# SECTION IV. METHODOLOGY

This section provides the methods used by David Magney Environmental Consulting (DMEC) to delineate waters of the U.S., including wetlands, at the Lyons Canyon Ranch project site. Section III includes a discussion of the general delineation approach, lists the references cited and followed for habitat classification, and provides a detailed analysis of the wetland delineation criteria assessed by DMEC biologists.

## GENERAL APPROACH

DMEC followed Corps methods (described below) to determine the area of the project site under Corps jurisdiction. In addition, CDFG jurisdictional areas were identified pursuant to California Fish and Game Code regulations and state policies. The entire Lyons Canyon project site was surveyed for waters of the U.S. and riparian habitats to determine what waters and habitats are likely to be affected by the proposed Lyons Canyon Ranch development. The Lyons Canyon Ranch landscape was evaluated to generally classify the various plant communities that are located in the immediate vicinity of the creek channels, as well as those plant communities inhabiting the surrounding upland areas of the project site. To determine the extent of habitats qualifying as jurisdictional waters and wetlands, riparian habitats were delineated, and the area of each identified habitat was calculated.

## HABITAT CLASSIFICATION

The habitat types of the study area, and the plant communities making up those habitats, were assessed and classified according to CDFG's *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986), and California Native Plant Society's *A Manual of California Vegetation* (Sawyer and Keeler-Wolf 1995). All wetland habitat types were cross-referenced according to the USFWS *Classification of Wetlands and Deepwater Habitats of North America* (Cowardin et al. 1979).

## DELINEATING WATERS OF THE UNITED STATES

Waters of the U.S., as defined by Section 404 of the Clean Water Act (33CFR 328.3) and described above in the previous section, were delineated within the study area. Aerial photographs, topographic maps, general site observations, and wetland delineation results were used to define jurisdictional boundaries within the project site.

Data points (plots) were established in various locations along Lyon Canyon Creek and its unnamed tributaries to examine vegetation, soils, and hydrology of each selected site. All plots of the study area were examined according to the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987). Jurisdictional wetlands (for Corps regulatory purposes) must possess one or more indicators for all three wetland criteria, including (1) indicator(s) that the plot area is dominated by hydrophytic vegetation, (2) indicator(s) that wetland hydrology is present, and (3) indicator(s) that hydric soil conditions are present.

CDFG regulations and policy require only one of these three criteria to be present in order to be considered a wetland pursuant to state regulations. Information on these parameters was recorded on data forms for routine wetland determinations, which are included as Appendix A, Lyons Canyon Ranch Routine Wetland Determination Field Data Forms.

## Wetland Delineation

David Magney, Cher Batchelor, Kenneth Niessen, and Daniel Brenner performed the delineation of jurisdictional waters and wetlands. These DMEC biologists gathered data from 234 established soil plots, according to the Corps' 1987 *Manual for Delineating Jurisdictional Wetlands* (Engineering Laboratory 1987) (Figure 3, Wetland Delineation Plots Surveyed for the Lyons Canyon Ranch Project Site). The 234 soil plots were established along 45 transects across the width of several portions of Lyon Canyon Creek and several of its tributaries onsite on the following dates:

| Transects | Survey Date |
|---|---|
| A through E | 10 December 2003 |
| F through H | 17 December 2003 |
| I through P | 19 December 2003 |
| Q through U | 21 January 2004 |
| V through BG | 23 January 2004 |
| BH through BS | 30 January 2004 |
| BS through CD | 23 February 2004 |
| Verification | 20 May 2004 |

These transects and data points were surveyed to gather wetland data on soils, hydrology, and vegetation (defined below in Wetland Criteria) for determining the limits of Corps jurisdiction pursuant to the Clean Water Act.

*Corps Jurisdictional waters of the U.S.* status was determined by the presence of (or evidence of) one or more positive indicators of wetland hydrology, indicated predominantly by standing or flowing water and/or a well-defined channel bed and bank.

*Corps jurisdictional wetlands* must possess one or more positive indicators for all three wetland criteria, including (1) hydrophytic vegetation, (2) wetland hydrology, and (3) hydric soil conditions. However, in Atypical Situations and problem areas, such as with Lyons Canyon Ranch, all three wetland parameters need not be met, since one or more of those parameters may not be evident (see the Atypical Situation subsection on Page 28). Initially, all data were collected in the field by determining the presence (or absence) for all three wetland parameters. However, since the Lyons Canyon project site has been determined to be in an Atypical Situation, not all three wetland criteria need be met at specific data points to be considered a wetland. Therefore, once the data could be analyzed in the lab, and photographic interpretation could be conducted, the results of the Atypical Situation analysis could then be presented.

*CDFG jurisdiction* was determined by the presence of one or more positive indicators for any one of the three wetland criteria.

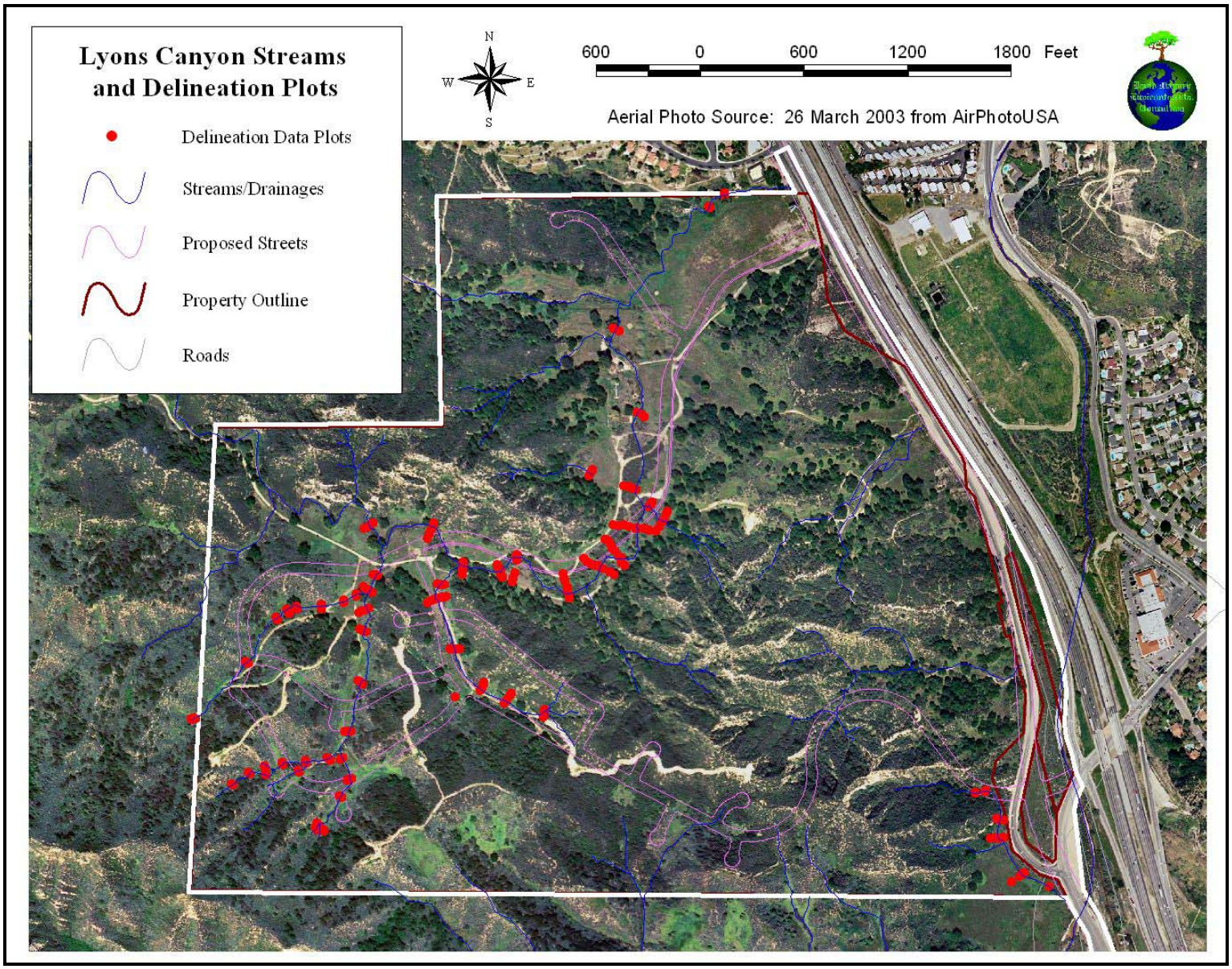
DMEC biologists also collected floristic, habitat, and wildlife resource data within the entire boundaries of the project site, including documenting any special-status species that may have been observed or detected onsite. Data collected during the wetland delineation is provided as Appendix A, Lyons Canyon Ranch Routine Wetland Determination Field Data Forms, at the end of this report. Topography is considered in wetland boundary determination when diagnostics exist as hydrologic confinements. Total areas of wetland habitats were calculated using delineated lines, points, and polygons using ArcView 3.3 GIS software and onsite measurements. Delineation data points and stream thalwegs were delineated using Garmin eTrex GPS units.

Lyon Canyon Creek, 10 December 2003, DMEC delineating Transect B plots.

Lyon Canyon Creek, 10 December 2003, DMEC delineating Transect I plots.

Lyons Canyon Ranch, 23 February 2004, DMEC delineating Transect BT plots.

**Figure 3. Wetland Delineation Plots Surveyed for the Lyons Canyon Ranch Project Site**



# Wetland Criteria

The Corps, under Section 404 of the Clean Water Act, defines a wetland as possessing the following three general diagnostic environmental characteristics during the growing season: (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. The Corps requires that one or more indicators, for each of the three wetland criteria, be met in order for an area in question to be considered a jurisdictional wetland. This requirement for the presence of all three environmental conditions does not apply in Atypical Situations and in problem areas; therefore, all three wetland parameters need not be met for most portions of Lyons Canyon Ranch since most of the property is in an Atypical Situation (see Atypical Situation subsection on Page 28).

The CDFG Streambed Alteration Agreement requires that only one of these three criteria be satisfied in order for an area in question to be considered a jurisdictional wetland for the purpose of state regulations. These wetland criteria are discussed in detail below.

## *Hydrophytic Vegetation*

Under normal circumstances and where an Atypical Situation does not exist, one of the three criteria necessary for wetland consideration is that the vegetation must be dominated by hydrophytic plant species. Hydrophytic vegetation is defined as the sum total of macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present (or plants typically adapted to growing in areas possessing hydrologic conditions and saturated soils). Emphasis is placed on the assemblage of plant species that exert a controlling influence on the character of the plant community, rather than on indicator species. Vegetation is considered to be hydrophytic when more than 50 percent of the dominant plant species of all vegetative strata have a Wetland Indicator Status of Facultative (FAC), Facultative Wetland (FACW), or Obligate Wetland (OBL), according to the *National List of Wetland Plants* (Reed 1988). (Environmental Laboratory 1987.)

Since most of Lyons Canyon Ranch was burned in October 2003 and since portions of the site were graded, much of the vegetation was rendered predominantly unidentifiable. Therefore, the wetland delineation was conducted as an Atypical Situation. Under an Atypical Situation, the requirement for the presence of hydrophytic vegetation does not apply (see the Atypical Situation subsection on Page 28).

All plant species observed at each soil plot were recorded on the field data forms, and the percent relative cover and the Wetland Indicator Status of each species was indicated. Since all vegetation onsite had recently been burned by the Simi Wildfire of October 2003, DMEC recorded all species remaining and (re)sprouting in the vicinity of each plot that could be identified to at least the genus level. Since all species were recorded at each plot (not just dominants), DMEC suggests that all species at a particular plot are considered dominant species if they have a percent relative cover value of 20 percent or more. Therefore, more than 50 percent of the plant species assigned a 20 percent relative cover or more at each soil plot had to possess a Wetland Indicator Status of FAC, FACW, or OBL in order for DMEC to determine that a plot is dominated by hydrophytic vegetation.

## *Hydric Soil*

Hydric soil is another required criterion necessary for wetland consideration. Soils must be present and must be classified as hydric, which includes indicators such as soils consisting of thick organic layers, gleying, or low chroma soil matrix; or, existing materials possess characteristics that are associated with reducing soil conditions. In accordance with the *Corps of Engineers Wetlands Delineation Manual*, soil pits were examined at several selected locations within Lyons Canyon Ranch. Soils were generally determined to be hydric if they possessed thick organic layers, gleying, or low chroma soil matrix (chroma of 2 or less with bright mottles, or matrix chroma of 1 or less). Soils data collected at each soil plot onsite includes soil texture, soil color (moist), hydric indicators, and evidence of soil saturation for long duration.

### *Wetland Hydrology*

The third required criterion necessary for wetland consideration is wetland hydrology. Hydrologic conditions are present if one of the following three criteria is met: (1) the area is inundated either permanently or periodically at mean water depths less than or equal to 6.6 feet; (2) the soil is saturated to the surface at some time during the growing season of the prevalent vegetation; or (3) the area at least shows evidence of drainage patterns and/or oxidized root channels. Hydrology of the selected locations within the study area was evaluated through direct observation of surface water, soil moisture, groundwater depth, evidence of drainage patterns, and oxidized root channels.

## ATYPICAL SITUATION

According to the *Corps of Engineers Wetlands Delineation Manual,* an Atypical Situation exists when positive indicators of hydrophytic vegetation, hydric soils, and/or wetland hydrology could not be determined due to effects of recent human activities (unauthorized activities or man-induced wetlands) or natural events (fire, avalanches, volcanic activity, changing river courses). When any of these types of situations occurs, normal application of the wetland determination methods will lead to the conclusion that the area is not a wetland because positive wetland indicators for at least one of the three parameters will be absent. (Engineering Laboratory 1987.)

The Lyons Canyon project site is determined to be in an "Atypical Situation" for determining wetlands as a result of the October 2003 Simi Wildfire, which has significantly altered the vegetation onsite. The fire has burned all vegetation onsite and has at least temporarily, eliminated several species from the project site. Several plant species remaining onsite after the fire (mostly only stumps and stems) are unidentifiable to the genus level. Furthermore, the (re)sprouting perennial herb stems and shrub stumps, and sprouting annual herb/grass seedlings, observed onsite are predominantly unidentifiable. This alteration to the vegetation onsite has created a situation where positive indicators for hydrophytic vegetation determinations are absent due to the significant natural vegetation clearing. Hydrophytic plant species are not being represented onsite as they would have been prior to the wildfire/disturbance. In addition, various activities have altered the soils and hydrology in a few locations onsite. This alteration may have created a situation that hinders positive indicators for hydric soil determinations, due to soil layers being buried or significantly altered. Most of the recent disturbance activities appear to have been related to fire fighting activities in late October 2003.

DMEC surveyed 234 sampling plots at the project site. The survey results and wetland determinations in the following section are based on the data collected in the field and are based on DMEC's Atypical Situation investigation. Vegetation existing onsite prior to the wildfire was investigated in order to make Atypical Situation wetland determinations according to the *Corps of Engineers Wetlands Delineation Manual* (Engineering Laboratory 1987). Aerial photographs were analyzed using photographic interpretation methods for determining the types of vegetation that existed onsite prior to any recent disturbances, including the fire. *Baccharis salicifolia, Sambucus mexicana,* and *Distichlis spicata* are easily recognized in aerial photographs and aided in the process of making Atypical Situation vegetation determinations. The *Corps Wetland Delineation Manual* Data Form 3 for Atypical Situations is provided as Appendix C.

Burned *Baccharis salicifolia* (Mulefat - FACW) in Lyon Canyon Creek, 10 December 2003, Transect K.