United States Department of Agriculture

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Sacramento County, California, and San Joaquin County, California

Cosumnes Floodplain Mitigation Bank

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Soil Data Mart Web site or the NRCS Web Soil Survey. The Soil Data Mart is the data storage site for the official soil survey information.

Contents

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features
- Gully
- Short Steep Slope
- Other

Political Features
- Cities

Water Features
- Oceans
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

MAP INFORMATION

Map Scale: 1:13,000 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 10N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Sacramento County, California
Survey Area Data: Version 9, Mar 13, 2008

Soil Survey Area: San Joaquin County, California
Survey Area Data: Version 6, Jul 25, 2008

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Date(s) aerial images were photographed: 6/29/2005

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Sacramento County, California (CA067)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
114	Clear Lake clay, partially drained, 0 to 2 percent slopes, frequently flooded	12.4	2.5%
117	Columbia sandy loam, drained, 0 to 2 percent slopes	46.4	9.4%
118	Columbia sandy loam, drained, 0 to 2 percent slopes, occasionall y flooded	2.8	0.6%
120	Columbia sandy loam, clayey substratum, drained, 0 to 2 percent slopes	81.7	16.6%
121	Columbia sandy loam, clayey substratum, drained, 0 to 2 percent slopes, occasionally flooded	12.4	2.5%
128	Cosumnes silt loam, drained, 0 to 2 percent slopes	312.5	63.5%
135	Dierssen clay loam, deep, drained, 0 to 2 percent slopes	15.0	3.0%
247	Water	9.2	1.9%
Subtotals for Soil Survey Area		**492.3**	**100.0%**
Totals for Area of Interest		**492.3**	**100.0%**

San Joaquin County, California (CA077)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
153	Egbert silty clay loam, partially drained, 0 to 2 percent slopes	0.0	0.0%
Subtotals for Soil Survey Area		**0.0**	**0.0%**
Totals for Area of Interest		**492.3**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be

made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Sacramento County, California

114—Clear Lake clay, partially drained, 0 to 2 percent slopes, frequently flooded

Map Unit Setting

Elevation: 2,000 feet
Mean annual precipitation: 35 inches
Mean annual air temperature: 57 to 63 degrees F
Frost-free period: 200 to 360 days

Map Unit Composition

Clear lake and similar soils: 85 percent
Minor components: 15 percent

Description of Clear Lake

Setting

Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)
Available water capacity: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): 4w
Land capability (nonirrigated): 4w

Typical profile

0 to 43 inches: Clay
43 to 61 inches: Stratified sandy clay loam to clay loam

Minor Components

Dierssen

Percent of map unit: 7 percent
Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread

San joaquin

Percent of map unit: 6 percent

Egbert

Percent of map unit: 2 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread

117—Columbia sandy loam, drained, 0 to 2 percent slopes

Map Unit Setting

Elevation: 10 to 150 feet
Mean annual precipitation: 12 to 25 inches
Mean annual air temperature: 57 to 63 degrees F
Frost-free period: 230 to 340 days

Map Unit Composition

Columbia and similar soils: 75 percent
Minor components: 25 percent

Description of Columbia

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Available water capacity: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability (nonirrigated): 3s

Typical profile

0 to 11 inches: Sandy loam
11 to 60 inches: Stratified loamy sand to silt loam

Minor Components

Columbia clay substratum

Percent of map unit: 10 percent
Landform: Flood plains

Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread

Cosumnes
Percent of map unit: 5 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread

Sailboat
Percent of map unit: 5 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread

Vina
Percent of map unit: 4 percent

Occasional flooded unnamed
Percent of map unit: 1 percent

118—Columbia sandy loam, drained, 0 to 2 percent slopes, occasionall y flooded

Map Unit Setting
Elevation: 10 to 150 feet
Mean annual precipitation: 12 to 25 inches
Mean annual air temperature: 57 to 63 degrees F
Frost-free period: 230 to 340 days

Map Unit Composition
Columbia and similar soils: 85 percent
Minor components: 15 percent

Description of Columbia

Setting
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Properties and qualities
Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Occasional
Frequency of ponding: None

Available water capacity: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability (nonirrigated): 3w

Typical profile

0 to 11 inches: Sandy loam
11 to 60 inches: Stratified loamy sand to silt loam

Minor Components

Cosumnes

Percent of map unit: 3 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread

Sailboat

Percent of map unit: 3 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread

Columbia clay substratum

Percent of map unit: 3 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread

Hicksville

Percent of map unit: 3 percent

Rarely flooded, unnamed

Percent of map unit: 1 percent

Frequently flooded unnamed

Percent of map unit: 1 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread

High water table unnamed

Percent of map unit: 1 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread

120—Columbia sandy loam, clayey substratum, drained, 0 to 2 percent slopes

Map Unit Setting

Elevation: 150 feet

Mean annual precipitation: 12 to 25 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 230 to 340 days

Map Unit Composition
Columbia and similar soils: 85 percent
Minor components: 15 percent

Description of Columbia

Setting
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Properties and qualities
Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Moderate (about 6.9 inches)

Interpretive groups
Land capability classification (irrigated): 2s
Land capability (nonirrigated): 3s

Typical profile
0 to 11 inches: Sandy loam
11 to 43 inches: Stratified loamy sand to silt loam
43 to 64 inches: Clay loam

Minor Components

Cosumnes
Percent of map unit: 5 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread

Sailboat
Percent of map unit: 5 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread

Unburied surface unnamed
Percent of map unit: 4 percent

Occasional flooded unnamed
Percent of map unit: 1 percent

121—Columbia sandy loam, clayey substratum, drained, 0 to 2 percent slopes, occasionally flooded

Map Unit Setting

Elevation: 150 feet
Mean annual precipitation: 12 to 25 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 230 to 340 days

Map Unit Composition

Columbia and similar soils: 85 percent
Minor components: 14 percent

Description of Columbia

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability (nonirrigated): 3w

Typical profile

0 to 11 inches: Sandy loam
11 to 43 inches: Stratified loamy sand to silt loam
43 to 64 inches: Clay loam

Minor Components

Cosumnes

Percent of map unit: 4 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread

Sailboat
Percent of map unit: 4 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread

Unburied surface unnamed
Percent of map unit: 3 percent

Rarely flooded, unnamed
Percent of map unit: 2 percent

Frequently flooded unnamed
Percent of map unit: 1 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread

128—Cosumnes silt loam, drained, 0 to 2 percent slopes

Map Unit Setting
Elevation: 10 to 70 feet
Mean annual precipitation: 15 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 250 to 300 days

Map Unit Composition
Cosumnes and similar soils: 85 percent
Minor components: 15 percent

Description of Cosumnes

Setting
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Properties and qualities
Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent

Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 9.7 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability (nonirrigated): 3s

Typical profile

0 to 8 inches: Silt loam
8 to 21 inches: Stratified silty clay loam to clay
21 to 43 inches: Stratified clay loam to clay
43 to 60 inches: Stratified clay loam to clay

Minor Components

Columbia

Percent of map unit: 3 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread

Dierssen

Percent of map unit: 3 percent
Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread

Egbert

Percent of map unit: 3 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread

Sailboat

Percent of map unit: 2 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread

San joaquin

Percent of map unit: 2 percent

Sandy strata unnamed

Percent of map unit: 1 percent

Frequently flooded unnamed

Percent of map unit: 1 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread

135—Dierssen clay loam, deep, drained, 0 to 2 percent slopes

Map Unit Setting

Elevation: 20 feet
Mean annual precipitation: 17 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 250 to 275 days

Map Unit Composition

Dierssen and similar soils: 85 percent
Minor components: 15 percent

Description of Dierssen

Setting

Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 41 to 60 inches to duripan
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Moderate (about 6.8 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability (nonirrigated): 3w

Typical profile

0 to 15 inches: Clay loam
15 to 24 inches: Clay loam
24 to 41 inches: Clay
41 to 60 inches: Cemented

Minor Components

Clear lake

Percent of map unit: 6 percent
Landform: Basin floors

Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread

Egbert
Percent of map unit: 5 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread

Lack clay subsoil unnamed
Percent of map unit: 2 percent

Occasional flooded unnamed
Percent of map unit: 2 percent

247—Water

Map Unit Composition
Water: 100 percent

San Joaquin County, California

153—Egbert silty clay loam, partially drained, 0 to 2 percent slopes

Map Unit Setting

Elevation: -10 to 10 feet
Mean annual precipitation: 12 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 270 days

Map Unit Composition

Egbert and similar soils: 85 percent
Minor components: 15 percent

Description of Egbert

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed rock sources

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 48 to 72 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 3 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 10.3 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability (nonirrigated): 4w

Typical profile

0 to 8 inches: Silty clay loam
8 to 19 inches: Clay
19 to 60 inches: Clay

Minor Components

Grangeville

Percent of map unit: 3 percent

Stockton

Percent of map unit: 3 percent

Willows

Percent of map unit: 3 percent
Landform: Valley floors

Columbia

Percent of map unit: 2 percent
Landform: Flood plains

Merritt

Percent of map unit: 2 percent
Landform: Flood plains

Scribner

Percent of map unit: 2 percent
Landform: Flood plains

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Hydric Soils

This table lists the map unit components that are rated as hydric soils in the survey area. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; Hurt and others, 2002).

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for all of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) 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, 1994). These soils, under natural conditions, are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

Map units that are dominantly made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units dominantly made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

The criteria for hydric soils are represented by codes in the table (for example, 2B3). Definitions for the codes are as follows:

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Report—Hydric Soils

Hydric Soils– Sacramento County, California				
Map symbol and map unit name	**Component**	**Percent of map unit**	**Landform**	**Hydric criteria**
114—Clear Lake clay, partially drained, 0 to 2 percent slopes, frequently flooded				
	Clear lake	85	Basin floors	2B3, 4
	Dierssen	7	Basin floors	4
	Egbert	2	Flood plains	2B3, 4
117—Columbia sandy loam, drained, 0 to 2 percent slopes				
	Columbia	75	Flood plains	4
	Columbia clay substratum	10	Flood plains	4
	Cosumnes	5	Flood plains	4
	Sailboat	5	Flood plains	4

Hydric Soils– Sacramento County, California				
Map symbol and map unit name	**Component**	**Percent of map unit**	**Landform**	**Hydric criteria**
118—Columbia sandy loam, drained, 0 to 2 percent slopes, occasionall y flooded				
	Columbia	85	Flood plains	4
	Cosumnes	3	Flood plains	4
	Sailboat	3	Flood plains	4
	Columbia clay substratum	3	Flood plains	4
	Frequently flooded unnamed	1	Flood plains	4
	High water table unnamed	1	Flood plains	4
120—Columbia sandy loam, clayey substratum, drained, 0 to 2 percent slopes				
	Columbia	85	Flood plains	4
	Cosumnes	5	Flood plains	4
	Sailboat	5	Flood plains	4
121—Columbia sandy loam, clayey substratum, drained, 0 to 2 percent slopes, occasionally flooded				
	Columbia	85	Flood plains	4
	Cosumnes	4	Flood plains	4
	Sailboat	4	Flood plains	4
	Frequently flooded unnamed	1	Flood plains	4
128—Cosumnes silt loam, drained, 0 to 2 percent slopes				
	Cosumnes	85	Flood plains	4
	Columbia	3	Flood plains	4
	Dierssen	3	Basin floors	4
	Egbert	3	Flood plains	2B3, 4
	Sailboat	2	Flood plains	4
	Frequently flooded unnamed	1	Flood plains	4
135—Dierssen clay loam, deep, drained, 0 to 2 percent slopes				
	Dierssen	85	Basin floors	4
	Clear lake	6	Basin floors	2B3, 4
	Egbert	5	Flood plains	2B3, 4

Data Source Information

Soil Survey Area: Sacramento County, California
Survey Area Data: Version 6, Jan 8, 2007