceae	N
shrub	*Ceanothus integerrimus*	deerbrush	Rhamnaceae	N
shrub	*Amelanchier alnifolia var. semiintegrifolia*	Pacific serviceberry	Rosaceae	N
forb	*Delphinium nudicaule*	red larkspur	Ranunculaceae	N
shrub	*Prunus virginiana var. demissa*	western chokecherry	Rosaceae	N
forb	*Wyethia glabra*	green mule ears, shining mule ears	Asteraceae	N
forb	*Wyethia helenioides*	gray mule ears	Asteraceae	N
shrub	*Rubus armeniacus*	Himalayan blackberry	Rosaceae	A
shrub	*Cercocarpus betuloides var. betuloides*	birch-leaf mountain mahogany	Rosaceae	N
shrub	*Adenostoma fasciculatum*	chamise	Rosaceae	N
tree	*Quercus douglasii*	blue oak	Fagaceae	N
tree	*Quercus kelloggii*	California black oak	Fagaceae	N
tree	*Quercus lobata*	California valley oak	Fagaceae	N
tree	*Quercus wislizeni var. wislizeni*	interior live oak	Fagaceae	N
tree	*Umbellularia californica*	California bay	Lauraceae	N
tree	*Pinus attenuata*	knobcone pine	Pinaceae	N
tree	*Pinus ponderosa*	ponderosa pine	Pinaceae	N
tree	*Pinus sabiniana*	ghost pine, foothill pine	Pinaceae	N
tree	*Pseudotsuga menziesii var. menziesii*	Douglas fir	Pinaceae	N

N = Native, A = Alien

6.0 SUMMARY AND RECOMMENDATIONS

6.1 Summary: This preliminary biological resource assessment involved the following analyses of sensitive plants and wildlife potentially occurring in the vicinity of the property.

- Review of current California Natural Diversity Database (CNDDB) mapping of known sensitive plant and wildlife populations within the region.
- An analysis of the suitability of the site for sensitive plants and wildlife using the California Native Plant Society *Electronic Inventory of Rare and Endangered Vascular Plants of California,* and the California Department of Fish and Wildlife's *Wildlife Habitat Relationships System*.
- A delineation of waters of the U.S. conducted according to the *Corps of Engineers Wetlands Delineation Manual, January 1987* as updated by the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, 2008.*

Sensitive Plants: A total of 78 native and introduced plant taxa were identified on the property during the spring site visits. This does not constitute a floristic-level botanical survey within the survey area, as no late season surveys were conducted. **Konocti manzanita (*Arctostaphylos manzanita ssp. elegans*)**, a CNPS Rank 1B.1 sensitive species, occurs within the black oak woodland and chaparral.

As used here, the term sensitive includes species having state or federal regulatory status, defined as Rare Plant Ranks 1B through 4 by the California Native Plant Society, or otherwise listed in the California Natural Diversity Database. Plants ranked 1B are considered by regulatory agencies to qualify as rare under Section 15380(d) of the California Environmental Quality Act (CEQA) and thus require consideration and subsequent mitigation during CEQA review.

Sensitive Wildlife: A total of fourteen sensitive wildlife species were assessed for potential occurrence at the site because of inclusion in the CNDDB database for the quadrangle. Several raptors were added due to the presence of potential habitat.

Possible habitat occurs for the following species within the property:

- White-tailed kite
- Northern harrier
- Pallid bat
- Western pond turtle
- Foothill yellow-legged frog
- Red-bellied newt

Possible Waters of U.S.: The total area of all delineated waters of the U.S. is **45.88 acres**. Waters of the U.S. occurring within the survey area consist of wetlands and "other waters"

including streams, pursuant of Corps of Engineers Definitions (**see Appendix C, Delineation Report**).

6.2 Potential Impacts and Proposed Mitigation for Biological Resources:

1. Sensitive Wildlife:

Construction involving removal of woodland or grading within wetlands or other waters of the U.S. has a potential to adversely impact the following sensitive wildlife species.

- **Pallid bat**

  Potential Impacts: Removal of trees providing bat habitat during the maternity roosting season (April 1 through September 15) has the potential to result in an incidental take of pallid bats.

  Proposed Mitigation: If work is proposed within blue oak woodland or portions of the interior live oak woodland within the project area during the maternity roosting season (April 1 through September 15), trees with features capable of supporting roosting bats shall be surveyed by a qualified biologist for bat roosts or evidence of bat roosting (guano, urine staining, dead bats) within 14 days of the start of project activities or removal of vegetation. If active roosts are discovered, an exclusion buffer would be established around the active roost by a qualified bat biologist.

  Removal of trees and ground disturbing activities should be performed to the extent possible from September 16 through March 31, outside of the maternity roosting season. Following the felling of any tree or snag, it should be allowed to remain on the ground for 24 hours prior to chipping or removal to allow any bats to escape.

- **White-tailed kite; Northern harrier**

  Potential Impacts: Clearing or grading within 200 feet of nesting raptors has a potential to result in nest abandonment and incidental take of raptors with sensitive or protected status.

  Proposed Mitigation: Any vegetation clearing or grading within 200 feet of woodland habitat, or of wetland habitat (northern harrier), between February 15 and August 31 should be preceded by a survey for nests of

white-tailed kite conducted by a qualified biologist. In the event that this species (or other raptors protected under the Migratory Bird Act, or California Fish and Wildlife Code) are determined to be nesting within 200 feet (or less if deemed adequate) of proposed construction activities, construction should be delayed within the buffer until after August 31, or until fledging is completed as determined by a qualified biologist.

- **Nesting Passerines (perching birds):**

  Potential Impacts: Vegetation removal during the breeding season has a potential to result in an incidental take of nests and nestlings. The California Department of Fish and Wildlife requires surveys for all nesting birds prior to vegetation removal during the nesting season (February 1 through August 31) to avoid destruction of nests in compliance with Section 3503 of the California Fish and Wildlife Code (*Protection of Birds' Nests*), which states the following: *It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto.*

  Proposed Mitigation: Prior to the commencement of vegetation clearing during the breeding season, a survey for nesting birds should be conducted by a qualified biologist. In the event that nesting birds are found, a buffer should be established around the nest site as determined by the biologist and clearing within the buffer should not occur until either fledging is complete, the nest is abandoned, or until the end of the breeding season. Practical implementation of this measure would require removal of approved trees and vegetation outside of the breeding season because presence of breeding birds is highly likely.

- **Foothill yellow-legged frog, Red-bellied newt, Western pond turtle**

  Potential Impacts: Potential habitat for these sensitive wildlife species occurs along McIntire Creek and the surrounding wetland complex and they may be present. Loss of riparian or wetland habitat would potentially result in an incidental take of these California Species of Concern.

  Proposed Mitigation: Grading and vegetation clearing within 50 feet of McIntire Creek or wetlands on the property should be avoided. In the

event that avoidance is not possible, work should be preceded by surveys for these species. If they are found to be present, a mitigation plan should be prepared and submitted to the California Department of Fish and Wildlife for review and approval prior to project-related disturbance within the defined habitat and buffer.

2. Sensitive Plant Populations:

Construction and/or vegetation clearing within the California black oak woodland or interior live oak shrub community has a potential to impact plants with sensitive regulatory status.

- **Konocti manzanita**

  Potential Impacts: Konocti manzanita, a CNPS Rank 1B.3 sensitive species pursuant to Section 15380(d) of the CEQA Guidelines, occurs as scattered individuals ~20± per acre within the interior live oak shrub and California black oak woodland communities. Vegetation removal within these communities has the potential to result in the loss of some of these plants.

  Proposed Mitigation: Construction and vegetation clearing within the interior live oak chaparral or California black oak woodland should be preceded by a survey for/ and flagging of Konocti manzanita. Clearing and grading within these habitats should attempt to avoid these plants where possible. Due to the low density of the subspecies within these habitats and its extensive distribution within the region, removal of a moderate number of plants may not rise to the level of a significant adverse impact within the context of the CEQA Guidelines.

3. Woodlands and Forest:

Potential Impacts: Due to the presence of the extensive wetland habitat and intact surrounding valley oak woodland and adjacent black oak and blue oak forests, this property provides exceptional wildlife habitat. Impacts to woodlands (and wetlands and riparian habitat) here has a potential to significantly degrade this regional resource.

Proposed Mitigation: It is recommended that at a minimum, the central valley and wetland area and surrounding valley oak woodland be preserved as wildlife habitat. Ongoing cattle grazing (presumed to be

continuous since the late-1800's) would not be subject to regulatory permitting and would continue. Any regulatory restrictions would only apply to future construction or other non-agricultural development.

4. Habitat Fragmentation:

Potential Impacts: The wetlands, McIntire Creek riparian habitat, and surrounding valley and black oak woodlands form a significant part of a continuous, undeveloped wildlife corridor from Kelsey Creek to the headwaters of McIntire Creek east of the property. Construction or vegetation removal within this corridor has a potential to significantly degrade this regionally significant resource.

Proposed Mitigation: This mitigation is addressed in Item 3. above.

5. Waterways:

Potential Impacts: The 45.88 acres of wetlands and waterways on the property are mapped in **Appendix C, Figure W-2 (WOUS).** Filling or grading within these wetlands would impact waters of the U.S. Impacts to wildlife habitat associated with these aquatic resources are addressed above.

Proposed Mitigation:

If project activities would result in the fill of any waters mapped in Figure W-2, permits may be required from the following agencies:

- U.S. Army Corps of Engineers Nationwide Permit (If they determine these are waters of the U.S.)
- Regional Water Quality Control Board 401 Water Quality Certification
- California Department of Fish and Wildlife 1601 Stream Alteration Agreement

6. Erosion Control:

Potential Impacts: Vegetation clearing, and grading activities have a potential to result in sediment runoff to McIntire Creek.

Proposed Mitigation: All work in or near waterways and wetlands should incorporate extensive erosion control measures consistent with Lake County Grading Regulations in order to avoid erosion and the potential for transport of sediments to McIntire Creek. Coverage under the National Pollutant Discharge Elimination System (NPDES), General Permit for Storm Water Discharges associated with a Construction Activity (General Permit) and a Storm Water Pollution Prevention Plan (SWPPP) may be required.

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APPENDIX A

CNDDB SENSITIVE PLANT AND WILDLIFE SPECIES WITHIN THE

SURROUNDING CALIF. 7½' QUADS.

Surrounding 9-Quad List: Kelseyville Quadrangle

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FED.	CAL.	CDFG	CNPS
ASTI	*Dicamptodon ensatus*	California giant salamander	None	None	SSC	-
ASTI	*Rana boylii*	foothill yellow-legged frog	None	Cand Threat	SSC	-
ASTI	*Taricha rivularis*	red-bellied newt	None	None	SSC	-
ASTI	*Ardea herodias*	great blue heron	None	None	-	-
ASTI	*Entosphenus tridentatus*	Pacific lamprey	None	None	SSC	-
ASTI	*Hysterocarpus traskii pomo*	Russian River tule perch	None	None	SSC	-
ASTI	*Lavinia symmetricus ssp. 4*	Clear Lake - Russian River roach	None	None	SSC	-
ASTI	*Oncorhynchus mykiss irideus pop. 8*	steelhead - central California coast DPS	Threat	None	-	-
ASTI	*Oncorhynchus tshawytscha pop. 17*	chinook salmon - California coastal ESU	Threat	None	-	-
ASTI	*Bombus caliginosus*	obscure bumble bee	None	None	-	-
ASTI	*Antrozous pallidus*	pallid bat	None	None	SSC	-
ASTI	*Corynorhinus townsendii*	Townsend's big-eared bat	None	None	SSC	-
ASTI	*Erethizon dorsatum*	North American porcupine	None	None	-	-
ASTI	*Lasiurus blossevillii*	western red bat	None	None	SSC	-
ASTI	*Myotis yumanensis*	Yuma myotis	None	None	-	-
ASTI	*Emys marmorata*	western pond turtle	None	None	SSC	-
ASTI	*Arctostaphylos manzanita ssp. elegans*	Konocti manzanita	None	None	-	1B.3
ASTI	*Cypripedium montanum*	mountain lady's-slipper	None	None	-	4.2
CLEARLAKE HIGHLANDS	*Rana boylii*	foothill yellow-legged frog	None	Cand Threat	SSC	-
CLEARLAKE HIGHLANDS	*Rana draytonii*	California red-legged frog	Threat	None	SSC	-
CLEARLAKE HIGHLANDS	*Ardea alba*	great egret	None	None	-	-
CLEARLAKE HIGHLANDS	*Ardea herodias*	great blue heron	None	None	-	-
CLEARLAKE HIGHLANDS	*Coccyzus americanus occidentalis*	western yellow-billed cuckoo	Threat	End	-	-
CLEARLAKE HIGHLANDS	*Haliaeetus leucocephalus*	bald eagle	Delisted	End	FP	-
CLEARLAKE HIGHLANDS	*Strix occidentalis caurina*	Northern Spotted Owl	Threat	Threat	-	-
CLEARLAKE HIGHLANDS	*Archoplites interruptus*	Sacramento perch	None	None	SSC	-
CLEARLAKE HIGHLANDS	*Hysterocarpus traskii lagunae*	Clear Lake tule perch	None	None	SSC	-

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FED.	CAL.	CDFG	CNPS
CLEARLAKE HIGHLANDS	*Lavinia exilicauda chi*	Clear Lake hitch	None	Threat	-	-
CLEARLAKE HIGHLANDS	*Lavinia symmetricus ssp. 4*	Clear Lake - Russian River roach	None	None	SSC	-
CLEARLAKE HIGHLANDS	*Dubiraphia brunnescens*	brownish dubiraphian riffle beetle	None	None	-	-
CLEARLAKE HIGHLANDS	*Hedychridium milleri*	Borax Lake cuckoo wasp	None	None	-	-
CLEARLAKE HIGHLANDS	*Antrozous pallidus*	pallid bat	None	None	SSC	-
CLEARLAKE HIGHLANDS	*Corynorhinus townsendii*	Townsend's big-eared bat	None	None	SSC	-
CLEARLAKE HIGHLANDS	*Myotis lucifugus*	little brown bat	None	None	-	-
CLEARLAKE HIGHLANDS	*Myotis yumanensis*	Yuma myotis	None	None	-	-
CLEARLAKE HIGHLANDS	*Pyrgulopsis ventricosa*	Clear Lake pyrg	None	None	-	-
CLEARLAKE HIGHLANDS	*Emys marmorata*	western pond turtle	None	None	SSC	-
CLEARLAKE HIGHLANDS	*Clear Lake Drainage Resident Trout Stream*	Clear Lake Drainage Resident Trout Stream	None	None	-	-
CLEARLAKE HIGHLANDS	*Coastal and Valley Freshwater Marsh*	Coastal and Valley Freshwater Marsh	None	None	-	-
CLEARLAKE HIGHLANDS	*Northern Basalt Flow Vernal Pool*	Northern Basalt Flow Vernal Pool	None	None	-	-
CLEARLAKE HIGHLANDS	*Northern Volcanic Ash Vernal Pool*	Northern Volcanic Ash Vernal Pool	None	None	-	-
CLEARLAKE HIGHLANDS	*Antirrhinum virga*	twig-like snapdragon	None	None	-	4.3
CLEARLAKE HIGHLANDS	*Arctostaphylos manzanita ssp. elegans*	Konocti manzanita	None	None	-	1B.3
CLEARLAKE HIGHLANDS	*Arctostaphylos stanfordiana ssp. raichei*	Raiche's manzanita	None	None	-	1B.1
CLEARLAKE HIGHLANDS	*Brasenia schreberi*	watershield	None	None	-	2B.3
CLEARLAKE HIGHLANDS	*Calochortus uniflorus*	pink star-tulip	None	None	-	4.2
CLEARLAKE HIGHLANDS	*Calyptridium quadripetalum*	four-petaled pussypaws	None	None	-	4.3
CLEARLAKE HIGHLANDS	*Cordylanthus tenuis ssp. brunneus*	serpentine bird's-beak	None	None	-	4.3
CLEARLAKE HIGHLANDS	*Eriastrum brandegeeae*	Brandegee's eriastrum	None	None	-	1B.1
CLEARLAKE HIGHLANDS	*Eryngium constancei*	Loch Lomond button-celery	End	End	-	1B.1
CLEARLAKE HIGHLANDS	*Gratiola heterosepala*	Boggs Lake hedge-hyssop	None	End	-	1B.2
CLEARLAKE HIGHLANDS	*Harmonia hallii*	Hall's harmonia	None	None	-	1B.2
CLEARLAKE HIGHLANDS	*Hemizonia congesta ssp. calyculata*	Mendocino tarplant	None	None	-	4.3
CLEARLAKE HIGHLANDS	*Hesperolinon bicarpellatum*	two-carpellate western flax	None	None	-	1B.2
CLEARLAKE HIGHLANDS	*Horkelia bolanderi*	Bolander's horkelia	None	None	-	1B.2
CLEARLAKE HIGHLANDS	*Imperata brevifolia*	California satintail	None	None	-	2B.1

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FED.	CAL.	CDFG	CNPS
CLEARLAKE HIGHLANDS	*Lasthenia burkei*	Burke's goldfields	End	End	-	1B.1
CLEARLAKE HIGHLANDS	*Leptosiphon acicularis*	bristly leptosiphon	None	None	-	4.2
CLEARLAKE HIGHLANDS	*Limnanthes floccosa ssp. floccosa*	woolly meadowfoam	None	None	-	4.2
CLEARLAKE HIGHLANDS	*Myosurus minimus ssp. apus*	little mousetail	None	None	-	3.1
CLEARLAKE HIGHLANDS	*Navarretia leucocephala ssp. bakeri*	Baker's navarretia	None	None	-	1B.1
CLEARLAKE HIGHLANDS	*Navarretia leucocephala ssp. pauciflora*	few-flowered navarretia	End	Threat	-	1B.1
CLEARLAKE HIGHLANDS	*Navarretia leucocephala ssp. plieantha*	many-flowered navarretia	End	End	-	1B.2
CLEARLAKE HIGHLANDS	*Piperia michaelii*	Michael's rein orchid	None	None	-	4.2
CLEARLAKE HIGHLANDS	*Potamogeton zosteriformis*	eel-grass pondweed	None	None	-	2B.2
CLEARLAKE HIGHLANDS	*Sedella leiocarpa*	Lake County stonecrop	End	End	-	1B.1
CLEARLAKE HIGHLANDS	*Sidalcea oregana ssp. hydrophila*	marsh checkerbloom	None	None	-	1B.2
CLEARLAKE HIGHLANDS	*Toxicoscordion fontanum*	marsh zigadenus	None	None	-	4.2
CLEARLAKE HIGHLANDS	*Viburnum ellipticum*	oval-leaved viburnum	None	None	-	2B.3
CLEARLAKE OAKS	*Haliaeetus leucocephalus*	bald eagle	Delisted	End	FP	-
CLEARLAKE OAKS	*Pandion haliaetus*	osprey	None	None	WL	-
CLEARLAKE OAKS	*Strix occidentalis caurina*	Northern Spotted Owl	Threat	Threat	-	-
CLEARLAKE OAKS	*Archoplites interruptus*	Sacramento perch	None	None	SSC	-
CLEARLAKE OAKS	*Hysterocarpus traskii lagunae*	Clear Lake tule perch	None	None	SSC	-
CLEARLAKE OAKS	*Lavinia exilicauda chi*	Clear Lake hitch	None	Threat	-	-
CLEARLAKE OAKS	*Dubiraphia brunnescens*	brownish dubiraphian riffle beetle	None	None	-	-
CLEARLAKE OAKS	*Antrozous pallidus*	pallid bat	None	None	SSC	-
CLEARLAKE OAKS	*Corynorhinus townsendii*	Townsend's big-eared bat	None	None	SSC	-
CLEARLAKE OAKS	*Myotis yumanensis*	Yuma myotis	None	None	-	-
CLEARLAKE OAKS	*Pekania pennanti*	fisher - West Coast DPS	None	Threat	SSC	-
CLEARLAKE OAKS	*Gonidea angulata*	western ridged mussel	None	None	-	-
CLEARLAKE OAKS	*Emys marmorata*	western pond turtle	None	None	SSC	-
CLEARLAKE OAKS	*Great Valley Mixed Riparian Forest*	Great Valley Mixed Riparian Forest	None	None	-	-
CLEARLAKE OAKS	*Arctostaphylos manzanita ssp. elegans*	Konocti manzanita	None	None	-	1B.3
CLEARLAKE OAKS	*Brasenia schreberi*	watershield	None	None	-	2B.3

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FED.	CAL.	CDFG	CNPS
CLEARLAKE OAKS	*Calyptridium quadripetalum*	four-petaled pussypaws	None	None	-	4.3
CLEARLAKE OAKS	*Erythronium helenae*	St. Helena fawn lily	None	None	-	4.2
CLEARLAKE OAKS	*Hemizonia congesta ssp. calyculata*	Mendocino tarplant	None	None	-	4.3
CLEARLAKE OAKS	*Layia septentrionalis*	Colusa layia	None	None	-	1B.2
CLEARLAKE OAKS	*Leptosiphon acicularis*	bristly leptosiphon	None	None	-	4.2
CLEARLAKE OAKS	*Potamogeton zosteriformis*	eel-grass pondweed	None	None	-	2B.2
HIGHLAND SPRINGS	*Rana boylii*	foothill yellow-legged frog	None	Cand Threat	SSC	-
HIGHLAND SPRINGS	*Taricha rivularis*	red-bellied newt	None	None	SSC	-
HIGHLAND SPRINGS	*Agelaius tricolor*	tricolored blackbird	None	Threat	SSC	-
HIGHLAND SPRINGS	*Aquila chrysaetos*	golden eagle	None	None	FP ; WL	-
HIGHLAND SPRINGS	*Artemisiospiza belli belli*	Bell's sage sparrow	None	None	WL	-
HIGHLAND SPRINGS	*Lavinia exilicauda chi*	Clear Lake hitch	None	Threat	-	-
HIGHLAND SPRINGS	*Oncorhynchus mykiss irideus pop. 8*	steelhead - central California coast DPS	Threat	None	-	-
HIGHLAND SPRINGS	*Emys marmorata*	western pond turtle	None	None	SSC	-
HIGHLAND SPRINGS	*Amsinckia lunaris*	bent-flowered fiddleneck	None	None	-	1B.2
HIGHLAND SPRINGS	*Antirrhinum subcordatum*	dimorphic snapdragon	None	None	-	4.3
HIGHLAND SPRINGS	*Arctostaphylos manzanita ssp. elegans*	Konocti manzanita	None	None	-	1B.3
HIGHLAND SPRINGS	*Arctostaphylos stanfordiana ssp. raichei*	Raiche's manzanita	None	None	-	1B.1
HIGHLAND SPRINGS	*Astragalus breweri*	Brewer's milk-vetch	None	None	-	4.2
HIGHLAND SPRINGS	*Calycadenia micrantha*	small-flowered calycadenia	None	None	-	1B.2
HIGHLAND SPRINGS	*Calyptridium quadripetalum*	four-petaled pussypaws	None	None	-	4.3
HIGHLAND SPRINGS	*Calystegia collina ssp. oxyphylla*	Mt. Saint Helena morning-glory	None	None	-	4.2
HIGHLAND SPRINGS	*Clarkia gracilis ssp. tracyi*	Tracy's clarkia	None	None	-	4.2
HIGHLAND SPRINGS	*Cryptantha dissita*	serpentine cryptantha	None	None	-	1B.2
HIGHLAND SPRINGS	*Fritillaria purdyi*	Purdy's fritillary	None	None	-	4.3
HIGHLAND SPRINGS	*Hesperolinon adenophyllum*	glandular western flax	None	None	-	1B.2
HIGHLAND SPRINGS	*Horkelia bolanderi*	Bolander's horkelia	None	None	-	1B.2
HIGHLAND SPRINGS	*Layia septentrionalis*	Colusa layia	None	None	-	1B.2
HIGHLAND SPRINGS	*Leptosiphon acicularis*	bristly leptosiphon	None	None	-	4.2

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FED.	CAL.	CDFG	CNPS
HIGHLAND SPRINGS	*Trichostema ruygtii*	Napa bluecurls	None	None	-	1B.2
KELSEYVILLE	*Rana boylii*	foothill yellow-legged frog	None	Cand Threat	SSC	-
KELSEYVILLE	*Taricha rivularis*	red-bellied newt	None	None	SSC	-
KELSEYVILLE	*Pandion haliaetus*	osprey	None	None	WL	-
KELSEYVILLE	*Progne subis*	purple martin	None	None	SSC	-
KELSEYVILLE	*Calasellus californicus*	An isopod	None	None	-	-
KELSEYVILLE	*Linderiella occidentalis*	California linderiella	None	None	-	-
KELSEYVILLE	*Lavinia exilicauda chi*	Clear Lake hitch	None	Threat	-	-
KELSEYVILLE	*Lavinia symmetricus ssp. 4*	Clear Lake - Russian River roach	None	None	SSC	-
KELSEYVILLE	*Bombus caliginosus*	obscure bumble bee	None	None	-	-
KELSEYVILLE	*Hydrochara rickseckeri*	Ricksecker's water scavenger beetle	None	None	-	-
KELSEYVILLE	*Erethizon dorsatum*	North American porcupine	None	None	-	-
KELSEYVILLE	*Emys marmorata*	western pond turtle	None	None	SSC	-
KELSEYVILLE	*Clear Lake Drainage Cyprinid/Catostomid Stream*	Clear Lake Drainage Cyprinid/Catostomid Stream	None	None	-	-
KELSEYVILLE	*Clear Lake Drainage Resident Trout Stream*	Clear Lake Drainage Resident Trout Stream	None	None	-	-
KELSEYVILLE	*Clear Lake Drainage Seasonal Lakefish Spawning Stream*	Clear Lake Drainage Seasonal Lakefish Spawning Stream	None	None	-	-
KELSEYVILLE	*Northern Volcanic Ash Vernal Pool*	Northern Volcanic Ash Vernal Pool	None	None	-	-
KELSEYVILLE	*Amsinckia lunaris*	bent-flowered fiddleneck	None	None	-	1B.2
KELSEYVILLE	*Arctostaphylos manzanita ssp. elegans*	Konocti manzanita	None	None	-	1B.3
KELSEYVILLE	*Arctostaphylos stanfordiana ssp. raichei*	Raiche's manzanita	None	None	-	1B.1
KELSEYVILLE	*Astragalus breweri*	Brewer's milk-vetch	None	None	-	4.2
KELSEYVILLE	*Azolla microphylla*	Mexican mosquito fern	None	None	-	4.2
KELSEYVILLE	*Brasenia schreberi*	watershield	None	None	-	2B.3
KELSEYVILLE	*Calyptridium quadripetalum*	four-petaled pussypaws	None	None	-	4.3
KELSEYVILLE	*Clarkia gracilis ssp. tracyi*	Tracy's clarkia	None	None	-	4.2
KELSEYVILLE	*Cordylanthus tenuis ssp. brunneus*	serpentine bird's-beak	None	None	-	4.3
KELSEYVILLE	*Eriastrum brandegeeae*	Brandegee's eriastrum	None	None	-	1B.1

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FED.	CAL.	CDFG	CNPS
KELSEYVILLE	*Gratiola heterosepala*	Boggs Lake hedge-hyssop	None	End	-	1B.2
KELSEYVILLE	*Harmonia hallii*	Hall's harmonia	None	None	-	1B.2
KELSEYVILLE	*Hesperolinon adenophyllum*	glandular western flax	None	None	-	1B.2
KELSEYVILLE	*Horkelia bolanderi*	Bolander's horkelia	None	None	-	1B.2
KELSEYVILLE	*Lasthenia burkei*	Burke's goldfields	End	End	-	1B.1
KELSEYVILLE	*Layia septentrionalis*	Colusa layia	None	None	-	1B.2
KELSEYVILLE	*Legenere limosa*	legenere	None	None	-	1B.1
KELSEYVILLE	*Leptosiphon acicularis*	bristly leptosiphon	None	None	-	4.2
KELSEYVILLE	*Limnanthes floccosa ssp. floccosa*	woolly meadowfoam	None	None	-	4.2
KELSEYVILLE	*Micropus amphibolus*	Mt. Diablo cottonweed	None	None	-	3.2
KELSEYVILLE	*Monardella viridis*	green monardella	None	None	-	4.3
KELSEYVILLE	*Navarretia leucocephala ssp. pauciflora*	few-flowered navarretia	End	Threat	-	1B.1
KELSEYVILLE	*Navarretia leucocephala ssp. plieantha*	many-flowered navarretia	End	End	-	1B.2
KELSEYVILLE	*Orcuttia tenuis*	slender Orcutt grass	Threat	End	-	1B.1
KELSEYVILLE	*Potamogeton zosteriformis*	eel-grass pondweed	None	None	-	2B.2
KELSEYVILLE	*Sidalcea oregana ssp. hydrophila*	marsh checkerbloom	None	None	-	1B.2
KELSEYVILLE	*Streptanthus barbiger*	bearded jewelflower	None	None	-	4.2
KELSEYVILLE	*Trichostema ruygtii*	Napa bluecurls	None	None	-	1B.2
LAKEPORT	*Agelaius tricolor*	tricolored blackbird	None	Threat	SSC	-
LAKEPORT	*Ardea alba*	great egret	None	None	-	-
LAKEPORT	*Ardea herodias*	great blue heron	None	None	-	-
LAKEPORT	*Egretta thula*	snowy egret	None	None	-	-
LAKEPORT	*Elanus leucurus*	white-tailed kite	None	None	FP	-
LAKEPORT	*Haliaeetus leucocephalus*	bald eagle	Delisted	End	FP	-
LAKEPORT	*Nycticorax nycticorax*	black-crowned night heron	None	None	-	-
LAKEPORT	*Pandion haliaetus*	osprey	None	None	WL	-
LAKEPORT	*Phalacrocorax auritus*	double-crested cormorant	None	None	WL	-
LAKEPORT	*Archoplites interruptus*	Sacramento perch	None	None	SSC	-
LAKEPORT	*Hysterocarpus traskii lagunae*	Clear Lake tule perch	None	None	SSC	-

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FED.	CAL.	CDFG	CNPS
LAKEPORT	*Lavinia exilicauda chi*	Clear Lake hitch	None	Threat	-	-
LAKEPORT	*Lavinia symmetricus ssp. 4*	Clear Lake - Russian River roach	None	None	SSC	-
LAKEPORT	*Andrena blennospermatis*	Blennosperma vernal pool andrenid bee	None	None	-	-
LAKEPORT	*Bombus occidentalis*	western bumble bee	None	Cand End	-	-
LAKEPORT	*Dubiraphia brunnescens*	brownish dubiraphian riffle beetle	None	None	-	-
LAKEPORT	*Pekania pennanti*	fisher - West Coast DPS	None	Threat	SSC	-
LAKEPORT	*Taxidea taxus*	American badger	None	None	SSC	-
LAKEPORT	*Emys marmorata*	western pond turtle	None	None	SSC	-
LAKEPORT	*Coastal and Valley Freshwater Marsh*	Coastal and Valley Freshwater Marsh	None	None	-	-
LAKEPORT	*Amsinckia lunaris*	bent-flowered fiddleneck	None	None	-	1B.2
LAKEPORT	*Antirrhinum virga*	twig-like snapdragon	None	None	-	4.3
LAKEPORT	*Arctostaphylos manzanita ssp. elegans*	Konocti manzanita	None	None	-	1B.3
LAKEPORT	*Astragalus breweri*	Brewer's milk-vetch	None	None	-	4.2
LAKEPORT	*Brasenia schreberi*	watershield	None	None	-	2B.3
LAKEPORT	*Clarkia gracilis ssp. tracyi*	Tracy's clarkia	None	None	-	4.2
LAKEPORT	*Cryptantha dissita*	serpentine cryptantha	None	None	-	1B.2
LAKEPORT	*Erythranthe nudata*	bare monkeyflower	None	None	-	4.3
LAKEPORT	*Fritillaria purdyi*	Purdy's fritillary	None	None	-	4.3
LAKEPORT	*Hesperolinon adenophyllum*	glandular western flax	None	None	-	1B.2
LAKEPORT	*Layia septentrionalis*	Colusa layia	None	None	-	1B.2
LAKEPORT	*Leptosiphon acicularis*	bristly leptosiphon	None	None	-	4.2
LAKEPORT	*Leptosiphon latisectus*	broad-lobed leptosiphon	None	None	-	4.3
LAKEPORT	*Plagiobothrys lithocaryus*	Mayacamas popcornflower	None	None	-	1A
LAKEPORT	*Ranunculus lobbii*	Lobb's aquatic buttercup	None	None	-	4.2
LAKEPORT	*Tracyina rostrata*	beaked tracyina	None	None	-	1B.2
LUCERNE	*Rana draytonii*	California red-legged frog	Threat	None	SSC	-
LUCERNE	*Taricha rivularis*	red-bellied newt	None	None	SSC	-
LUCERNE	*Ardea herodias*	great blue heron	None	None	-	-
LUCERNE	*Branta hutchinsii leucopareia*	cackling (=Aleutian Canada) goose	Delisted	None	WL	-

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FED.	CAL.	CDFG	CNPS
LUCERNE	*Falco mexicanus*	prairie falcon	None	None	WL	-
LUCERNE	*Haliaeetus leucocephalus*	bald eagle	Delisted	End	FP	-
LUCERNE	*Pandion haliaetus*	osprey	None	None	WL	-
LUCERNE	*Phalacrocorax auritus*	double-crested cormorant	None	None	WL	-
LUCERNE	*Strix occidentalis caurina*	Northern Spotted Owl	Threat	Threat	-	-
LUCERNE	*Archoplites interruptus*	Sacramento perch	None	None	SSC	-
LUCERNE	*Hysterocarpus traskii lagunae*	Clear Lake tule perch	None	None	SSC	-
LUCERNE	*Lavinia exilicauda chi*	Clear Lake hitch	None	Threat	-	-
LUCERNE	*Dubiraphia brunnescens*	brownish dubiraphian riffle beetle	None	None	-	-
LUCERNE	*Corynorhinus townsendii*	Townsend's big-eared bat	None	None	SSC	-
LUCERNE	*Lasionycteris noctivagans*	silver-haired bat	None	None	-	-
LUCERNE	*Gonidea angulata*	western ridged mussel	None	None	-	-
LUCERNE	*Emys marmorata*	western pond turtle	None	None	SSC	-
LUCERNE	*Clear Lake Drainage Cyprinid/Catostomid Stream*	Clear Lake Drainage Cyprinid/Catostomid Stream	None	None	-	-
LUCERNE	*Clear Lake Drainage Seasonal Lakefish Spawning Stream*	Clear Lake Drainage Seasonal Lakefish Spawning Stream	None	None	-	-
LUCERNE	*Coastal and Valley Freshwater Marsh*	Coastal and Valley Freshwater Marsh	None	None	-	-
LUCERNE	*Amsinckia lunaris*	bent-flowered fiddleneck	None	None	-	1B.2
LUCERNE	*Arctostaphylos manzanita ssp. elegans*	Konocti manzanita	None	None	-	1B.3
LUCERNE	*Hesperolinon adenophyllum*	glandular western flax	None	None	-	1B.2
LUCERNE	*Hesperolinon bicarpellatum*	two-carpellate western flax	None	None	-	1B.2
LUCERNE	*Layia septentrionalis*	Colusa layia	None	None	-	1B.2
LUCERNE	*Leptosiphon acicularis*	bristly leptosiphon	None	None	-	4.2
LUCERNE	*Leptosiphon latisectus*	broad-lobed leptosiphon	None	None	-	4.3
LUCERNE	*Lupinus antoninus*	Anthony Peak lupine	None	None	-	1B.2
LUCERNE	*Potamogeton zosteriformis*	eel-grass pondweed	None	None	-	2B.2
THE GEYSERS	*Dicamptodon ensatus*	California giant salamander	None	None	SSC	-
THE GEYSERS	*Rana boylii*	foothill yellow-legged frog	None	Cand Threat	SSC	-

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FED.	CAL.	CDFG	CNPS
THE GEYSERS	*Taricha rivularis*	red-bellied newt	None	None	SSC	-
THE GEYSERS	*Progne subis*	purple martin	None	None	SSC	-
THE GEYSERS	*Entosphenus tridentatus*	Pacific lamprey	None	None	SSC	-
THE GEYSERS	*Hysterocarpus traskii pomo*	Russian River tule perch	None	None	SSC	-
THE GEYSERS	*Lavinia symmetricus ssp. 4*	Clear Lake - Russian River roach	None	None	SSC	-
THE GEYSERS	*Oncorhynchus mykiss irideus pop. 8*	steelhead - central California coast DPS	Threat	None	-	-
THE GEYSERS	*Bombus occidentalis*	western bumble bee	None	Cand End	-	-
THE GEYSERS	*Emys marmorata*	western pond turtle	None	None	SSC	-
THE GEYSERS	*Clear Lake Drainage Resident Trout Stream*	Clear Lake Drainage Resident Trout Stream	None	None	-	-
THE GEYSERS	*Antirrhinum virga*	twig-like snapdragon	None	None	-	4.3
THE GEYSERS	*Arctostaphylos manzanita ssp. elegans*	Konocti manzanita	None	None	-	1B.3
THE GEYSERS	*Asclepias solanoana*	serpentine milkweed	None	None	-	4.2
THE GEYSERS	*Astragalus breweri*	Brewer's milk-vetch	None	None	-	4.2
THE GEYSERS	*Astragalus clevelandii*	Cleveland's milk-vetch	None	None	-	4.3
THE GEYSERS	*Calamagrostis ophitidis*	serpentine reed grass	None	None	-	4.3
THE GEYSERS	*Calyptridium quadripetalum*	four-petaled pussypaws	None	None	-	4.3
THE GEYSERS	*Calystegia collina ssp. oxyphylla*	Mt. Saint Helena morning-glory	None	None	-	4.2
THE GEYSERS	*Calystegia collina ssp. tridactylosa*	three-fingered morning-glory	None	None	-	1B.2
THE GEYSERS	*Ceanothus confusus*	Rincon Ridge ceanothus	None	None	-	1B.1
THE GEYSERS	*Ceanothus divergens*	Calistoga ceanothus	None	None	-	1B.2
THE GEYSERS	*Clarkia gracilis ssp. tracyi*	Tracy's clarkia	None	None	-	4.2
THE GEYSERS	*Collomia diversifolia*	serpentine collomia	None	None	-	4.3
THE GEYSERS	*Cordylanthus tenuis ssp. brunneus*	serpentine bird's-beak	None	None	-	4.3
THE GEYSERS	*Eriastrum brandegeeae*	Brandegee's eriastrum	None	None	-	1B.1
THE GEYSERS	*Erythronium helenae*	St. Helena fawn lily	None	None	-	4.2
THE GEYSERS	*Fritillaria purdyi*	Purdy's fritillary	None	None	-	4.3
THE GEYSERS	*Harmonia hallii*	Hall's harmonia	None	None	-	1B.2
THE GEYSERS	*Hesperolinon adenophyllum*	glandular western flax	None	None	-	1B.2
THE GEYSERS	*Layia septentrionalis*	Colusa layia	None	None	-	1B.2

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FED.	CAL.	CDFG	CNPS
THE GEYSERS	*Leptosiphon acicularis*	bristly leptosiphon	None	None	-	4.2
THE GEYSERS	*Lupinus sericatus*	Cobb Mountain lupine	None	None	-	1B.2
THE GEYSERS	*Navarretia leucocephala ssp. pauciflora*	few-flowered navarretia	End	Threat	-	1B.1
THE GEYSERS	*Panicum acuminatum var. thermale*	Geysers panicum	None	End	-	1B.2
THE GEYSERS	*Sidalcea oregana ssp. hydrophila*	marsh checkerbloom	None	None	-	1B.2
THE GEYSERS	*Streptanthus barbiger*	bearded jewelflower	None	None	-	4.2
THE GEYSERS	*Streptanthus brachiatus ssp. brachiatus*	Socrates Mine jewelflower	None	None	-	1B.2
THE GEYSERS	*Streptanthus glandulosus ssp. hoffmanii*	Hoffman's bristly jewelflower	None	None	-	1B.3
WHISPERING PINES	*Dicamptodon ensatus*	California giant salamander	None	None	SSC	-
WHISPERING PINES	*Rana boylii*	foothill yellow-legged frog	None	Cand Threat	SSC	-
WHISPERING PINES	*Rana draytonii*	California red-legged frog	Threat	None	SSC	-
WHISPERING PINES	*Taricha rivularis*	red-bellied newt	None	None	SSC	-
WHISPERING PINES	*Progne subis*	purple martin	None	None	SSC	-
WHISPERING PINES	*Strix occidentalis caurina*	Northern Spotted Owl	Threat	Threat	-	-
WHISPERING PINES	*Bombus occidentalis*	western bumble bee	None	Cand End	-	-
WHISPERING PINES	*Antrozous pallidus*	pallid bat	None	None	SSC	-
WHISPERING PINES	*Corynorhinus townsendii*	Townsend's big-eared bat	None	None	SSC	-
WHISPERING PINES	*Lasiurus blossevillii*	western red bat	None	None	SSC	-
WHISPERING PINES	*Lasiurus cinereus*	hoary bat	None	None	-	-
WHISPERING PINES	*Myotis evotis*	long-eared myotis	None	None	-	-
WHISPERING PINES	*Myotis thysanodes*	fringed myotis	None	None	-	-
WHISPERING PINES	*Emys marmorata*	western pond turtle	None	None	SSC	-
WHISPERING PINES	*Central Valley Drainage Rainbow Trout/ Cyprinid Stream*	Central Valley Drainage Rainbow Trout/Cyprinid Stream	None	None	-	-
WHISPERING PINES	*Clear Lake Drainage Resident Trout Stream*	Clear Lake Drainage Resident Trout Stream	None	None	-	-
WHISPERING PINES	*Grimmia torenii*	Toren's grimmia	None	None	-	1B.3
WHISPERING PINES	*Mielichhoferia elongata*	elongate copper moss	None	None	-	4.3
WHISPERING PINES	*Amsinckia lunaris*	bent-flowered fiddleneck	None	None	-	1B.2
WHISPERING PINES	*Antirrhinum subcordatum*	dimorphic snapdragon	None	None	-	4.3

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FED.	CAL.	CDFG	CNPS
WHISPERING PINES	*Antirrhinum virga*	twig-like snapdragon	None	None	-	4.3
WHISPERING PINES	*Arabis blepharophylla*	coast rockcress	None	None	-	4.3
WHISPERING PINES	*Arctostaphylos manzanita ssp. elegans*	Konocti manzanita	None	None	-	1B.3
WHISPERING PINES	*Arctostaphylos stanfordiana ssp. raichei*	Raiche's manzanita	None	None	-	1B.1
WHISPERING PINES	*Asclepias solanoana*	serpentine milkweed	None	None	-	4.2
WHISPERING PINES	*Astragalus breweri*	Brewer's milk-vetch	None	None	-	4.2
WHISPERING PINES	*Astragalus clevelandii*	Cleveland's milk-vetch	None	None	-	4.3
WHISPERING PINES	*Astragalus rattanii var. jepsonianus*	Jepson's milk-vetch	None	None	-	1B.2
WHISPERING PINES	*Calamagrostis ophitidis*	serpentine reed grass	None	None	-	4.3
WHISPERING PINES	*Calyptridium quadripetalum*	four-petaled pussypaws	None	None	-	4.3
WHISPERING PINES	*Calystegia collina ssp. oxyphylla*	Mt. Saint Helena morning-glory	None	None	-	4.2
WHISPERING PINES	*Carex praticola*	northern meadow sedge	None	None	-	2B.2
WHISPERING PINES	*Ceanothus confusus*	Rincon Ridge ceanothus	None	None	-	1B.1
WHISPERING PINES	*Ceanothus divergens*	Calistoga ceanothus	None	None	-	1B.2
WHISPERING PINES	*Chlorogalum pomeridianum var. minus*	dwarf soaproot	None	None	-	1B.2
WHISPERING PINES	*Collomia diversifolia*	serpentine collomia	None	None	-	4.3
WHISPERING PINES	*Cordylanthus tenuis ssp. brunneus*	serpentine bird's-beak	None	None	-	4.3
WHISPERING PINES	*Cordylanthus tenuis ssp. capillaris*	Pennell's bird's-beak	End	Rare	-	1B.2
WHISPERING PINES	*Delphinium uliginosum*	swamp larkspur	None	None	-	4.2
WHISPERING PINES	*Downingia willamettensis*	Cascade downingia	None	None	-	2B.2
WHISPERING PINES	*Erigeron greenei*	Greene's narrow-leaved daisy	None	None	-	1B.2
WHISPERING PINES	*Eriogonum nervulosum*	Snow Mountain buckwheat	None	None	-	1B.2
WHISPERING PINES	*Eryngium constancei*	Loch Lomond button-celery	End	End	-	1B.1
WHISPERING PINES	*Erythranthe nudata*	bare monkeyflower	None	None	-	4.3
WHISPERING PINES	*Erythronium helenae*	St. Helena fawn lily	None	None	-	4.2
WHISPERING PINES	*Fritillaria purdyi*	Purdy's fritillary	None	None	-	4.3
WHISPERING PINES	*Helianthus exilis*	serpentine sunflower	None	None	-	4.2
WHISPERING PINES	*Hesperolinon adenophyllum*	glandular western flax	None	None	-	1B.2
WHISPERING PINES	*Hesperolinon bicarpellatum*	two-carpellate western flax	None	None	-	1B.2

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FED.	CAL.	CDFG	CNPS
WHISPERING PINES	*Horkelia bolanderi*	Bolander's horkelia	None	None	-	1B.2
WHISPERING PINES	*Imperata brevifolia*	California satintail	None	None	-	2B.1
WHISPERING PINES	*Layia septentrionalis*	Colusa layia	None	None	-	1B.2
WHISPERING PINES	*Legenere limosa*	legenere	None	None	-	1B.1
WHISPERING PINES	*Leptosiphon acicularis*	bristly leptosiphon	None	None	-	4.2
WHISPERING PINES	*Leptosiphon grandiflorus*	large-flowered leptosiphon	None	None	-	4.2
WHISPERING PINES	*Leptosiphon jepsonii*	Jepson's leptosiphon	None	None	-	1B.2
WHISPERING PINES	*Lupinus sericatus*	Cobb Mountain lupine	None	None	-	1B.2
WHISPERING PINES	*Navarretia leucocephala ssp. bakeri*	Baker's navarretia	None	None	-	1B.1
WHISPERING PINES	*Navarretia leucocephala ssp. pauciflora*	few-flowered navarretia	End	Threat	-	1B.1
WHISPERING PINES	*Navarretia leucocephala ssp. plieantha*	many-flowered navarretia	End	End	-	1B.2
WHISPERING PINES	*Panicum acuminatum var. thermale*	Geysers panicum	None	End	-	1B.2
WHISPERING PINES	*Penstemon newberryi var. sonomensis*	Sonoma beardtongue	None	None	-	1B.3
WHISPERING PINES	*Sedella leiocarpa*	Lake County stonecrop	End	End	-	1B.1
WHISPERING PINES	*Sidalcea oregana ssp. hydrophila*	marsh checkerbloom	None	None	-	1B.2
WHISPERING PINES	*Streptanthus brachiatus ssp. brachiatus*	Socrates Mine jewelflower	None	None	-	1B.2
WHISPERING PINES	*Streptanthus brachiatus ssp. hoffmanii*	Freed's jewelflower	None	None	-	1B.2
WHISPERING PINES	*Streptanthus hesperidis*	green jewelflower	None	None	-	1B.2

9 QUAD KEY:

CNPS Rare Plant-Threat Rank Definitions:

1B.1 = Rare, threatened, or endangered in California and elsewhere; seriously threatened in California
1B.2 = Rare, threatened, or endangered in California and elsewhere; fairly threatened in California
1B.3 = Rare, threatened, or endangered in California and elsewhere; not very threatened in California
2A = Presumed extinct in California, but extant elsewhere
2B.1 = Rare, threatened, or endangered in Calif., but more common elsewhere; seriously threatened in Calif.
2B.2 = Rare, threatened, or endangered in Calif., but more common elsewhere; fairly threatened in Calif.
2B.3 = Rare, threatened, or endangered in Calif., but more common elsewhere; not very threatened in Calif.
3 = Plants about which we need more information (Review List)
3.1 = Plants about which we need more information (Review List); seriously threatened in California
3.2 = Plants about which we need more information (Review List); fairly threatened in California
3.3 = Plants about which we need more information (Review List); not very threatened in California
4.1 = Plants of limited distribution (watch list); seriously threatened in California
4.2 = Plants of limited distribution (watch list); fairly threatened in California
4.3 = Plants of limited distribution (watch list); not very threatened in California

CDFW / State and Federal Status:

SE/ST/SD = State Endangered/Threatened/Delisted
SC/SCD = State Candidate for Listing/Delisting
SSC = CDFW Species of Special Concern
SFP = State Fully Protected
WL = CDFW Watch List
FE/FT/FD = Federal Endangered/Threatened/Delisted
FPE/FPT/FPD/FP = Federal Proposed Endangered/Threatened/Delisting
FC = Federal Candidate

State and Federal Status:

Threat = Threatened
End = Endangered
Prop = Proposed
Cand = Candidate
Cand End/Threat = State Candidate for Endangered/Threatened

APPENDIX B

WILDLIFE HABITAT RELATIONSHIPS SYSTEM RESULTS

CALIFORNIA WILDLIFE HABITAT RELATIONSHIPS SYSTEM
supported by the
CALIFORNIA INTERAGENCY WILDLIFE TASK GROUP
and maintained by the
CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE
Database Version: 9.0

SPECIES SUMMARY REPORT

FE = Federal Endangered
FT = Federal Threatened
CE = California Endangered
CT = California Threatened
CF = California Fully Protected
CP = California Protected
SC = California Species of Special Concern
PE = Federally-Proposed Endangered
PT = Federally-Proposed Threatened
FC = Federal Candidate
BL = BLM Sensitive
FS = USFS Sensitive
CD = CDF Sensitive
HA = Harvest

Note: Any given status code for a species may apply to the full species or to only one or more subspecies or distinct population segments.

ID	SPECIES NAME	STATUS	NATIVE/INTRODUCED
A012	COMMON ENSATINA	SC BL FS	NATIVE
A014	CALIFORNIA SLENDER SALAMANDER		NATIVE
A020	SPECKLED BLACK SALAMANDER		NATIVE
A039	PACIFIC TREEFROG		NATIVE
A071	CALIFORNIA RED-LEGGED FROG	FT SC	NATIVE
B052	GREAT EGRET	CD	NATIVE
B053	SNOWY EGRET		NATIVE
B057	CATTLE EGRET		NATIVE
B058	GREEN HERON		NATIVE
B059	BLACK-CROWNED NIGHT HERON		NATIVE
B067	TUNDRA SWAN		NATIVE
B079	MALLARD	HA	NATIVE
B080	NORTHERN PINTAIL	HA	NATIVE
B084	NORTHERN SHOVELER	HA	NATIVE
B086	EURASIAN WIGEON	HA	NATIVE
B107	RUDDY DUCK	HA	NATIVE
B108	TURKEY VULTURE		NATIVE
B111	WHITE-TAILED KITE	CF BL	NATIVE
B114	NORTHERN HARRIER	SC	NATIVE
B115	SHARP-SHINNED HAWK		NATIVE
B116	COOPER'S HAWK		NATIVE
B117	NORTHERN GOSHAWK	SC BL FS CD	NATIVE
B119	RED-SHOULDERED HAWK		NATIVE

ID	SPECIES NAME	STATUS			NATIVE/INTRODUCED
B123	RED-TAILED HAWK				NATIVE
B124	FERRUGINOUS HAWK				NATIVE
B125	ROUGH-LEGGED HAWK				NATIVE
B126	GOLDEN EAGLE	CF	BL	CD	NATIVE
B127	AMERICAN KESTREL				NATIVE
B128	MERLIN				NATIVE
B131	PRAIRIE FALCON				NATIVE
B141	MOUNTAIN QUAIL			HA	NATIVE
B146	SORA				NATIVE
B148	COMMON GALLINULE			HA	NATIVE
B165	GREATER YELLOWLEGS				NATIVE
B166	LESSER YELLOWLEGS				NATIVE
B170	SPOTTED SANDPIPER				NATIVE
B183	WESTERN SANDPIPER				NATIVE
B185	LEAST SANDPIPER				NATIVE
B196	SHORT-BILLED DOWITCHER				NATIVE
B197	LONG-BILLED DOWITCHER				NATIVE
B200	WILSON'S PHALAROPE				NATIVE
B215	CALIFORNIA GULL				NATIVE
B251	BAND-TAILED PIGEON			HA	NATIVE
B260	GREATER ROADRUNNER				NATIVE
B263	FLAMMULATED OWL				NATIVE
B264	WESTERN SCREECH OWL				NATIVE
B265	GREAT HORNED OWL				NATIVE
B267	NORTHERN PYGMY OWL				NATIVE
B269	BURROWING OWL	SC	BL		NATIVE
B272	LONG-EARED OWL	SC			NATIVE
B273	SHORT-EARED OWL	SC			NATIVE
B274	NORTHERN SAW-WHET OWL				NATIVE
B277	COMMON POORWILL				NATIVE
B281	VAUX'S SWIFT	SC			NATIVE
B287	ANNA'S HUMMINGBIRD				NATIVE
B291	RUFOUS HUMMINGBIRD				NATIVE
B292	ALLEN'S HUMMINGBIRD				NATIVE
B294	LEWIS' S WOODPECKER				NATIVE

ID	SPECIES NAME	STATUS	NATIVE/INTRODUCED
B299	RED-BREASTED SAPSUCKER		NATIVE
B302	NUTTALL'S WOODPECKER		NATIVE
B303	DOWNY WOODPECKER		NATIVE
B304	HAIRY WOODPECKER		NATIVE
B307	NORTHERN FLICKER		NATIVE
B309	OLIVE-SIDED FLYCATCHER	SC	NATIVE
B311	WESTERN WOOD-PEWEE		NATIVE
B317	HAMMOND'S FLYCATCHER		NATIVE
B320	PACIFIC-SLOPE FLYCATCHER		NATIVE
B323	SAY'S PHOEBE		NATIVE
B326	ASH-THROATED FLYCATCHER		NATIVE
B333	WESTERN KINGBIRD		NATIVE
B337	HORNED LARK		NATIVE
B338	PURPLE MARTIN	SC	NATIVE
B339	TREE SWALLOW		NATIVE
B340	VIOLET-GREEN SWALLOW		NATIVE
B341	NORTHERN ROUGH-WINGED SWALLOW		NATIVE
B346	STELLER'S JAY		NATIVE
B348	WESTERN SCRUB-JAY		NATIVE
B352	YELLOW-BILLED MAGPIE		NATIVE
B353	AMERICAN CROW	HA	NATIVE
B357	CHESTNUT-BACKED CHICKADEE		NATIVE
B358	OAK TITMOUSE		NATIVE
B360	BUSHTIT		NATIVE
B361	RED-BREASTED NUTHATCH		NATIVE
B362	WHITE-BREASTED NUTHATCH		NATIVE
B363	PYGMY NUTHATCH		NATIVE
B364	BROWN CREEPER		NATIVE
B367	CANYON WREN		NATIVE
B368	BEWICK'S WREN	SC	NATIVE
B369	HOUSE WREN		NATIVE
B370	WINTER WREN		NATIVE
B376	RUBY-CROWNED KINGLET		NATIVE
B377	BLUE-GRAY GNATCATCHER		NATIVE
B381	MOUNTAIN BLUEBIRD		NATIVE

ID	SPECIES NAME	STATUS		NATIVE/INTRODUCED
B382	TOWNSEND'S SOLITAIRE			NATIVE
B385	SWAINSON'S THRUSH			NATIVE
B386	HERMIT THRUSH			NATIVE
B389	AMERICAN ROBIN			NATIVE
B390	VARIED THRUSH			NATIVE
B391	WRENTIT			NATIVE
B393	NORTHERN MOCKINGBIRD			NATIVE
B398	CALIFORNIA THRASHER			NATIVE
B404	AMERICAN PIPIT			NATIVE
B407	CEDAR WAXWING			NATIVE
B408	PHAINOPEPLA			NATIVE
B410	LOGGERHEAD SHRIKE	FE	SC	NATIVE
B415	CASSIN'S VIREO			NATIVE
B417	HUTTON'S VIREO		SC	NATIVE
B418	WARBLING VIREO			NATIVE
B425	ORANGE-CROWNED WARBLER			NATIVE
B426	NASHVILLE WARBLER			NATIVE
B430	YELLOW WARBLER		SC	NATIVE
B435	YELLOW-RUMPED WARBLER			NATIVE
B436	BLACK-THROATED GRAY WARBLER			NATIVE
B437	TOWNSEND'S WARBLER			NATIVE
B438	HERMIT WARBLER			NATIVE
B461	COMMON YELLOWTHROAT		SC	NATIVE
B463	WILSON'S WARBLER			NATIVE
B471	WESTERN TANAGER			NATIVE
B475	BLACK-HEADED GROSBEAK			NATIVE
B477	LAZULI BUNTING			NATIVE
B482	GREEN-TAILED TOWHEE			NATIVE
B483	SPOTTED TOWHEE		SC	NATIVE
B484	CALIFORNIA TOWHEE	FT CE		NATIVE
B487	RUFOUS-CROWNED SPARROW		SC	NATIVE
B489	CHIPPING SPARROW			NATIVE
B493	BLACK-CHINNED SPARROW			NATIVE
B495	LARK SPARROW			NATIVE
B497	BELL'S SPARROW	FT	SC	NATIVE

ID	SPECIES NAME	STATUS				NATIVE/INTRODUCED
B499	SAVANNAH SPARROW	CE	SC			NATIVE
B501	GRASSHOPPER SPARROW		SC			NATIVE
B504	FOX SPARROW					NATIVE
B505	SONG SPARROW		SC			NATIVE
B506	LINCOLN'S SPARROW					NATIVE
B509	GOLDEN-CROWNED SPARROW					NATIVE
B510	WHITE-CROWNED SPARROW					NATIVE
B512	DARK-EYED JUNCO					NATIVE
B521	WESTERN MEADOWLARK					NATIVE
B522	YELLOW-HEADED BLACKBIRD		SC			NATIVE
B528	BROWN-HEADED COWBIRD					NATIVE
B532	BULLOCK'S ORIOLE					NATIVE
B536	PURPLE FINCH					NATIVE
B539	RED CROSSBILL					NATIVE
B542	PINE SISKIN					NATIVE
B543	LESSER GOLDFINCH					NATIVE
B544	LAWRENCE'S GOLDFINCH					NATIVE
B545	AMERICAN GOLDFINCH					NATIVE
B546	EVENING GROSBEAK					NATIVE
B554	PLUMBEOUS VIREO					NATIVE
B699	BARRED OWL					NATIVE
M006	ORNATE SHREW	FE	SC			NATIVE
M018	BROAD-FOOTED MOLE		SC			NATIVE
M033	WESTERN RED BAT		SC	FS		NATIVE
M034	HOARY BAT					NATIVE
M037	TOWNSEND'S BIG-EARED BAT		SC	BL FS		NATIVE
M038	PALLID BAT		SC	BL FS		NATIVE
M039	BRAZILIAN FREE-TAILED BAT					NATIVE
M045	BRUSH RABBIT	FE	CE		HA	NATIVE
M047	AUDUBON'S COTTONTAIL				HA	NATIVE
M051	BLACK-TAILED JACKRABBIT		SC		HA	NATIVE
M055	YELLOW-PINE CHIPMUNK					NATIVE
M057	SHADOW CHIPMUNK					NATIVE
M059	SONOMA CHIPMUNK					NATIVE
M072	CALIFORNIA GROUND SQUIRREL					NATIVE

ID	SPECIES NAME	STATUS					NATIVE/INTRODUCED
M075	GOLDEN-MANTLED GROUND SQUIRREL						NATIVE
M077	WESTERN GRAY SQUIRREL					HA	NATIVE
M079	DOUGLAS' SQUIRREL					HA	NATIVE
M080	NORTHERN FLYING SQUIRREL			SC	FS		NATIVE
M081	BOTTA'S POCKET GOPHER						NATIVE
M084	MAZAMA POCKET GOPHER						NATIVE
M087	SAN JOAQUIN POCKET MOUSE			SC	BL		NATIVE
M105	CALIFORNIA KANGAROO RAT			SC			NATIVE
M113	WESTERN HARVEST MOUSE						NATIVE
M117	DEER MOUSE			SC			NATIVE
M119	BRUSH MOUSE						NATIVE
M120	PINYON MOUSE						NATIVE
M127	DUSKY-FOOTED WOODRAT	FE		SC			NATIVE
M134	CALIFORNIA VOLE	FE	CE	SC	BL		NATIVE
M146	COYOTE					HA	NATIVE
M149	GRAY FOX					HA	NATIVE
M151	BLACK BEAR					HA	NATIVE
M152	RINGTAIL		CF				NATIVE
M156	ERMINE					HA	NATIVE
M157	LONG-TAILED WEASEL					HA	NATIVE
M160	AMERICAN BADGER			SC		HA	NATIVE
M162	STRIPED SKUNK					HA	NATIVE
M165	MOUNTAIN LION			SC			NATIVE
M166	BOBCAT					HA	NATIVE
M177	ELK					HA	NATIVE
M181	MULE DEER					HA	NATIVE
R022	WESTERN FENCE LIZARD						NATIVE
R023	COMMON SAGEBRUSH LIZARD				BL		NATIVE
R036	WESTERN SKINK			SC	BL		NATIVE
R039	TIGER WHIPTAIL						NATIVE
R040	SOUTHERN ALLIGATOR LIZARD						NATIVE
R042	NORTHERN ALLIGATOR LIZARD						NATIVE
R046	NORTHERN RUBBER BOA		CT		FS		NATIVE
R048	RING-NECKED SNAKE				FS		NATIVE
R049	COMMON SHARP-TAILED SNAKE						NATIVE

ID	SPECIES NAME	STATUS	NATIVE/INTRODUCED
R051	NORTH AMERICAN RACER		NATIVE
R053	STRIPED RACER	FT CT	NATIVE
R057	GOPHERSNAKE	SC	NATIVE
R058	EASTERN KINGSNAKE		NATIVE
R059	CALIFORNIA MOUNTAIN KINGSNAKE	SC BL FS	NATIVE
R060	LONG-NOSED SNAKE		NATIVE
R061	COMMON GARTERSNAKE	FE CE CF SC	NATIVE
R062	TERRESTRIAL GARTERSNAKE		NATIVE
R071	DESERT NIGHTSNAKE		NATIVE
R076	WESTERN RATTLESNAKE		NATIVE

Total Number of Species: 208

Query Parameters

Included Locations
Lake Co

Included Location Seasons
Migrant, Summer, Winter, Yearlong

Included Habitats & (Stages)
Annual Grassland, Blue Oak Woodland, Closed-cone Pine-cypress, Fresh Emergent Wetland, Mixed Chaparral, Montane Hardwood, Valley Oak Woodland, Wet Meadow

Habitat Suitability Threshold
Reproduction - Medium, Cover - Medium, Feeding - Medium

Included Habitat Seasons
Migrant, Summer, Winter, Yearlong

Excluded Elements
Bogs, Brush Pile, Buildings, Campground, Cave, Cliff, Dump, Fish, Grass/agriculture, Jetty, Kelp, Lakes, Mine, Mud Flats, Nest Box, Nest Island, Nest Platform, Pack Stations, Ponds, Riparian Inclusion, Rivers, Salt Ponds, Sand Dune, Shrub/agriculture, Soil - Gravelly, Soil - Organic, Soil - Saline, Soil - Sandy, Springs, Springs - Hot, Springs - Mineral, Streams - Permanent, Talus, Tidepools, Transmission Lines, Tree/agriculture, Trees - Fir, Vernal Pools, Water, Water - Created Body, Water - Fast, Water/agriculture, Wharf

Included Species: All Species Included

Included Special Statuses: Native

APPENDIX C

DELINEATION REPORT

DELINEATION OF WATERS OF THE U.S.:
AQUATIC RESOURCES REPORT

1.0 Purpose and Methodology

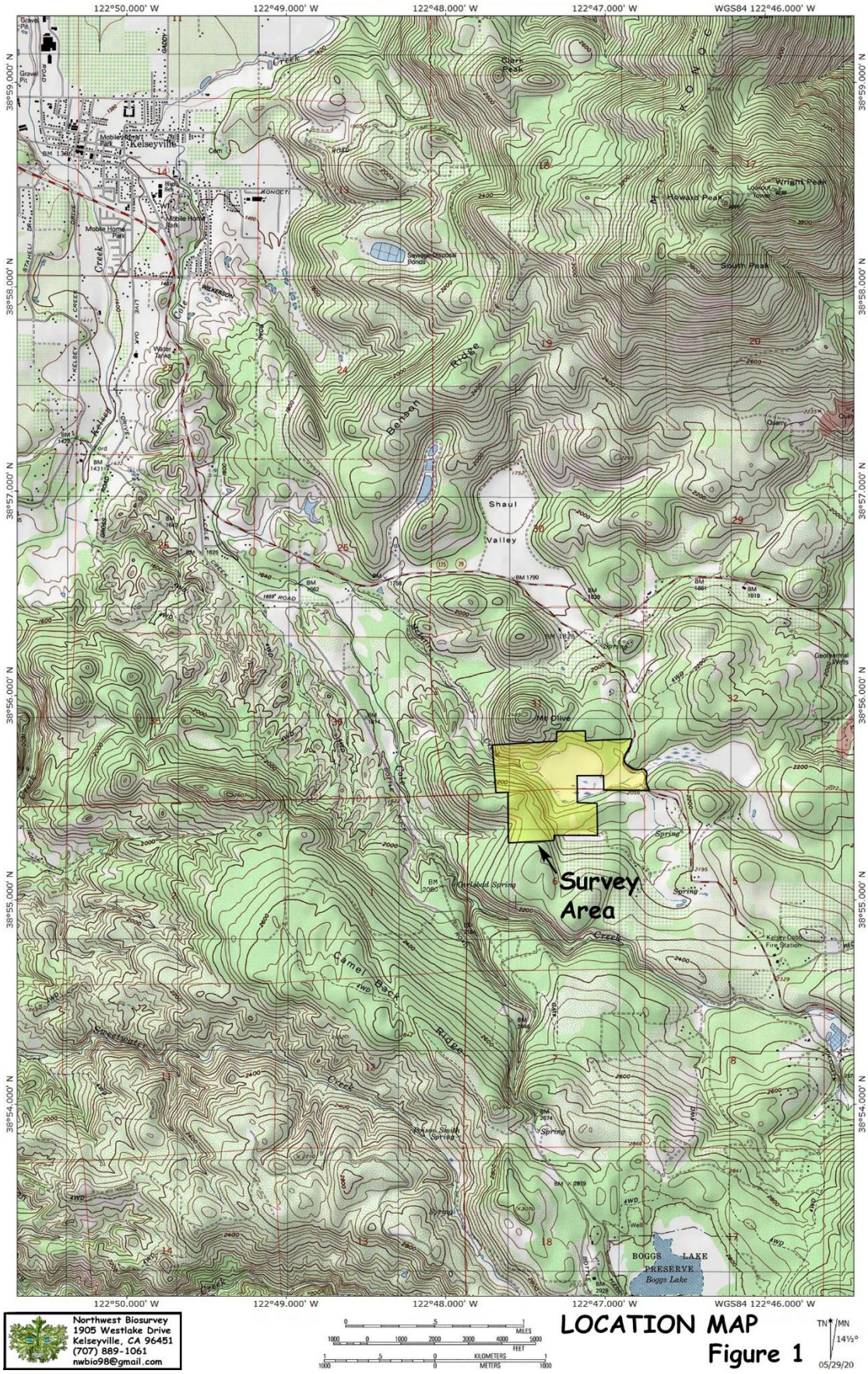
1.1 Purpose of Delineation: This delineation has been conducted at the request of the property owner in order to determine the extent of possible waters of the U.S. on the project.

1.2 Delineation Procedure: This delineation has been conducted as prescribed in the *Corps of Engineers Wetlands Delineation Manual*, January 1987, and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, 2008.* Plant taxonomy and nomenclature is from the *Jepson Manual, Higher Plants of California*, 2012. Other texts, such as Munz's *A California Flora and Supplement* 1973, and Mason's *Flora of the Marshes of California,*1957, were used as supplemental texts; however, all nomenclature and wetland indicator status have been checked with the U.S. Army Corps of Engineers. 2016. *National Wetland Plant Lists: Arid West* and *California*. The survey included use of Google satellite images, 7.5' USGS quadrangle maps, and LIDAR mapped overlays along with an extensive foot survey. The results of the delineation are mapped on a 1"=250' aerial photo.

1.3 Delineation Dates: Delineation fieldwork was completed on February 26, March 3, and April 30, 2020.

1.4 Delineation Staff: The delineation was conducted by Steve Zalusky, Northwest Biosurvey principal biologist. Mr. Zalusky has a Master of Science Degree in Biology from the California State University at Northridge and a Bachelor of Science Degree in Zoology from the University of California at Santa Barbara. Mr. Zalusky has more than 35 years of experience as a biologist in the government and private sectors. He completed his wetland delineation training under Terry Huffman of Huffman & Associates, Inc.

Fieldwork, wetland forms, with mapping were also conducted by Leigh Zalusky. Leigh Zalusky has a Bachelor of Science Degree in Engineering from the University of California, Davis. He has also developed extensive skills in plant taxonomy and ecology while managing and assisting in the development of the Seigler Valley Wetland Mitigation Bank and while assisting Northwest Biosurvey staff in field surveys and vegetation mapping over the past three years.


122°50.000' W
122°49.000' W
122°48.000' W
122°47.000' W
WGS84 122°46.000' W
38°59.000' N
38°58.000' N
38°57.000' N
38°56.000' N
38°55.000' N
38°54.000' N
Survey Area
Kelseyville
Clark Peak
Wright Peak
Howard Peak
South Peak
Shaul Valley
Bevasn Ridge
Camel Back Ridge
Hill Drive
BOGGS LAKE PRESERVE
Boggs Lake
Northwest Biosurvey
1905 Westlake Drive
Kelseyville, CA 96451
(707) 889-1061
nwbio98@gmail.com
LOCATION MAP
Figure 1
05/29/20

2.0 Existing Conditions

2.1 Location: The project site is located on Highway 175 south of the intersection with Highway 29 on APNs 009-022-67, 011-055-20 & 21, Kelseyville, California (T12N R8W Sec. 4 & 5, T13N R8W Sec. 31, 32 & 33; Kelseyville, Calif. 7½' Topographic Map). A location map is provided in **Figure 1**.

2.2 Site Topography and Drainage: The Hanson property is located in the Mayacamas Mountains within the Clear Lake Basin. It occupies a small mountain valley and the adjacent slopes between Camel Back Ridge and Mount Olive. The valley is at an elevation of approximately 2,040 feet msl (mean sea level). The property rises to an elevation of 2,280 feet msl on the ridgetop to the west. It drains to McIntire Creek which has its confluence with Kelsey Creek approximately three miles to the northwest. Kelsey Creek drains to Clear Lake through the Big Valley. The basin drains east to the Sacramento River via Cache Creek. The topography is shown in **Figure 1**.

3.2 Soils: The property contains the following soil types:

- **Aiken-Sobrante Association, 5-15% slopes (soil unit 101):**
- **Aiken-Sobrante Association, 15-30% slopes (soil unit 102);**

  These map units are on hills and mountains. They contain Aiken loam (on north- and east-facing slopes) and Sobrante loam (on south- and west-facing slopes). The Aiken soil is very deep and well drained; it formed in material weathered from basalt. Permeability is relatively slow; surface runoff is medium, and the hazard of erosion is moderate. The Sobrante loam is moderated deep and well drained. It formed in material weathered from basalt. Permeability is moderate. Surface runoff is medium, and the hazard of erosion is moderate. These soil units occur within the wooded areas between the two wetlands and the woodland west of the main wetland.

- **Benridge-Konocti association, 15-30% slopes (soil unit 112):**
- **Benridge-Konocti association, 30-50% slopes (soil unit 113):**

  These map units are on hills and mountains. They are comprised of 40% Benridge loam, 20-30% Konocti cobbly loam, and 15-20% Konocti stony loam. The Konocti soils are on the upper part of side slopes, on ridgetops, and in ravines. Some Rock outcrop and boulders are including in this association. Typical vegetation is brush on south-and east-facing slopes, and brush with scattered conifers and hardwoods on north- and west-facing slopes, including manzanita, chamise, and California scrub oak with some areas of knobcone pine. Both soils are moderately deep to very deep and well-drained. They formed in materials derived from volcanic ash, andesite, basalt, or dacite. Permeability is moderately slow, runoff is rapid, and the hazard of erosion is severe. These soils occur on the western parts of the property.

- **Bottlerock-Glenview-Arrowhead complex, 5-30% slopes (soil unit 117):**
  This map unit is on volcanic hills. Vegetation is mainly brush, including manzanita and ceanothus, with scattered conifers. The complex consists of about 50% Bottlerock extremely gravelly loam, 20% Glenview very gravelly loam, and 15% Arrowhead extremely gravelly sandy loam. All soils are deep and well drained and formed in material weathered from obsidian. Permeability ranges from slow to moderately slow, runoff is rapid, and the hazard of erosion is moderate to severe. This soil complex is located in the woodland west of the highway.

- **Clear Lake Variant clay, drained (soil unit 122):**
  This soil occurs within the two wetlands on the property. This very deep soil is in basins. It formed under poorly drained conditions; however, drainage has been improved as a result of entrenchment of stream channels. The soil formed in lacustrine deposits derived from mixed rock sources. The soil consists of clay or clay loam to more than 72 inches in depth. Permeability of this soil is slow. Surface runoff is slow, and the hazard of erosion is slight. The soil is subject to rare periods of flooding and ponding during prolonged storms. The shrink-swell potential is high. Natural vegetation includes annual grasses, forbs, and scattered oaks.

3.0 Aquatic Resources Results

3.1 Wetland Vegetation:

Most of the property is undeveloped but heavily grazed (perhaps since the late-1800s). The wetland itself is herbaceous. Plants identified within the wetland are listed below in **Table W-1** with their stratum and indicator status. Since 2008, a number of changes in wetland indicator status of several plant species have been made pursuant to the Army Corps of Engineer's *The National Wetland Plant List* and the *Arid West 2016 Regional Wetland Plant List*. Additionally, a number of species and common names were revised in the 2012 Jepson Manual.

TABLE W-1. PLANTS OCCURRING WITHIN THE HANSON PROPERTY

Stratum	Species	Common name	Wetland Indicator Status*
herb	*Anthoxanthum odoratum*	sweet vernal grass	**FAC**
herb	*Carex praegracilis*	clustered field sedge	**FACW**
herb	*Cerastium glomeratum*	mouse-ear chickweed, sticky mouse-ear	UPL
herb	*Eleocharis obtusa*	blunt spikerush	**OBL**
herb	*Hordeum brachyantherum ssp. brachyantherum*	meadow barley, northern barley	**FACW**
herb	*Juncus balticus*	Baltic rush	**FACW**
herb	*Juncus effusus var. pacificus*	Pacific bog rush	**FACW**
herb	*Lotus corniculatus*	bird's-foot trefoil	**FAC**
herb	*Rumex crispus*	curly dock	**FAC**
herb	*Urtica dioica ssp. gracilis*	stinging nettle	**FAC**

*Wetland Indicator Status:

OBL = Occurs in aquatic resources >99% of time
FACW = Occurs in aquatic resources 67-99% of time
FAC = Occurs in aquatic resources 34-66% of time
FACU = Occurs in aquatic resources 1-33% of time
UPL = Occurs in uplands >99% of time
NI = Indicator status not known in this region

3.2 Wetland Soils:

The soils within the property are classified as Clear Lake Variant clay, drained. This is a hydric soil based on the Natural Resources Conservation District's National Wetland Indicator criteria: (2B3) soils that are frequently ponded for long duration or very long duration during the growing season; (3) soils that are frequently flooded for long duration or very long duration during the growing season.

Soil colors are consistent throughout the wetlands. Wetland sample points (WSP) 1, 3, 5, 7, 9, 12 & 13 are described as 10YR/2.5/1 (Matrix), 2.5YR/4/4 (Redox Features, 5%). The hydric soil indicator(s) for all of these sample points is F6 (Redox Dark Surface).

3.3 Wetland Hydrology:

Saturation was present to a depth of 18 inches during the site visits. Surface water was present at WSP 5 to 12 inches deep. Other hydrologic indicators occurring include water-stained leaves (B9). Saturation is also visible on aerial photos.

3.4 Waters of the U.S:

The results of the delineation are shown on the aerial photo base map provided in **Figure W-2** of this report. Waters of the U.S. within the property consist of wetlands and stream channels. The Wetland Sample Points (WSPs) that qualify as wetland are mapped in Figure W-2. Wetland sample points are shown in light green and upland sample points are shown in red; stream channels are shown in purple and light and dark blue. Delineation forms corresponding to each numbered WSP are provided in **Attachment A**.

The total area of all delineated wetlands and other waters is **45.88 acres**. The delineation results are shown below in **Table 2**.

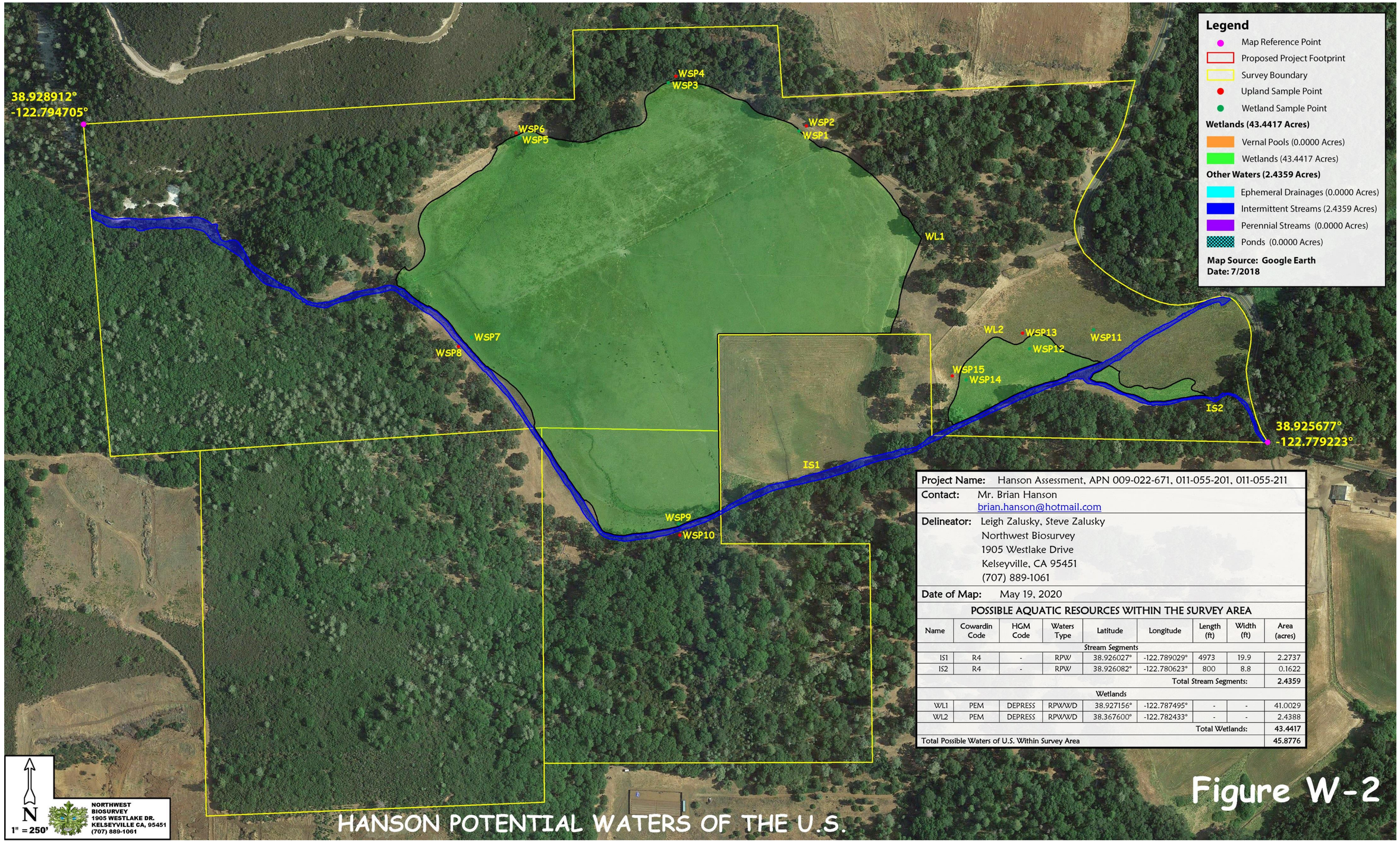
TABLE 2. POSSIBLE AQUATIC RESOURCES WITHIN THE SURVEY AREA

Name	Cowardin Code	HGM Code	Waters Type	Latitude	Longitude	Length (ft)	Width (ft)	Area (acres)
Stream Segments								
IS1	R4	-	RPW	38.926027°	-122.789029°	4973	19.9	2.2737
IS2	R4	-	RPW	38.926082°	-122.780623°	800	8.8	0.1622
							Total Stream Segments:	**2.4359**
Wetlands								
WL1	PEM	DEPRESS	RPWWD	38.927156°	-122.787495°	-	-	41.0029
WL2	PEM	DEPRESS	RPWWD	38.367600°	-122.782433°	-	-	2.4388
							Total Wetlands:	**43.4417**
Total Possible Waters of U.S. Within Survey Area								**45.8776**

4.0 Recommendations

Any work proposed within the possible waters of the U.S. will require permits from the following:

- U.S. Army Corps of Engineers (Nationwide Permit)
- Regional Water Quality Control Board (Water Quality Certification 401 permit)
- California Department of Fish and Wildlife (1602 Stream Alteration Agreement)



Project Name: Hanson Assessment, APN 009-022-671, 011-055-201, 011-055-211

Contact: Mr. Brian Hanson
brian.hanson@hotmail.com

Delineator: Leigh Zalusky, Steve Zalusky
Northwest Biosurvey
1905 Westlake Drive
Kelseyville, CA 95451
(707) 889-1061

Date of Map: May 19, 2020

POSSIBLE AQUATIC RESOURCES WITHIN THE SURVEY AREA

Name	Cowardin Code	HGM Code	Waters Type	Latitude	Longitude	Length (ft)	Width (ft)	Area (acres)
Stream Segments								
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WL2	PEM	DEPRESS	RPWWD	38.367600°	-122.782433°	-	-	2.4388
							Total Wetlands:	43.4417
Total Possible Waters of U.S. Within Survey Area								45.8776

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Attachment A

WETLAND DELINEATION DATA FORMS
FOR
SAMPLE POINTS 1 – 15

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Hanson Preliminary | City/County: Lake Co. | Sampling Date: 4/30/2020

Applicant/Owner: Brian Hanson | State: CA | Sampling Point: WSP1

Investigator(s): Steve Zalusky, Leigh Zalusky | Section, Township, Range: S.31 T16N-R8W

Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): none | Slope (%): 1

Subregion (LRR): C - Mediterranean California | Lat: 38 55.729'N | Long: -122 47.109W | Datum: WGS84

Soil Map Unit Name: Clear Lake Variant clay, drained | NWI classification: 2B3,3

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ◉	No ○	
Hydric Soil Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Juncus balticus*	80	Yes	FACW
2. *Hordeum brachyantherum ssp. brachyantherum*	10	No	FACW
3. *Poa annua*	5	No	FAC
4. *Cerastium glomeratum*	5	No	UPL
5.			
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	90	x 2 =	180
FAC species	5	x 3 =	15
FACU species		x 4 =	0
UPL species	5	x 5 =	25
Column Totals:	100 (A)		220 (B)

Prevalence Index = B/A = 2.20

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

US Army Corps of Engineers

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SOIL

Sampling Point: WSP1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
18	10YR/2.5/1	100	2.5YR/4/4	5	RM	M	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ◉ No ○ Depth (inches): 10

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

US Army Corps of Engineers

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WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Hanson Preliminary | City/County: Lake Co. | Sampling Date: 4/30/2020

Applicant/Owner: Brian Hanson | State: CA | Sampling Point: WSP2

Investigator(s): Steve Zalusky, Leigh Zalusky | Section, Township, Range: S.31 T16N-R8W

Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 38 55.733'N | Long: -122 47.114W | Datum: WGS84

Soil Map Unit Name: Clear Lake Variant clay, drained | NWI classification: 2B3,3

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ○	No ◉	
Hydric Soil Present?	Yes ○	No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ○	No ◉	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Bromus hordeaceus*	40	Yes	FACU
2. *Festuca perennis*	30	No	Not Listed
3. *Juncus balticus*	10	No	FACW
4. *Hordeum marinum ssp. gussoneanum*	10	No	Not Listed
5. *Poa annua*	10	No	FAC
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	10	x 2 =	20
FAC species	10	x 3 =	30
FACU species	40	x 4 =	160
UPL species	40	x 5 =	200
Column Totals:	100 (A)		410 (B)

Prevalence Index = B/A = 4.10

Hydrophytic Vegetation Indicators:

- ◉ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

US Army Corps of Engineers

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SOIL

Sampling Point: WSP2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ○ No ◉

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

Remarks:

US Army Corps of Engineers

Arid West - Version 11-1-2006

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Hanson Preliminary | City/County: Lake Co. | Sampling Date: 4/30/2020

Applicant/Owner: Brian Hanson | State: CA | Sampling Point: WSP3

Investigator(s): Steve Zalusky, Leigh Zalusky | Section, Township, Range: S.31 T16N-R8W

Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): none | Slope (%): 1

Subregion (LRR): C - Mediterranean California | Lat: 38 55.759'N | Long: -122 47.223W | Datum: WGS84

Soil Map Unit Name: Clear Lake Variant clay, drained | NWI classification: 2B3,3

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Eleocharis obtusa*	60	Yes	OBL
2. *Urtica dioica ssp. gracilis*	20	No	FAC
3. *Juncus balticus*	10	No	FACW
4.			
5.			
6.			
7.			
8.			
Total Cover:	90 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 10 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	60	x 1 =	60
FACW species	10	x 2 =	20
FAC species	20	x 3 =	60
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	90 (A)		140 (B)

Prevalence Index = B/A = 1.56

Hydrophytic Vegetation Indicators:

- [x] Dominance Test is >50%
- [x] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

US Army Corps of Engineers

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SOIL

Sampling Point: WSP3

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
18	10YR/2.5/1	100	2.5YR/4/4	5	RM	M	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☒ Inundation Visible on Aerial Imagery (B7)
- ☒ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ◉ No ○ Depth (inches): 10

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

US Army Corps of Engineers

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WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Hanson Preliminary | City/County: Lake Co. | Sampling Date: 4/30/2020

Applicant/Owner: Brian Hanson | State: CA | Sampling Point: WSP4

Investigator(s): Steve Zalusky, Leigh Zalusky | Section, Township, Range: S.31 T16N-R8W

Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 38 55.762'N | Long: -122 47.217W | Datum: WGS84

Soil Map Unit Name: Clear Lake Variant clay, drained | NWI classification: 2B3,3

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Hordeum marinum ssp. gussoneanum*	40	Yes	FAC
2. *Festuca perennis*	20	Yes	Not Listed
3. *Cardamine californica var. californica*	15	No	Not Listed
4. *Galium porrigens var. porrigens*	15	No	Not Listed
5. *Torilis arvensis*	10	No	Not Listed
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % | % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	40	x 3 =	120
FACU species		x 4 =	0
UPL species	60	x 5 =	300
Column Totals:	100 (A)		420 (B)

Prevalence Index = B/A = 4.20

Hydrophytic Vegetation Indicators:

- (●) Dominance Test is >50%
- (●) Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks:

US Army Corps of Engineers

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SOIL

Sampling Point: WSP4

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ○ No ◉

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

Remarks:

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WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Hanson Preliminary | City/County: Lake Co. | Sampling Date: 4/30/2020

Applicant/Owner: Brian Hanson | State: CA | Sampling Point: WSP5

Investigator(s): Steve Zalusky, Leigh Zalusky | Section, Township, Range: S.31 T16N-R8W

Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 38 55.726'N | Long: -122 47.340'W | Datum: WGS84

Soil Map Unit Name: Clear Lake Variant clay, drained | NWI classification: 2B3,3

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Eleocharis obtusa*	55	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	55 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	55	x 1 =	55
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	55 (A)		55 (B)

Prevalence Index = B/A = 1.00

Hydrophytic Vegetation Indicators:

- [x] Dominance Test is >50%
- [x] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

US Army Corps of Engineers

Arid West - Version 11-1-2006

SOIL

Sampling Point: WSP5

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: Area was flooded.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☒ Inundation Visible on Aerial Imagery (B7)
- ☒ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◉ No ○	Depth (inches):	12
Water Table Present?	Yes ◉ No ○	Depth (inches):	0
Saturation Present? (includes capillary fringe)	Yes ◉ No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

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WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Hanson Preliminary | City/County: Lake Co. | Sampling Date: 4/30/2020

Applicant/Owner: Brian Hanson | State: CA | Sampling Point: WSP6

Investigator(s): Steve Zalusky, Leigh Zalusky | Section, Township, Range: S.31 T16N-R8W

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): none | Slope (%): 5

Subregion (LRR): C - Mediterranean California | Lat: 38 55.725'N | Long: -122 47.341W | Datum: WGS84

Soil Map Unit Name: Clear Lake Variant clay, drained | NWI classification: 2B3,3

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 100% % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	(A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- [ ] Dominance Test is >50%
- [ ] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks: Fill

US Army Corps of Engineers

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SOIL

Sampling Point: WSP6

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ○ No ◉

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

Remarks:

US Army Corps of Engineers

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WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Hanson Preliminary | City/County: Lake Co. | Sampling Date: 4/30/2020

Applicant/Owner: Brian Hanson | State: CA | Sampling Point: WSP7

Investigator(s): Steve Zalusky, Leigh Zalusky | Section, Township, Range: S.31 T16N-R8W

Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): none | Slope (%): 2

Subregion (LRR): C - Mediterranean California | Lat: 38 55.609'N | Long: -122 47.377W | Datum: WGS84

Soil Map Unit Name: Clear Lake Variant clay, drained | NWI classification: 2B3,3

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Juncus balticus*	60	Yes	FACW
2. *Anthoxanthum odoratum*	30	No	FAC
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	90 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 10 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	60	x 2 =	120
FAC species	30	x 3 =	90
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	90 (A)		210 (B)

Prevalence Index = B/A = 2.33

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

US Army Corps of Engineers

Arid West - Version 11-1-2006

SOIL

Sampling Point: WSP7

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
18	10YR/2.5/1	100	2.5YR/4/4	5	RM	M	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 13

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

US Army Corps of Engineers

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WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Hanson Preliminary | City/County: Lake Co. | Sampling Date: 4/30/2020

Applicant/Owner: Brian Hanson | State: CA | Sampling Point: WSP8

Investigator(s): Steve Zalusky, Leigh Zalusky | Section, Township, Range: S.31 T16N-R8W

Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 38 55.602'N | Long: -122 47.382W | Datum: WGS84

Soil Map Unit Name: Clear Lake Variant clay, drained | NWI classification: 2B3,3

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Bromus hordeaceus*	40	Yes	FACU
2. *Juncus balticus*	20	No	FACW
3. *Anthoxanthum odoratum*	15	No	FAC
4. *Trifolium subterraneum*	25	No	Not Listed
5.			
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % | % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	20	x 2 =	40
FAC species	15	x 3 =	45
FACU species	40	x 4 =	160
UPL species	25	x 5 =	125
Column Totals:	100 (A)		370 (B)

Prevalence Index = B/A = 3.70

Hydrophytic Vegetation Indicators:

- (●) Dominance Test is >50%
- (●) Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks:

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SOIL

Sampling Point: WSP8

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ○ No ◉

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

Remarks:

US Army Corps of Engineers

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WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Hanson Preliminary | City/County: Lake Co. | Sampling Date: 4/30/2020

Applicant/Owner: Brian Hanson | State: CA | Sampling Point: WSP9

Investigator(s): Steve Zalusky, Leigh Zalusky | Section, Township, Range: S.31 T16N-R8W

Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 38 55.602'N | Long: -122 47.383W | Datum: WGS84

Soil Map Unit Name: Clear Lake Variant clay, drained | NWI classification: 2B3,3

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Juncus balticus*	35	Yes	FACW
2. *Juncus effusus var. pacificus*	30	Yes	FACW
3. *Urtica dioica ssp. gracilis*	20	No	FAC
4. *Rumex crispus*	15	No	FAC
5.			
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % | % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	65	x 2 =	130
FAC species	35	x 3 =	105
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	100 (A)		235 (B)

Prevalence Index = B/A = 2.35

Hydrophytic Vegetation Indicators:

- [x] Dominance Test is >50%
- [x] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

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SOIL

Sampling Point: WSP9

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
18	10YR/2.5/1	100	2.5YR/4/4	5	RM	M	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☒ Inundation Visible on Aerial Imagery (B7)
- ☒ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ◉	No ○	Depth (inches): 5
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 18

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

US Army Corps of Engineers

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WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Hanson Preliminary | City/County: Lake Co. | Sampling Date: 4/30/2020

Applicant/Owner: Brian Hanson | State: CA | Sampling Point: WSP10

Investigator(s): Steve Zalusky, Leigh Zalusky | Section, Township, Range: S.31 T16N-R8W

Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 38 55.491'N | Long: -122 47.215W | Datum: WGS84

Soil Map Unit Name: Clear Lake Variant clay, drained | NWI classification: 2B3,3

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ○	No ◉	
Hydric Soil Present?	Yes ○	No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ○	No ◉	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Trifolium subterraneum*	60	Yes	Not Listed
2. *Poa annua*	15	No	FAC
3. *Juncus Balticus*	10	No	FACW
4. *Lotus corniculatus*	10	No	FAC
5. *Carex barbarae*			
6.			
7.			
8.			
Total Cover:	95 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	10	x 2 =	20
FAC species	25	x 3 =	75
FACU species		x 4 =	0
UPL species	60	x 5 =	300
Column Totals:	95 (A)		395 (B)

Prevalence Index = B/A = 4.16

Hydrophytic Vegetation Indicators:

- ◉ Dominance Test is >50%
- ◉ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

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SOIL

Sampling Point: WSP10

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ○ No ◉

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

Remarks:

US Army Corps of Engineers

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WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Hanson Preliminary | City/County: Lake Co. | Sampling Date: 4/30/2020

Applicant/Owner: Brian Hanson | State: CA | Sampling Point: WSP11

Investigator(s): Steve Zalusky, Leigh Zalusky | Section, Township, Range: S.31 T16N-R8W

Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 38 55.604'N | Long: -122 46.897'W | Datum: WGS84

Soil Map Unit Name: Clear Lake Variant clay, drained | NWI classification: 2B3,3

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Bromus hordeaceus*	35	Yes	FACU
2. *Trifolium campestre*	25	No	Not Listed
3. *Anthoxanthum odoratum*	20	No	FAC
4. *Lotus corniculatus*	10	No	FAC
5. *Juncus Balticus*	5	No	FACW
6. *Plantago lanceolata*	5	No	FAC
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	5	x 2 =	10
FAC species	35	x 3 =	105
FACU species	35	x 4 =	140
UPL species	25	x 5 =	125
Column Totals:	100 (A)		380 (B)

Prevalence Index = B/A = 3.80

Hydrophytic Vegetation Indicators:

- (●) Dominance Test is >50%
- (●) Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks:

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SOIL

Sampling Point: WSP11

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ○ No ◉

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

Remarks:

US Army Corps of Engineers

Arid West - Version 11-1-2006

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Hanson Preliminary | City/County: Lake Co. | Sampling Date: 4/30/2020

Applicant/Owner: Brian Hanson | State: CA | Sampling Point: WSP12

Investigator(s): Steve Zalusky, Leigh Zalusky | Section, Township, Range: S.31 T16N-R8W

Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 38 55.578'N | Long: 122 46.836'W | Datum: WGS84

Soil Map Unit Name: Clear Lake Variant clay, drained | NWI classification: 2B3,3

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Juncus balticus*	30	Yes	FACW
2. *Carex praegracilis*	25	Yes	FACW
3. *Polypogon monspeliensis*	25	No	FACW
4. *Rumex crispus*	15	No	FAC
5. *Lotus corniculatus*	5	No	FAC
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 0 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	80	x 2 =	160
FAC species	20	x 3 =	60
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	100 (A)		220 (B)

Prevalence Index = B/A = 2.20

Hydrophytic Vegetation Indicators:

- [x] Dominance Test is >50%
- [x] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

US Army Corps of Engineers

Arid West - Version 11-1-2006

SOIL

Sampling Point: WSP12

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
18	10YR/2.5/1	100	2.5YR/4/4	5	RM	M	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☒ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ◉ No ○ Depth (inches): 10

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

US Army Corps of Engineers

Arid West - Version 11-1-2006

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Hanson Preliminary | City/County: Lake Co. | Sampling Date: 4/30/2020

Applicant/Owner: Brian Hanson | State: CA | Sampling Point: WSP13

Investigator(s): Steve Zalusky, Leigh Zalusky | Section, Township, Range: S.31 T16N-R8W

Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 38 55.603'N | Long: -122 46.930'W | Datum: WGS84

Soil Map Unit Name: Clear Lake Variant clay, drained | NWI classification: 2B3,3

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Bromus hordeaceus*	45	Yes	FACU
2. *Trifolium campestre*	25	No	Not Listed
3. *Juncus Balticus*	20	No	FAC
4. *Plantago lanceolata*	10	No	FAC
5.			
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % | % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	30	x 3 =	90
FACU species	45	x 4 =	180
UPL species	25	x 5 =	125
Column Totals:	100 (A)		395 (B)

Prevalence Index = B/A = 3.95

Hydrophytic Vegetation Indicators:

- (●) Dominance Test is >50%
- (●) Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks:

US Army Corps of Engineers

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SOIL

Sampling Point: WSP13

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ○ No ◉

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

Remarks:

US Army Corps of Engineers

Arid West - Version 11-1-2006

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Hanson Preliminary | City/County: Lake Co. | Sampling Date: 4/30/2020

Applicant/Owner: Brian Hanson | State: CA | Sampling Point: WSP14

Investigator(s): Steve Zalusky, Leigh Zalusky | Section, Township, Range: S.31 T16N-R8W

Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 38 55.574'N | Long: -122 46.983'W | Datum: WGS84

Soil Map Unit Name: Clear Lake Variant clay, drained | NWI classification: 2B3,3

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Carex praegracilis*	35	Yes	FACW
2. *Juncus Balticus*	20	Yes	FACW
3. *Polypogon monspeliensis*	20	No	FACW
4. *Rumex crispus*	15	No	FAC
5. *Lotus corniculatus*	10	No	FAC
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % | % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	75	x 2 =	150
FAC species	25	x 3 =	75
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	100 (A)		225 (B)

Prevalence Index = B/A = 2.25

Hydrophytic Vegetation Indicators:

- [x] Dominance Test is >50%
- [x] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

US Army Corps of Engineers

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SOIL

Sampling Point: WSP14

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
18	10YR/2.5/1	100	2.5YR/4/4	5	RM	M	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☒ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ◉ No ○ Depth (inches): 8

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

US Army Corps of Engineers

Arid West - Version 11-1-2006

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Hanson Preliminary | City/County: Lake Co. | Sampling Date: 4/30/2020

Applicant/Owner: Brian Hanson | State: CA | Sampling Point: WSP15

Investigator(s): Steve Zalusky, Leigh Zalusky | Section, Township, Range: S.31 T16N-R8W

Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 38 55.585'N | Long: -122 46.866'W | Datum: WGS84

Soil Map Unit Name: Clear Lake Variant clay, drained | NWI classification: 2B3,3

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Bromus hordeaceus*	40	Yes	FACU
2. *Cynosurus echinatus*	30	No	Not Listed
3. *Juncus Balticus*	20	No	FAC
4. *Plantago lanceolata*	10	No	FAC
5.			
6.			
7.			
8.			
Total Cover:	100%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % | % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	30	x 3 =	90
FACU species	40	x 4 =	160
UPL species	30	x 5 =	150
Column Totals:	100 (A)		400 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

- (●) Dominance Test is >50%
- (●) Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks:

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SOIL

Sampling Point: WSP15

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ○ No ◉

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

Remarks:

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