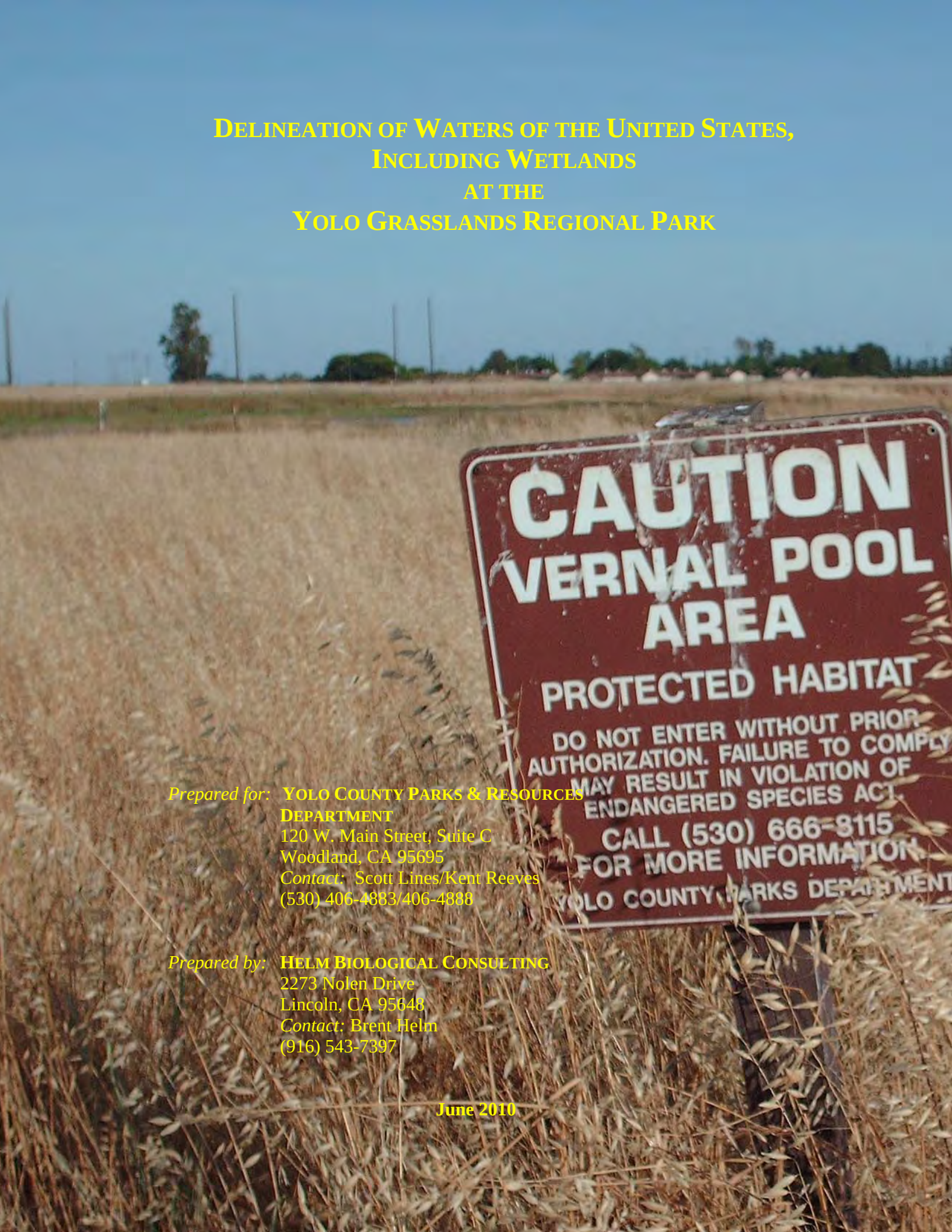
DELINEATION OF WATERS OF THE UNITED STATES, INCLUDING WETLANDS AT THE YOLO GRASSLANDS REGIONAL PARK



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1.0 SUMMARY

Yolo County Parks & Resources Department retained Helm Biological Consulting to conduct a delineation of waters of the United States, including wetlands, potentially under the jurisdiction of the United States Army Corps of Engineers (Corps) pursuant to Section 404 and 404 (f) of the Clean Water Act (CWA) occurring at the Yolo Grassland Regional Park and the adjacent McClellan AFB Global Communications Site (hereafter referred to collectively as "Yolo Grassland Regional Park" or "Study Area").

The Study Area is located roughly two miles south of the City of Davis, in the southwestern corner of Yolo County, California. The Study Area is bordered to the west by County Road 104, to the North by County Road 35, to the South by County Road 36 and to the East by County Road 105. Additionally, the Study Area is located in Section 21 and the southern half of Section 31, Township 8 North, and Range 3 East of the Saxon and Davis 7.5 minute U.S. Geological Survey (USGS) topographic quadrangle maps (Figure 1). The Study Area consists of an approximately 631.5 acres.

The Corps approved Routine Onsite Method was utilized on January 14, 2010; April 30, 2010; May 19, 21, 25, & 26, 2010; and June 1, 6 & 18, 2010. Helm Biological Consulting, identified 49.584-acres of potential isolated wetlands on site (Table 1 and Exhibit A).

Table 1. Summary of Potential Isolated Wetlands Identified at the Yolo Grassland Regional Park

Potential Isolated Wetland Habitat	Acres
Seasonal Pool	0.162
Seasonal Swale	1.044
Seasonal Wetland	36.672
Vernal Pool	11.601
Vernal Swale	0.104
Total	**49.584**

The habitats mapped in Exhibit A do not appear to meet the Corps criteria as waters of the United States, subject to Corps regulation under Section 404 of the CWA. Wetland acreages presented in this report are preliminary, subject to review and modification by the Corps during their verification process.

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2.0 INTRODUCTION

Helm Biological Consulting was contracted by Yolo County Parks & Resources Department to perform a delineation of waters of the United States, including wetlands, at the Yolo Grassland Regional Park and the adjacent McClellan AFB Global Communications Site (hereafter referred to collectively as "Yolo Grassland Regional Park" or "Study Area"), Yolo County, California.

This report presents the methods and results of the delineation of waters of the United States, including wetlands, at the Study Area.

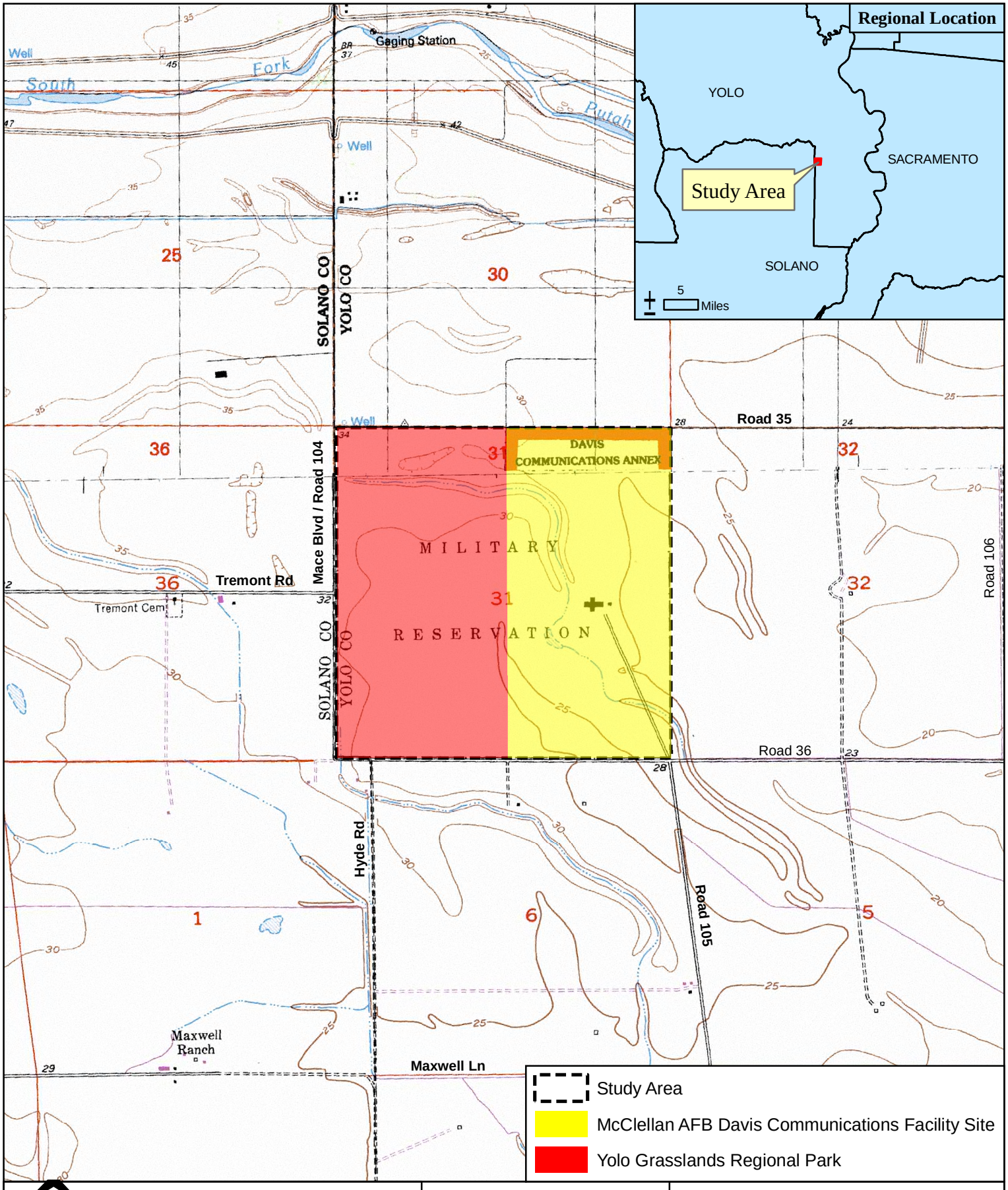
2.1 Project Location and Driving Directions

The Study Area is located roughly two miles south of the City of Davis, in the southwestern corner of Yolo County, California. The Study Area is bordered to the west by County Road 104, to the North by County Road 35, to the South by County Road 36 and to the East by County Road 105. Additionally, the Study Area is located in Section 21 and the southern half of Section 31, Township 8 North, and Range 3 East of the Saxon and Davis 7.5 minute U.S. Geological Survey (USGS) topographic quadrangle maps (Figure 1).

From Sacramento, take Interstate 80 west toward San Francisco. Upon reaching the City of Davis, take Mace Boulevard south. Proceed south on Mace Boulevard. At 1.24 miles, Mace Boulevard turns into County Road 104 (Old Road 104). Precede South on County Road 104 for an additional 3.0 miles. At the intersection of Tremont Road turn East (left) into Yolo Grasslands Regional Park. Parking is abundant.

2.2 Project Description

The Study Area consists of an approximately 631.5-acres. The western half of the Study Area is used primarily for outdoor recreation day use including, archery, horseshoes, picnicking, hiking, ultra-light aircraft staging; with seasonal livestock (cattle, sheep, and goat) grazing in the non developed areas. The eastern half of the Study Area is currently use for seasonal livestock grazing.



Prepared By:
Date: 5-25-10

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1:24,000
1 inch equals 2,000 feet

Township 8 North, Range 3 East

Property Center Coordinates in NAD UTM Zone 10 N
Northing 4261532.3 **Easting** 614552.1

Figure 1. Study Area Location

(Source: U.S. Geological Survey Saxon and Davis 7.5 minute Topographical Quadrangle Map)

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2.3 Background

In 1999, McClellan AFB ceased all operations at its global communications site in Davis and vacated the facilities. In 2007, Yolo County assumed management responsibilities, while they await transfer of ownership from U.S. Park Service. The site is currently managed as part of the Yolo Grasslands Regional Park.

A previous site survey (CH2M Hill 1994) revealed that the McClellan AFB Global Communications Site portion of the Study Area supported 17.25 acres of alkali vernal pools.

2.4 Definitions

Certain terms used throughout this report have specific meanings that relate to the wetland delineation process, as specified by the *Corps of Engineers' Wetland Delineation Manual* (Environmental Laboratory 1987) and the *Interim Regional Supplement to the Corps of Engineer' Wetland Delineation Manual: Arid West Region* (Environmental Laboratory 2006). These terms are described briefly below.

2.4.1 WATERS OF THE UNITED STATES

"Waters of the U.S." is the encompassing term for areas that qualify for federal regulation under Section 404 of the Clean Water Act. Waters of the U.S. include "wetlands" and "other waters of the U.S." For regulatory purposes, wetlands are defined as:

> Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (CFR 328.3, CFR 230.3).

2.4.2 WETLANDS

Wetlands under Corps jurisdiction must have field indicators of the following:

1. a prevalence of hydrophytic vegetation (i.e., "water loving" species with "obligate," "facultative wetland," or "facultative" wetland indicator status [Reed 1988]),

   Plant wetland indicator statuses are abbreviated as follows:

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- OBL = Obligate wetland species. Almost always occurs in wetlands (estimated probability > 99%) under natural conditions.
- FACW = Facultative wetland species. Usually occurs in wetlands (estimated probability 67% - 99%), but occasionally found in non-wetlands.
- FAC = Facultative wetland species. Equally likely to occur in wetlands (estimated probability 34% - 66%) or non-wetlands.
- FACU = Facultative upland species. Usually occur in non-wetlands (estimated probability 67% - 99%), but occasionally found in wetlands (estimated probability 1% - 33%).
- UPL = Obligate upland species. Occur almost always (estimated probability > 99%) in non-wetlands under natural conditions.
- A positive (+) and negative (-) sign was previously used for the facultative categories. The (+) sign indicates a frequency towards the wetter end of the category (more frequently found in wetlands) and the (-) sign indicates a frequency towards the drier end of the category (less frequently found in wetlands). These modifiers are no longer used with the *Arid West Supplement* and therefore not used in this report.
- An asterisk (*) identifies tentative assignments based on limited information on which to determine the indicator status.
- NI = No indicator. Indicates that insufficient information is available to determine an indicator status.
- For species not listed, in the *National List of Plant Species that Occur in Wetlands, California Region 0* (Reed, 1988), NL (abbreviated for not listed) are used to indicate their absence in the list. These species can be assumed to be upland species.
- Indicator statuses surrounded by brackets, for example [FAC], are those given by Dr. Brent Helm and derived from over 20 years of wetland field experience.

2. hydric soils [i.e., hydric soils are defined as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, July 13, 1994)].

3. wetland hydrology (i.e., permanent or periodic inundation, or soil saturation to the surface for greater than 19 consecutive days during the growing season, in this area 7% of a 280-day growing season is 19.6 days) (USDA, NRCS 1972).

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2.4.3 OTHER WATERS OF THE UNITED STATES

Other waters of the U.S., as used in this report, refer to unvegetated waterways and other water bodies with a defined bed and bank, such as drainages, creeks, rivers, and lakes. This approximately translates to the bank-to-bank portion of waterbodies, up to the ordinary high water mark (OHWM). Other waters of the U.S. typically lack hydrophytic vegetation and may lack evidence of hydric soils.

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3.0 METHODS

Wetlands were delineated using the *Interim Regional Supplement to the Corps of Engineer' Wetland Delineation Manual: Arid West Region* (U.S. Army Corps of Engineers 2006) and the 1987 *Corps of Engineers' Wetland Delineation Manual* (Environmental Laboratory 1987). An area must meet criteria for hydrophytic vegetation, hydric soils, and wetland hydrology to be identified as a potential wetland under Corps jurisdiction. Specific details of the delineation methods are described below.

3.1 Preliminary Review

Prior to conducting field surveys, the following information was reviewed:

- general topography was obtained from the Davis and Saxon U.S. Geological Survey 7.5 minute topographic quadrangle maps and a site specific topography map (Exhibit B)

- hydric soils information was obtained from the *Davis, California Field Office Technical Guide: Hydric Soils Lists for Yolo County, California* and *Soil Survey of Yolo County, California* (NRCS 1992 and 1972, respectively)

- geology information was obtained from Helley and Harwood's (1985) Geologic Map of the Late Cenozoic Deposits of the Sacramento Valley and Northern Sierra Foothills, California.

- site hydrology was gathered from field visits conducted during the wet-season of 2009/2010 for federally-listed large branchiopods (e.g. vernal pool fairy shrimp [*Branchinecta lynchi*] and the vernal pool tadpole shrimp [*Lepidurus packardi*]) (Helm Biological Consulting 2010).

3.2 Field Survey Dates and Methods

Wetland Ecologist Brent Helm, Ecologist Todd Wood, and Botanist Mary Bailey conducted preliminary habitat mapping on site on May 12, 2009.

The Corps approved Routine Onsite Method was utilized on:

- February 14, 2010 by Brent Helm and Soil Scientist Becky Rozumowicz
- February 25, 2010 by Brent Helm

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- April 30, 2010 by Brent Helm and Todd Wood
- May 19 & 21, 2010 by Todd Wood
- May 25 & 26, 2010 by Brent Helm
- June 1, 2010 by Brent Helm, Becky Rozumowicz, and Mary Bailey.
- June 6, 2010 by Brent Helm
- June 18, 2010 by Brent Helm and Todd Wood.

The soils, vegetation, and hydrology of potential wetlands identified during these visits were evaluated to determine what areas met the Corps' three mandatory technical criteria for a wetland (i.e., the presence of hydrophytic vegetation, hydric soils, and wetland hydrology).

The following Corps' three mandatory technical criteria were evaluated.

Hydrology

Site hydrology was determined based on direct observation of ponding and flooding during the growing season of 2009/2010. The growing season is approximated by the number of frost-free days in the year (280 days in the Study Area) (USDA NRCS 1972). Hydrologic observations were conducted on February 14 and 25, 2010 concurrently with wet-season surveys for federally listed large branchiopods on site (Helm Biological Consulting, 2010).

Additional information on hydrology was determined by the presence of ponding or saturation signatures on aerial photographs, landscape positions, and/or presence of other field indicators such as surface scour marks, vegetation and debris drift lines, sediment deposits, watermarks, and oxidized root channels in the upper 12 inches of the soil samples.

Vegetation

Plant species were determined based on the *Jepson Manual, Higher Plants of California* (Hickman 1993). The prevalence of hydrophytic vegetation was determined by using Corps methods and recorded on Wetland Determination Data Forms – Arid West Region. The wetland indicator status of plant species was based on the *National List of Plant Species that Occur in Wetlands, California Region 0* (Reed 1988).

The wetland vegetation criterion was met when the Dominance Test using the 50/20 rule was satisfied in that more than 50 percent of the dominant plants were wetland indicators. Absolute rather than relative vegetation cover was used in determining dominant species. Sites supporting a prevalence of hydrophytes were further examined for indicators of hydric soils.

Soils

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Soil texture, matrix, redoximorphic features, and the presence of subsoil layers impervious to water infiltration were documented from pits excavated by hand and by heavy equipment (excavator). Hand excavated pits depths ranged from 10 inches to 25 inches. Heavy equipment excavated pits ranged from two to seven feet in depth. Mrs. Rozumowicz preformed soils analyses within these deeper pits on May 12, 2009. Soils were examined for positive hydric soil indicators such as low chromas, redoximorphic features (mottles, manganese concretions), histic epipedons, organic layers, gleization, and sulfidic odor. The color and texture of the soil layers encountered were recorded. Soils were evaluated using *Field Indicators of Hydric Soils in the United States, Version 7.0 (USDA NRCS 2010).* Soil color and characteristics were determined from moist soil peds using *Munsell Soil Color Charts* (Munsell 1994). Alphanumeric soil descriptions provided on field data forms and used below are based on those in the Munsell soil color charts. Soil types were determined based on the investigator's experience in the local area and extrapolations based on similar sites within the area covered by the *Soil Survey of Yolo County, California* (USDA NRCS 1972) and data from soil profiles of excavated pits.

Areas that were identified as wetlands were then further evaluated to determine if they have an Interstate or Foreign Commerce Connection. Areas that met the Corps' three technical criteria for wetlands and that have an Interstate or Foreign Commerce Connection were determined to be waters of the U.S. subject to Corps jurisdiction. Currently, the following are assumed to have an Interstate or Foreign Commerce Connection:

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

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

- Non-navigable tributaries that are not relatively permanent
- Wetlands adjacent to non-navigable tributaries that are not relatively permanent
- Wetlands adjacent to but that do not directly abut a relatively permanent non-navigable tributary

In general, the Corps does not assert jurisdiction over the following features:

- Swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent, or short duration flow)

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- Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water

The Corps will apply the significant nexus standard as follows: a significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters. Significant nexus includes consideration of hydrologic and ecologic factors.

The site was also surveyed for water bodies (i.e., streams and ponds). A water body is defined as any area that in a normal year has water flowing or standing above ground to the extent that evidence of an OHWM is established (Federal Register volume 67, number 10, Tuesday January 15, 2002). Water bodies are not required to be dominated by hydrophytic vegetation or to have positive hydric soil indicators to be considered Corps' jurisdictional.

3.3 Data Collection

Data collected during the field investigation on the hydrologic conditions, vegetation, and soils at representative sites were recorded on Wetland Determination Data Forms – Arid West Region (Appendix A). These data forms are cross-referenced to the wetland delineation map presented in Exhibit A. Data forms are included to document field conditions and to assist the Corps with the delineation verification.

In addition, the extent of all major ground disturbances were mapped with the use of GPS units and categorized according to type. Mr. Wood covered the entire Study Area using closely spaced meandered transects, with the use of an all terrain vehicle (ATV).

3.4 Mapping and Acreage Calculations

Data point locations and the boundaries of potential waters of the United States identified during the field investigation were recorded with a Trimble GeoXT global positioning system (GPS). The GPS data was collected in North American Datum (NAD) 83 Universal Tranverse Mercator (UTM) Zone 10 North. GPS data was mapped using ArcView 9.1.