

**DELINEATION OF
RIPARIAN WETLAND HABITATS
AT THE GRAMCKOW PROPERTY,
RANCHO MATILJA, CALIFORNIA**
(COUNTY OF VENTURA PROJECT: ZO 04-0000008)



Prepared for:
VENTURA COUNTY PLANNING DIVISION

On Behalf of:
MARTIN GRAMCKOW AND JURGEN GRAMCKOW

DMEC Mission Statement:
*To provide quality environmental consulting services, with integrity,
that protect and enhance the human and natural environment.*

March 2007



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Prepared for:

Ventura County Planning Division
800 South Victoria Avenue, Location #1740
Ventura, California 93009
Contact: Tricia Maier, 805/654-2464

Prepared on Behalf of:

Martin Gramckow and Jurgen Gramckow
816 El Toro Road
Ojai, California 93023
Phone: 805/488-3585

Prepared by:

David Magney Environmental Consulting
P.O. Box 1346
Ojai, California 93024-1346
Contact: David L. Magney, 805/646-6045

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|--------------------------|
| TABLE OF CONTENTS |
|--------------------------|

| | Page |
|---|-----------|
| SECTION I. PROJECT DESCRIPTION..... | 1 |
| PROJECT LOCATION..... | 1 |
| PROJECT BACKGROUND..... | 1 |
| SECTION II. GENERAL SITE CONDITIONS..... | 4 |
| FLORA..... | 4 |
| HABITAT TYPES..... | 6 |
| <i>Quercus agrifolia</i> Alliance..... | 6 |
| California Annual Grassland Alliance..... | 6 |
| FAUNA..... | 7 |
| MAPPED SOIL UNIT..... | 8 |
| SECTION III. REGULATORY REQUIREMENTS..... | 9 |
| DEFINITIONS OF WETLANDS..... | 9 |
| SECTION IV. METHODOLOGY..... | 11 |
| GENERAL APPROACH..... | 11 |
| HABITAT CLASSIFICATION..... | 11 |
| DELINEATING COUNTY-DEFINED WETLAND HABITATS..... | 11 |
| Wetland Delineation..... | 12 |
| Wetland Criteria..... | 13 |
| SECTION V. WETLAND HABITATS DETERMINATION..... | 17 |
| SECTION VI. ACKNOWLEDGEMENTS..... | 22 |
| SECTION VII. REFERENCES CITED..... | 23 |
| APPENDICES..... | 24 |
| APPENDIX A. COMPLETED WETLAND DETERMINATION FIELD DATA FORMS (ARID WEST REGION)..... | A-1 |
| APPENDIX B. PHOTODOCUMENTATION..... | B-1 |



LIST OF TABLES

| Table | Page |
|--|-------------|
| 1. Plants Observed at the Gramckow Wetland Delineation Project Site | 5 |
| 2. Gramckow Project County-Defined Wetland Delineation Determinations for Surveyed Data Points..... | 18 |

LIST OF FIGURES

| Figure | Page |
|--|-------------|
| 1. Location of the Gramckow Project Site | 2 |
| 2. Aerial Photograph of the Gramckow Property and Project Site | 3 |
| 3. Wetland Delineation Transect Plots Surveyed for the Gramckow Project Site..... | 14 |
| 4. County of Ventura Proposed Restrictive Covenant at the Gramckow Project Site | 19 |
| 5. County-Defined Wetland Riparian Habitats as Determined by DMEC at the Gramckow Project Site..... | 20 |
| 6. Comparison of County’s Proposed Restrictive Covenant and the County-Defined Wetlands Mapped by DMEC at the Gramckow Project Site | 21 |

SECTION I. PROJECT DESCRIPTION

PROJECT LOCATION

The Gramckow property is located in the Ojai Valley portion of Ventura County, California, west of the City of Ojai and immediately north of State Route 150, also known as Baldwin Road. The property is located immediately west of the Rancho Matilija development, and east of the secondary access road (Ranch Road) into that development (Figure 1, Location of the Gramckow Project Site). The property exists within the Matilija, California Quadrangle (7.5-minute USGS map) at the approximate geographic coordinates of 34.42835°N latitude and 119.31925°W longitude. The project site is at an elevation of approximately 600 feet above mean sea level. The wetland delineation project site is located within Assessor's Parcel Number (APN) 011005217(0), as shown on Figure 2, Aerial Photograph of the Gramckow Property and Project Site. The wetland delineation was conducted immediately north of a small man-made pond along Live Oak Creek, in approximately 300 feet of a modified ephemeral drainage that runs from the north through agricultural fields and drains into the pond and Live Oak Creek. Live Oak Creek is a tributary to the Ventura River.

PROJECT BACKGROUND

The Gramckows are applying to the County of Ventura to do a lot split and lot-line adjustment on APN 011005217(0). As a result, David Magney Environmental Consulting (DMEC) was contracted by Ventura County Planning Division to conduct the wetland delineation to compare the County-mapped wetland boundary to actual wetland conditions determined in the field in order to refine the area of County-defined wetlands onsite.

DMEC previously conducted a wetland functional assessment and seasonal biological surveys for the Gramckow parcel to the east (APN 011005218(0)) of the wetland delineation parcel. DMEC submitted the *Wetland Functional Assessment of the Gramckow Property Project, Rancho Matilija, California* report (DMEC 2006a), and the *Seasonal Biological Survey Results for the Gramckow Property Project, Rancho Matilija, California* report (DMEC 2006b), to the County for review.

Figure 1. Location of the Gramckow Project Site

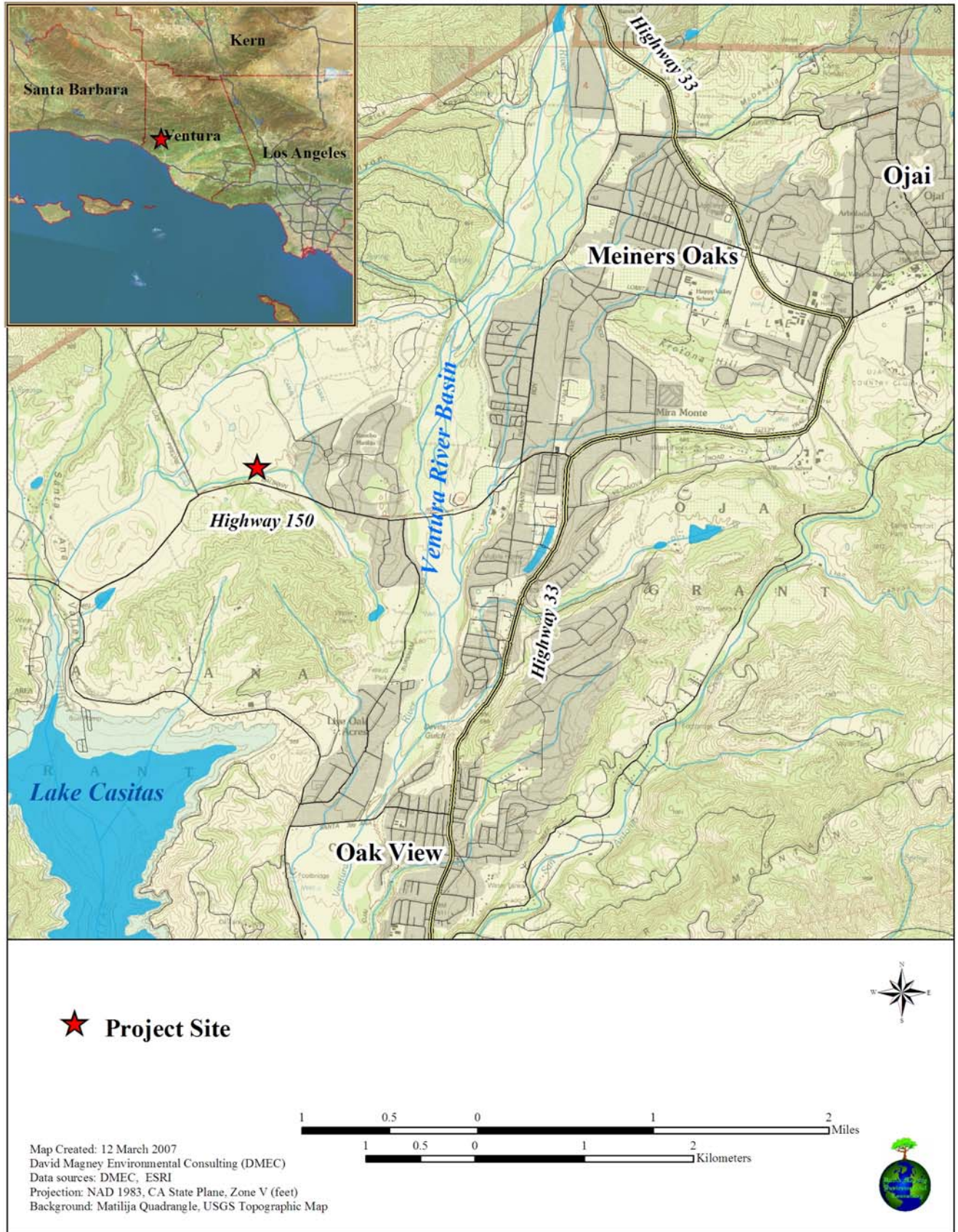


Figure 2. Aerial Photograph of the Gramckow Property and Project Site



SECTION II. GENERAL SITE CONDITIONS

This section provides the general site conditions, botanical resources, habitat types, and mapped soil units of the Gramckow project site.

Live Oak Creek runs west to east along the southern portion of the project site. State Route 150 (Baldwin Road) is immediately south of the project site. Dense old-growth *Quercus agrifolia* Alliance (Coast Live Oak Riparian Woodland) and planted Eucalyptus groves occur along this creek and remnants of this habitat exist within the surveyed project site. Outside the boundaries of the property, the land use includes a residential development (Rancho Matilija) to the east and agricultural land to the north, south, and west.

The project site occurs within historical upper riparian floodplain habitat of Live Oak Creek, and is adjacent to extant riparian wetlands categorized as both Riverine System (where flowing water occurs and vegetation is largely lacking) and Palustrine System (wetland habitat dominated by riparian vegetation), according to the U.S. Fish and Wildlife Service (USFWS) *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979).

Numerous species of wildlife are known to occur within the vicinity of Live Oak Creek and its tributaries, and frequent the Palustrine and Riverine System habitats on a seasonal basis. Local wildlife species regularly utilize the food, water, and cover resources provided by the creeks.

FLORA

Table 1, Plants Observed at the Gramckow Wetland Delineation Project Site (below), includes all plant species observed during the wetland delineation survey conducted in March 2007.

In addition to the species observed during the wetland delineation, a list of all plant species observed during the wetland functional assessment (DMEC 2006a) and biological resources surveys (DMEC 2006b) conducted onsite in an adjacent parcel of the Gramckow property is provided as Table 5, Plants Observed at the Gramckow Property, in the *Seasonal Biological Survey Results for the Gramckow Property Project, Rancho Matilija, California* report (DMEC 2006b),

Thirty-six (36) plant species were observed in the immediate vicinity of the wetland delineation project site, and they include ten (10) native species and 26 introduced species. Mowing onsite likely influences the high number of introduced plant species at the project site.

Table 1. Plants Observed at the Gramckow Wetland Delineation Project Site

| Scientific Name ¹ | Common Name | Habit ² | WIS ³ | Family |
|---|-------------------------|--------------------|------------------|-----------------|
| <i>Calandrinia ciliata</i> | Redmaids | AH | FACU | Portulacaceae |
| <i>Capsella bursa-pastoris</i> var. <i>bursa-pastoris</i> * | Shepherd's Purse | AH | FAC- | Brassicaceae |
| <i>Carduus pycnocephalus</i> * | Italian Thistle | AH | . | Asteraceae |
| <i>Chamomilla suaveolens</i> | Pineapple Weed | AH | FACU | Asteraceae |
| <i>Chenopodium murale</i> * | Nettle-leaved Goosefoot | AH | . | Chenopodiaceae |
| <i>Chlorogalum pomeridianum</i> var. <i>pomeridianum</i> | Soap Lily | PG | . | Agavaceae |
| <i>Claytonia perfoliata</i> ssp. <i>perfoliata</i> | Miner's Lettuce | AH | FAC | Portulacaceae |
| <i>Convolvulus arvensis</i> * | Bindweed | PV | . | Convolvulaceae |
| <i>Cynodon dactylon</i> * | Bermuda Grass | PG | FAC | Poaceae |
| <i>Cyperus eragrostis</i> | Umbrella-sedge | PG | FACW | Cyperaceae |
| <i>Erodium cicutarium</i> * | Redstem Filaree | AH | . | Geraniaceae |
| <i>Erodium moschatum</i> var. <i>moschatum</i> * | Whitestem Filaree | AH | . | Geraniaceae |
| <i>Geranium dissectum</i> * | Dissected Geranium | AH | . | Geraniaceae |
| <i>Hordeum murinum</i> ssp. <i>glaucum</i> * | Summer Barley | AG | . | Poaceae |
| <i>Hypochaeris glabra</i> * | Smooth Cat's-ear | AH | . | Asteraceae |
| <i>Juncus balticus</i> ssp. <i>mexicanus</i> | Mexican Rush | PG | FACW | Juncaceae |
| <i>Lolium multiflorum</i> * | Italian Ryegrass | AG | FAC* | Poaceae |
| <i>Malva parviflora</i> * | Cheeseweed | AH | . | Malvaceae |
| <i>Marrubium vulgare</i> * | White Horehound | S | FAC | Lamiaceae |
| <i>Medicago polymorpha</i> * | Common Burclover | AH | . | Fabaceae |
| <i>Picris echioides</i> * | Bristly Ox-tongue | AH | . | Asteraceae |
| <i>Piptatherum miliaceum</i> * | Smilo Grass | PG | . | Poaceae |
| <i>Plantago lanceolata</i> * | English Plantain | PH | FAC- | Plantaginaceae |
| <i>Polygonum aviculare</i> var. <i>neglectum</i> * | Neglected Knotweed | AH | (FAC) | Polygonaceae |
| <i>Quercus agrifolia</i> var. <i>agrifolia</i> | Coast Live Oak | T | (FACU) | Fagaceae |
| <i>Quercus lobata</i> | Valley Oak | T | FAC* | Fagaceae |
| <i>Raphanus sativus</i> * | Wild Radish | AH | . | Brassicaceae |
| <i>Rumex crispus</i> * | Curly Dock | PH | FACW- | Polygonaceae |
| <i>Silybum marianum</i> * | Milk Thistle | AH | . | Asteraceae |
| <i>Sisyrinchium bellum</i> | Blue-eyed Grass | PG | FAC | Iridaceae |
| <i>Sonchus asper</i> ssp. <i>asper</i> * | Prickly Sow-thistle | AH | FAC | Asteraceae |
| <i>Sonchus oleraceus</i> * | Common Sow-thistle | AH | NI* | Asteraceae |
| <i>Spergula arvensis</i> ssp. <i>arvensis</i> * | Stickwort | AH | . | Caryophyllaceae |
| <i>Stellaria media</i> * | Common Chickweed | AH | FACU | Caryophyllaceae |
| <i>Verbena lasiostachys</i> var. <i>lasiostachys</i> | Western Verbena | AH | FAC- | Verbenaceae |
| <i>Vicia villosa</i> var. <i>villosa</i> * | Hairy Vetch | AH | . | Fabaceae |

¹ * = Introduced/naturalized plant species. Scientific and common names follow Hickman (1993), Flora of North America Committee (2001-2006), and Boyd (1999).

² Habit definitions: AG = annual grass or graminoid; PG = perennial grass or graminoid; AH = annual herb; PH = perennial herb; S= shrub; T = tree.

³ WIS = Wetland Indicator Status. The following code definitions are according to Reed (1988):

OBL = obligate wetland species, occurs almost always in wetlands (>99% probability).

FACW = facultative wetland species, usually found in wetlands (67-99% probability).

FAC = facultative species, equally likely to occur in wetlands or nonwetlands (34-66% probability).

FACU = facultative upland species, usually found in nonwetlands (67-99% probability).

+ or - symbols are modifiers that indicate greater or lesser affinity for wetland habitats.

NI = no indicator has been assigned due to a lack of information to determine indicator status.

* = a tentative assignment to that indicator status by Reed (1988).

Parentheses indicate a wetland status as suggested by David L. Magney based on extensive field observations.

HABITAT TYPES

The Gramckow property occurs within historical riparian habitat, and is adjacent to extant riparian wetlands. The predominant wetland habitat type onsite is classified within the Palustrine System, according to the U.S. Fish and Wildlife Service (USFWS) *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979).

The Palustrine system includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5%. The Palustrine System is bounded by upland or by any of the other four systems (including Riverine, Lacustrine, Marine, and Estuarine). Palustrine Mixed Broad-leaved Forested Wetland is characterized by woody vegetation that is at least six meters tall (trees). It is dominated by riparian species with large (broad) leaves (as opposed to coniferous or needle-like leaves), and is co-dominated by both evergreen and winter-deciduous (falling during the winter season) plant species. (Cowardin et al. 1979.)

The Palustrine Mixed Broad-leaved Forested Wetland observed onsite is described below in more detail as *Quercus agrifolia* Alliance (Coast Live Oak Woodland). California Annual Grassland Alliance occurs below and in the openings of the *Quercus agrifolia* Alliance. These habitats are discussed in the following subsections. (Sawyer and Keeler-Wolf 1995.)

Quercus agrifolia Alliance

Quercus agrifolia Alliance forms an intermittent to closed canopy dominated the native broad-leaved evergreen *Quercus agrifolia* var. *agrifolia* (Coast Live Oak). *Q. agrifolia* is a wide-topped tree with furrowed, dark gray bark and spine-toothed, convex, dark green leaves. *Quercus agrifolia* Alliance grows primarily in upland habitats; however, this plant community is often found growing along creek channels forming unique galleries of riparian vegetation.

According to Holland (1986), *Quercus agrifolia* Alliance is classified as Southern Coast Live Oak Riparian Forest, which is an open to locally dense evergreen sclerophyllous riparian woodland dominated by Coast Live Oak. This plant community observed onsite consists of an important contribution of the broad-leaved, winter-deciduous *Platanus racemosa* (California Sycamore) and *Quercus lobata* (Valley Oak). *Quercus agrifolia* (Riparian) Alliance appears to be richer in herbs and poorer in understory shrub than other riparian communities. This plant community inhabits bottomlands and outer floodplains along larger streams, and occurs on fine-grained, rich alluvium in canyons and valleys of coastal southern California (south of Point Conception). This habitat type is considered a sensitive plant community by CDFG (Holland 1986), and is tracked by the CNDDDB (CDFG 2006).

California Annual Grassland Alliance

California Annual Grassland Alliance is dominated by a variety of annual grasses that are primarily Mediterranean in origin. Species richness of annual grassland is affected to a high degree by land use activity, where heavily mowed or grazed grasslands generally have lower native species richness. These disturbed areas, generally at lower elevations, tend to have a higher proportion of exotic grass species. Although the introduced annual grass species have irreversibly invaded the once native perennial stands, they have become naturalized, and are often important

contributors to annual grassland communities as habitat for numerous wildlife species. These naturally sustained functional habitats often contribute important resources for regional fauna that scrub or woodland habitats do not.

California Annual Grassland Alliance occurs on all topographic locations, especially gradual slopes, of all slope aspects, consisting of deep soils, at elevations between sea level and 1,200 meters (3,937 feet), and species composition varies among stands. The major factors determining grassland composition include fall temperatures and precipitation, solar (light) intensity affected by plant and litter shading, and microtopographic variations. Therefore, fine scale variation, of temporal and spatial structure found in this alliance, suggests recognition of many species-dominant alliances is not useful. (Sawyer and Keeler-Wolf 1995.)

The annual grass species (introduced/naturalized grasses) observed contributing to California Annual Grassland Alliance, forming much of the ground layer onsite, include: *Avena sativa* (Oat), *Bromus diandrus* (Ripgut Grass), *Hordeum murinum* ssp. *glaucum* (Summer Barley), and *Lolium multiflorum* (Italian Ryegrass). It is likely that additional annual grass species exist onsite; however, the timing of the surveys was early for species identification.

Other species observed contributing to this plant community growing below *Quercus agrifolia* Alliance include: *Chenopodium murale* (Nettle-leaved Goosefoot), *Chlorogalum pomeridianum* var. *pomeridianum* (Soap Lily), *Claytonia perfoliata* ssp. *perfoliata* (Miner's Lettuce), *Convolvulus arvensis* (Bindweed), *Erodium cicutarium* (Redstem Filaree), *Erodium moschatum* var. *moschatum* (Whitestem Filaree), *Geranium dissectum* (Dissected Geranium), *Hypochaeris glabra* (Smooth Cat's-ear), *Medicago polymorpha* (Common Burclover), *Rumex crispus* (Curly Dock), *Sisyrinchium bellum* (Blue-eyed Grass), *Sonchus* spp. (Sow-thistles), *Stellaria media* (Common Chickweed), *Verbena lasiostachys* var. *lasiostachys* (Western Verbena), and *Vicia villosa* var. *villosa* (Hairy Vetch).

FAUNA

Palustrine and Riverine habitats provide numerous important wildlife resources for a number of wildlife, including a fauna of fish, amphibians, reptiles, birds, mammals and invertebrates (aquatic and terrestrial). The structure of the riparian community, in addition to the relatively high plant species diversity and richness, provides habitat necessary for foraging, nesting, cover, and migration corridors for many species. Riparian migration corridors often connect habitat patches, and allow for physical and genetic exchange between animal populations. Streams, such as Live Oak Creek, are also important sources of water for terrestrial wildlife species.

Many species of wildlife are known to occur within Live Oak Creek, frequenting the Palustrine and Riverine System habitats on a seasonal basis and regularly using resources provided by the creek. Table 6, Wildlife Species of the Gramckow Project Area, in the *Seasonal Biological Survey Results for the Gramckow Property Project, Rancho Matilija, California* report (DMEC 2006b), lists the animal species that were observed, detected, and expected during the biological resources surveys and the wetland functional assessment (DMEC 2006a) conducted at the Gramckow property.

In addition to the species observed during the surveys of 2006, the wildlife species observed during the wetland delineation survey in March 2007, include the following:

- Pacific Treefrog (*Hyla regilla*),
- Western Fence Lizard (*Sceloporous occidentalis*),
- Red-tailed Hawk (*Buteo jamaicensis*),
- American Wigeon (*Anas americana*),
- Eurasian Wigeon (*Anas penelope*),
- Western Scrub-jay (*Aphelocoma californica*),
- Common Raven (*Corvus corax*),
- Mourning Dove (*Zenaida macroura*),
- Acorn Woodpecker (*Melanerpes formicivorus*),
- Northern Flicker (*Colaptes auratus*),
- Western Bluebird (*Sialia mexicana*),
- Pacific-slope Flycatcher (*Empidonax difficilis*), and
- Killdeer (*Charadrius vociferous*).

MAPPED SOIL UNIT

The Soil Conservation Service (SCS, now the Natural Resource Conservation Service [NRCS]) *Soil Survey for the Ventura Area* (Edwards et al. 1970) maps the project site with the following soil classification:

Order: Mollisols;

Subgroup: Entic Haplaxerolls;

Family: Fine, Montmorillonitic, Thermic;

Series: Sorrento Series, Heavy Variant;

Soil Mapping Unit: Sorrento clay loam, heavy variant, 2 to 9 percent slopes.

Sorrento clay loam, heavy variant, 2 to 9 percent slopes was not listed on the Soil Conservation Service (SCS) list of *Hydric Soils of the United States* (SCS 1987, NRCS 2007 [available at <http://soils.usda.gov/use/hydric/>]).

Sorrento Series, Heavy Variant consists of well-drained clay loams 60 or more inches deep. These soils formed on alluvial fans, in alluvium derived predominantly from sedimentary rocks. They have slopes of 2 to 15 percent, and elevations range from 25 to 1,200 feet. The annual rainfall ranges from 18 to 21 inches, and the annual air temperature is 61°F. The vegetation is oak woodland and annual grassland with some scattered brush. Sorrento soils, heavy variant, are used mainly for citrus crops, avocados, and field crops. (Edwards et al. 1970.)

Sorrento clay loam, heavy variant, 2 to 9 percent slopes mapping unit, within the Sorrento Series Heavy Variant, is a gently sloping to moderately sloping soil of alluvial fans. The surface layer is dark grayish-brown (10YR 2/2 moist), slightly acid clay loam to sandy clay loam about 14 inches thick. The next layer is dark grayish-brown (10YR 3/2 moist), neutral heavy clay loam to sandy clay loam about 16 inches thick. At a depth of 30 inches is brown (7.5YR 3/2 moist), moderately alkaline heavy clay loam. Permeability is slow, surface runoff is medium, and the erosion hazard is slight. The available water holding capacity is 9.5 to 11.5 inches in the 60 inches of effective rooting depth. (Edwards et al. 1970.)

SECTION III. REGULATORY REQUIREMENTS

Wetlands such as freshwater stream channels are considered sensitive and declining by several regulatory agencies including CDFG and the U.S. Fish and Wildlife Service (USFWS). Waters of the State are regulated by the CDFG pursuant to Section 1600 *et seq.* of the California Fish and Game Code (Streambed Alteration Agreement). Waters of the U.S., including stream channels and wetlands, fall under the jurisdiction of the Corps and State Water Resources Control Board (SWRCB) pursuant to Sections 404 and 401 of the Clean Water Act, respectively.

Several agencies have jurisdiction over, or policies regarding, waters and/or wetlands, including the Corps, SWRCB, CDFG, and County of Ventura. Each agency or jurisdiction has slightly different definitions for wetlands or descriptions of their policies regarding them. For the Gramckow project, the Corps and SWRCB use the same definition for waters of the U.S. and wetlands as they apply to the Clean Water Act. The CDFG uses a broader definition under Section 1600 *et seq.* of California Fish and Game Code. The County's definition of wetlands is more encompassing than the State and Corps' definitions of wetlands.

Waters of the U.S., including wetlands, are under jurisdiction of the Corps pursuant to Section 404 of the Clean Water Act, and discharging dredge or fill material into waters of the U.S. requires a permit from the Corps. Certain activities are covered under a number of generic permits, known as General (Nationwide) Permits. Activities not covered by existing Nationwide Permits require an application for an Individual Permit from the Corps. Areas exhibiting clearly defined bed and banks of water courses with evidence of periodic or regular erosion and/or deposition by water are considered to be waters of the U.S., and are under the jurisdiction of the Corps.

DEFINITIONS OF WETLANDS

The official definition of "wetland" differs among regulatory agencies, but all variations possess the following three general diagnostic environmental characteristics:

1. **Hydrophytic Vegetation.** The prevalent vegetation consists of macrophytes that are typically adapted to areas having hydrologic and soil conditions described in wetland definitions above.
2. **Hydric Soil.** Soils are present and have been classified as hydric, or they possess characteristics that are associated with reducing soil conditions.
3. **Hydrology.** The area is inundated either permanently or periodically at mean water depths less than or equal to two meters (6.6 feet), or the soil is saturated to the surface at some time during the growing season of the prevalent vegetation.

The **Corps** (Environmental Laboratory 1987) defines wetlands as:

“Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.”

The Corps requires that positive indicators for all three criteria must be found (hydrophytic vegetation, hydric soil, and hydrology as listed above) to be considered a jurisdictional wetland for the purpose of Federal regulations.

The **California Fish and Game Commission** have adopted the USFWS definition for wetlands (Lollock 1987):

“When all three indicators (i.e., hydric soils, wetland vegetation, and hydrology) are present, the presumption of wetland existence shall be conclusive. Where less than three indicators are present, policy application shall be supported by the demonstrable use of wetland areas by wetland associated fish or wildlife resources, related biological activity, and wetland habitat values. The USFWS wetland classification system should be applied by professionals trained in its methodology.”

CDFG requires that one or more positive indicators must be found for only *one of the three wetland criteria* (hydrophytic vegetation, hydric soil, and/or hydrology as listed above) to be considered a jurisdictional wetland for the purpose of State regulations.

The **County of Ventura** defines wetland habitat as:

“Plant Communities that are associated with lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is periodically covered with shallow water. The frequency of occurrence of water is sufficient to support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands include marshes, bogs, sloughs, vernal pools, wet meadows, river and stream overflows, mudflats, ponds, springs, and seeps.”

Like CDFG, the County requires that one or more positive indicators must be found for only *one of the three wetland criteria* (hydrophytic vegetation, hydric soil, and/or hydrology as listed above) to be considered a jurisdictional wetland for the purpose of County regulations.

For the purpose of this report, the wetland riparian habitats at the Gramckow property were delineated, and wetlands were determined, based on the County of Ventura wetlands definition (above).

SECTION IV. METHODOLOGY

This section provides the methods used by DMEC to delineate waters of the U.S., including wetlands, at the Gramckow project site. This section also includes a discussion of the general delineation approach, lists the references cited and followed for classification of the existing habitats observed onsite (above), and provides a detailed analysis of the wetland delineation criteria assessed by DMEC biologists.

GENERAL APPROACH

DMEC followed Corps wetland delineation methods (described below) to determine the area of the project site that falls under the County of Ventura (County) definition of wetland habitats. The Gramckow project site was surveyed for wetland riparian habitats to determine any differences between the general County-mapped wetlands (riparian area to be protected by restrictive covenant [map dated 22 November 2006]) and the wetlands delineated in the field by DMEC. The Gramckow project site landscape was evaluated to generally classify the various plant communities that are located in the immediate vicinity of the creek channel, as well as those plant communities inhabiting the surrounding upland areas of the project site.

HABITAT CLASSIFICATION

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

DELINEATING COUNTY-DEFINED WETLAND HABITATS

All plots of the study area were examined according to the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Interim Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Arid West Region* (Corps 2006). According to the Corps Manual, identification of wetlands is based on a three-criteria approach involving indicators of hydrophytic vegetation, hydric soil, and wetland hydrology. The Regional Supplement presents wetland indicators, delineation guidance, and other information that is specific to the Arid West Region. Data points (plots) were established in various locations along Live Oak Creek tributary to examine vegetation, soils, and hydrology of each selected "site". Current and historical aerial photographs, topographic maps, general site observations, and wetland delineation results were used to define jurisdictional boundaries within the project site.

Wetland Delineation

David Magney and Cher Batchelor performed the delineation of County-defined wetland riparian habitats at the Gramckow project site. These biologists gathered data from 22 soil plots, according to the *Corps Manual* (Environmental Laboratory 1987) and the *Arid West Supplement* (Corps 2006), which are indicated on Figure 3, Wetland Delineation Transect Plots Surveyed for the Gramckow Project Site. The 22 soil plots were established along four (4) transects (A through D) across the width of the drainage/riparian habitat in question in a portion of the Gramckow property on 7 March 2007.

County-defined wetland riparian habitats must possess one or more positive indicators for at least *one of the 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. The transects and data points were surveyed to gather wetland data for these parameters and were recorded on field data forms for routine wetland determinations, which are included as Appendix A, Completed Wetland Determination Field Data Forms (Arid West Region).

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 ESRI ArcView 3.3 and ArcView 8.2 GIS software and onsite measurements. Delineation data points and stream thalwegs were delineated using Garmin eTrex GPS units.

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 County's wetland habitat definition requires that positive indicators are present for at least one of the three wetland criteria be met in order for an area in question to be considered a County-defined wetland habitat. These wetland criteria are discussed in detail below.

Hydrophytic Vegetation

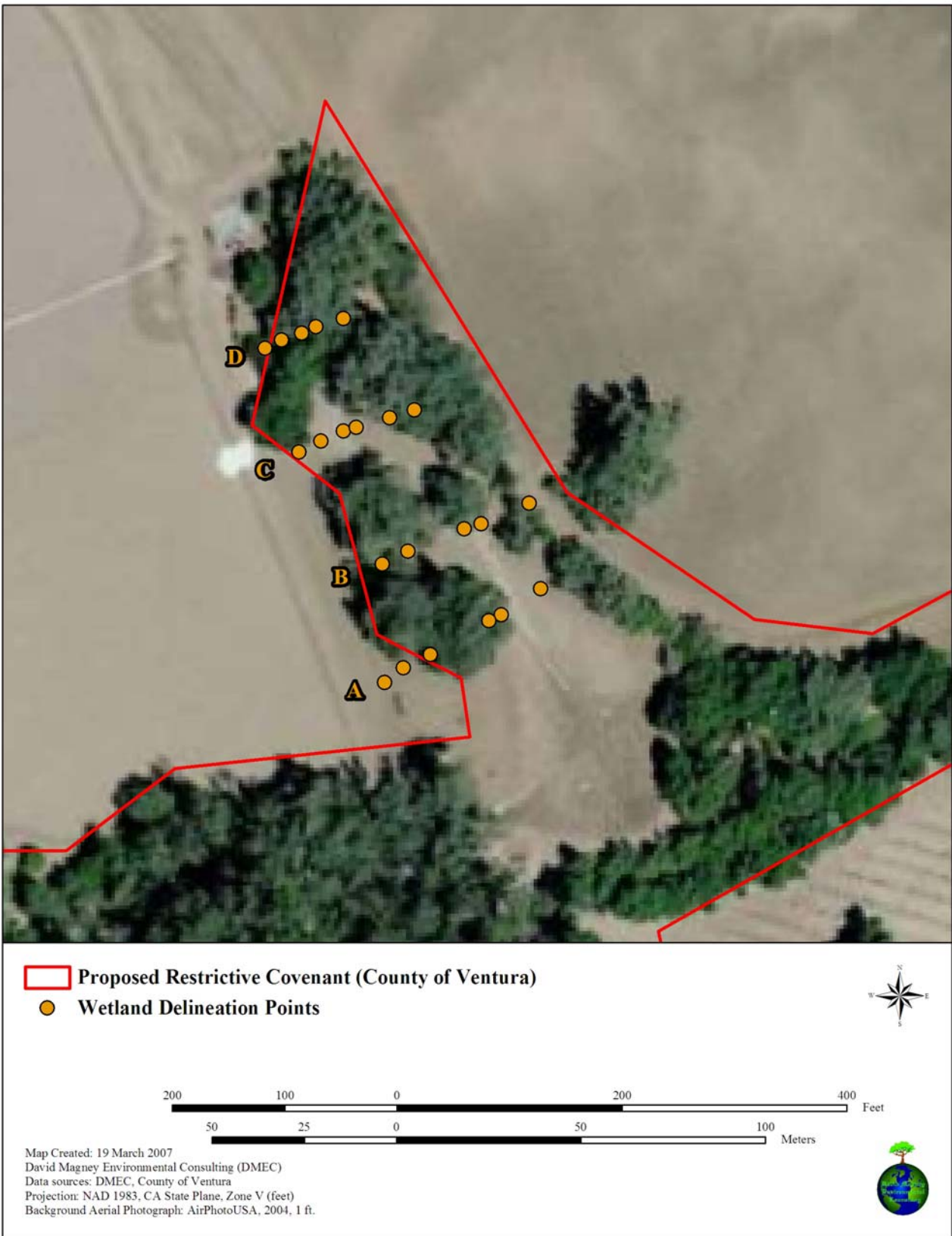
Under normal circumstances one of the three criteria necessary for wetland consideration is that the vegetation must be dominated by hydrophytic plant species. Hydrophytic vegetation is defined as the sum total of macrophytic plant life that occurs in areas where the frequency and duration of inundation 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 (or those species making up at least 20 percent of relative cover) 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). Reed (1988) defines FAC species as equally likely to occur in wetlands or nonwetlands (34-66% probability), FACW species as usually found in wetlands (67-99% probability), and OBL species as occurring almost always in wetlands (>99% probability).

All plant species observed at each soil plot were recorded on the field data forms, and the percent absolute cover and the Wetland Indicator Status of each species was indicated. The absolute cover was converted to relative cover to determine which species make up at least 20 percent of the plant community. More than 50 percent of the dominant plant species (those 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 to determine that a plot is dominated by hydrophytic vegetation in the field.

Wetland Hydrology

Wetland hydrology is another required wetland parameter necessary for wetland consideration. Hydrology conditions are met if (1) an area is inundated permanently or periodically, (2) has soil saturated to the surface at some time during the growing season of the prevalent vegetation, and/or (3) the area at least shows evidence of drainage patterns (well-defined bed and banks). Areas with evident characteristics of wetland hydrology are those where the presence of water has an overriding influence on characteristics of vegetation and soils due to anaerobic and reducing conditions, respectively. Hydrology of the selected locations within the study area was evaluated through direct observation of primary and/or secondary indicators (including all Arid West Supplement indicators) of hydrology.

Figure 3. Wetland Delineation Transect Plots Surveyed for the Gramckow Project Site



Primary wetland hydrology indicators (only one required for wetland hydrology to be present) include:

- Indicator A1: Surface water
- Indicator A2: High water table
- Indicator A3: Saturation
- Indicator B1: Water marks (Non-Riverine)
- Indicator B2: Sediment deposits (Non-Riverine)
- Indicator B3: Drift deposits (Non-Riverine)
- Indicator B6: Surface soil cracks
- Indicator B7: Inundation visible on aerial imagery
- Indicator B9: Water-stained leaves
- Indicator B11: Salt crust
- Indicator B12: Biotic crust
- Indicator B13: Aquatic invertebrates
- Indicator C1: Hydrogen sulfide odor
- Indicator C3: Oxidized rhizospheres along living roots
- Indicator C4: Presence of reduced iron
- Indicator C6: Recent iron reduction in plowed soils

Secondary wetland hydrology indicators (two required for wetland hydrology to be present) include:

- Indicator B1: Water marks (Riverine)
- Indicator B2: Sediment deposits (Riverine)
- Indicator B3: Drift deposits (Riverine)
- Indicator B10: Drainage patterns
- Indicator C2: Dry-season water table
- Indicator C7: Thin muck surface
- Indicator C8: Crayfish burrows
- Indicator C9: Saturation visible on aerial imagery
- Indicator D3: Shallow aquitard
- Indicator D5: FAC-neutral test

At least one of the primary indicators of hydrology, or at least two of the secondary indicators of hydrology, had to exist at each soil plot in order to determine that a plot possessed indicators of hydrology in the field.

Hydric Soil

The third required parameter necessary for wetland consideration is that indicators of hydric soil must be present. 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 Manual* and *Arid West Supplement*, soil pits were examined at 22 selected locations within Gramckow project site. 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 include profile depth, soil color (or matrix color [moist]), matrix percent, redox features (mottle color), redox percent, redox type, redox location, soil texture, and hydric indicators (or evidence of soil saturation for a long duration).

The hydric soil indicators applicable for all regions, and indicators specifically designed for the Arid West, include the following:

- Indicator A1: Histosol
- Indicator A2: Histic Epipedon
- Indicator A3: Black Histic
- Indicator A4: Hydrogen Sulfide
- Indicator A5: Stratified Layers
- Indicator A11: Depleted Below Dark Surface
- Indicator A12: Thick Dark Surface
- Indicator S1: Sandy Mucky Mineral
- Indicator S4: Sandy Gleyed Matrix
- Indicator S5: Sandy Redox
- Indicator S6: Stripped Matrix
- Indicator F1: Loamy Mucky Mineral
- Indicator F2: Loamy Gleyed Matrix
- Indicator F3: Depleted Matrix
- Indicator F6: Redox Dark Surface
- Indicator F7: Depleted Dark Surface
- Indicator F8: Redox Depressions
- Indicator F9: Vernal Pools
- Indicator A9: 1 cm Muck
- Indicator F18: Reduced Vertic
- Indicator TF2: Red Parent Material

Soils of each plot had to possess at least one positive indicator of hydric soils in order to determine that a plot had hydric soils.

SECTION V. WETLAND HABITATS DETERMINATION

This section provides a discussion of the findings of the wetland delineation and presents the County-defined determinations of wetland riparian habitats, currently present at the Gramckow project site. The results are based on, and supported by, findings at 22 surveyed data points for each of the three wetland criteria.

All data were collected in the field by determining the presence (or absence) for all three wetland parameters. The data were analyzed in-office, aided by aerial photographic interpretation, and the final result for each criterion were determined. Finally, the wetlands were mapped onsite to compare with wetlands mapped by the County to determine any differences in acreage.

Table 2, Gramckow Project County-Defined Wetland Delineation Determinations for Surveyed Data Points, is a summary table of all determinations made for the 22 sampling plots surveyed at the project site according to the *Corps Manual* and *Arid West Supplement*. Table 2 provides the transect letter, plot number, field determinations for all three wetland criteria (vegetation, hydrology, and soils), and a determination of County-defined wetland for each plot surveyed.

Table 2. Gramckow Project County-Defined Wetland Delineation Determinations for Surveyed Data Points

| Transect | Plot # | Hydrophytic Vegetation Present? | Wetland Hydrology Present? | Hydric Soils Present? | County-Defined Wetland? | Corps Wetland |
|----------|--------|---------------------------------|----------------------------|-----------------------|-------------------------|---------------|
| A | 1 | No | No | No | No | No |
| | 2 | No | No | No | No | No |
| | 3 | Yes | No | No | Yes | Yes |
| | 4 | Yes | No | No | Yes | Yes |
| | 5 | Yes | Yes | Yes | Yes | Yes |
| | 6 | Yes | No | No | Yes | Yes |
| B | 1 | No | No | No | No | No |
| | 2 | No | Yes | Yes | Yes | Yes |
| | 3 | Yes | No | No | Yes | Yes |
| | 4 | Yes | Yes | Yes | Yes | Yes |
| | 5 | Yes | No | No | Yes | Yes |
| C | 1 | No | No | No | No | No |
| | 2 | No | No | No | No | No |
| | 3 | Yes | Yes | Yes | Yes | Yes |
| | 4 | Yes | No | No | Yes | Yes |
| | 5 | Yes | No | No | Yes | Yes |
| | 6 | Yes | Yes | No | Yes | Yes |
| D | 1 | Yes | Yes | Yes | Yes | Yes |
| | 2 | Yes | Yes | Yes | Yes | Yes |
| | 3 | Yes | Yes | Yes | Yes | Yes |
| | 4 | Yes | No | No | Yes | Yes |
| | 5 | Yes | No | No | Yes | Yes |

The following is a summary of DMEC's analysis of the wetland riparian habitats at the Gramckow project site:

- ***The area of County-defined wetland riparian habitats as mapped for the County's proposed restrictive covenant at the Gramckow project site is approximately 10.56 acres.*** Figure 4, County of Ventura Proposed Restrictive Covenant at the Gramckow Project Site, indicates in red the area making up the 10.56 acres of County-defined wetlands as mapped by the County. The 10.56 acres of the restrictive covenant onsite includes 2.19 acres of the north-south finger where DMEC surveyed wetland delineation plots (beginning immediately north of the pond area).
- ***The area of County-defined wetland riparian habitats as determined in the field by DMEC at the Gramckow project site is 8.96 acres.*** Figure 5, County-Defined Wetland Riparian Habitats as Determined by DMEC at the Gramckow Project Site, indicates in purple the area making up the 8.96 acres of County-defined wetlands mapped by DMEC within the Gramckow parcels. The 8.96 acres of the wetland riparian habitats delineated onsite by DMEC includes 1.48 acres of the north-south finger where DMEC surveyed wetland delineation plots (beginning immediately north of the pond area).
- ***The difference in area between the County's proposed restrictive covenant and the County-defined wetland riparian habitats as mapped by DMEC at the Gramckow project site is 1.6 acres.*** Figure 6, Comparison of County's Proposed Restrictive Covenant and the County-Defined Wetlands Mapped by DMEC at the Gramckow Project Site, illustrates the difference of 1.6 acres between the County's map (red) and DMEC's ground-truthing (purple) for County-defined wetlands. The difference between these entities within the north-south finger where DMEC surveyed wetland delineation plots (beginning immediately north of the pond area) is 0.71 acre.

Figure 4. County of Ventura Proposed Restrictive Covenant at the Gramckow Project Site

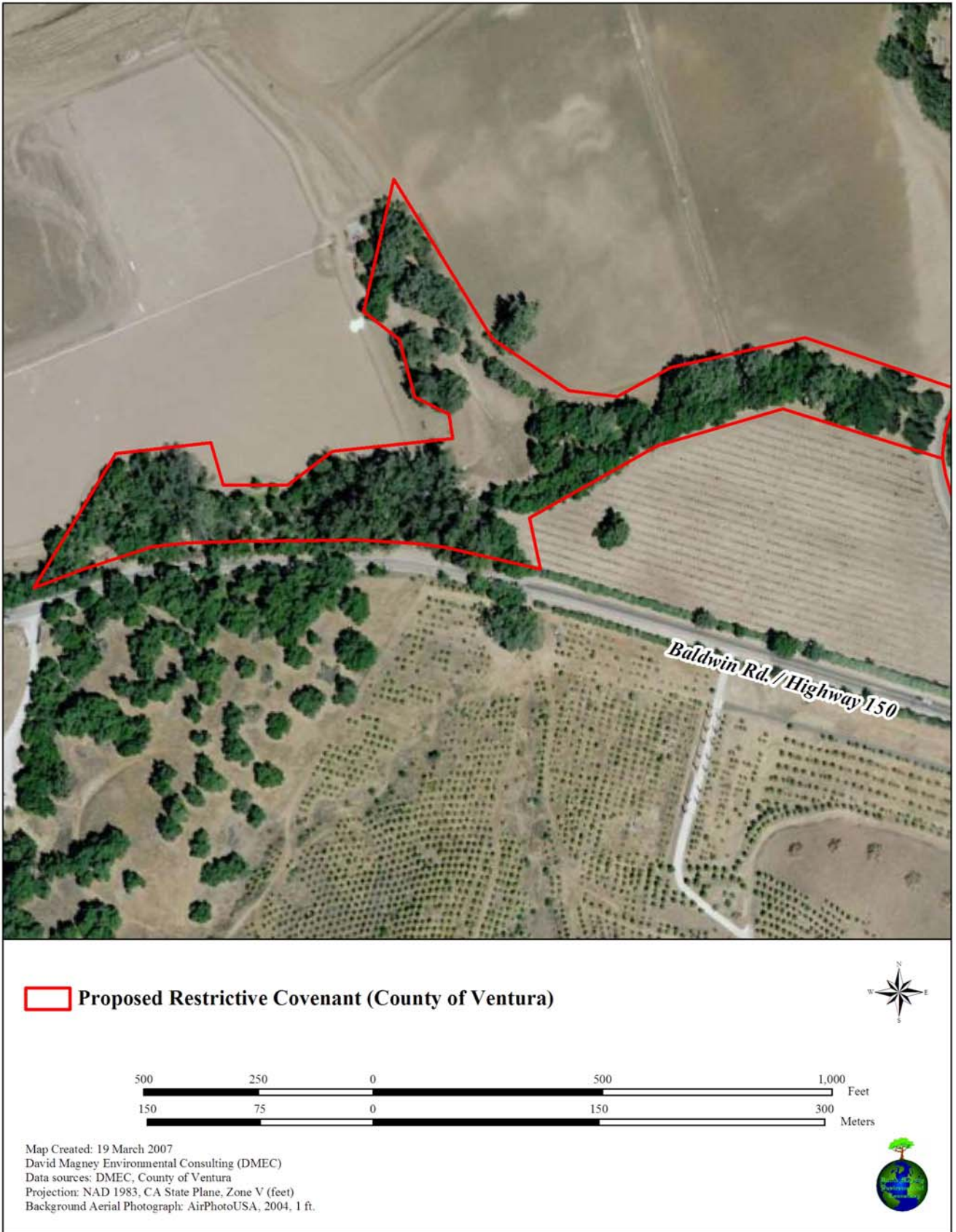


Figure 5. County-Defined Wetland Riparian Habitats as Determined by DMEC at the Gramckow Project Site

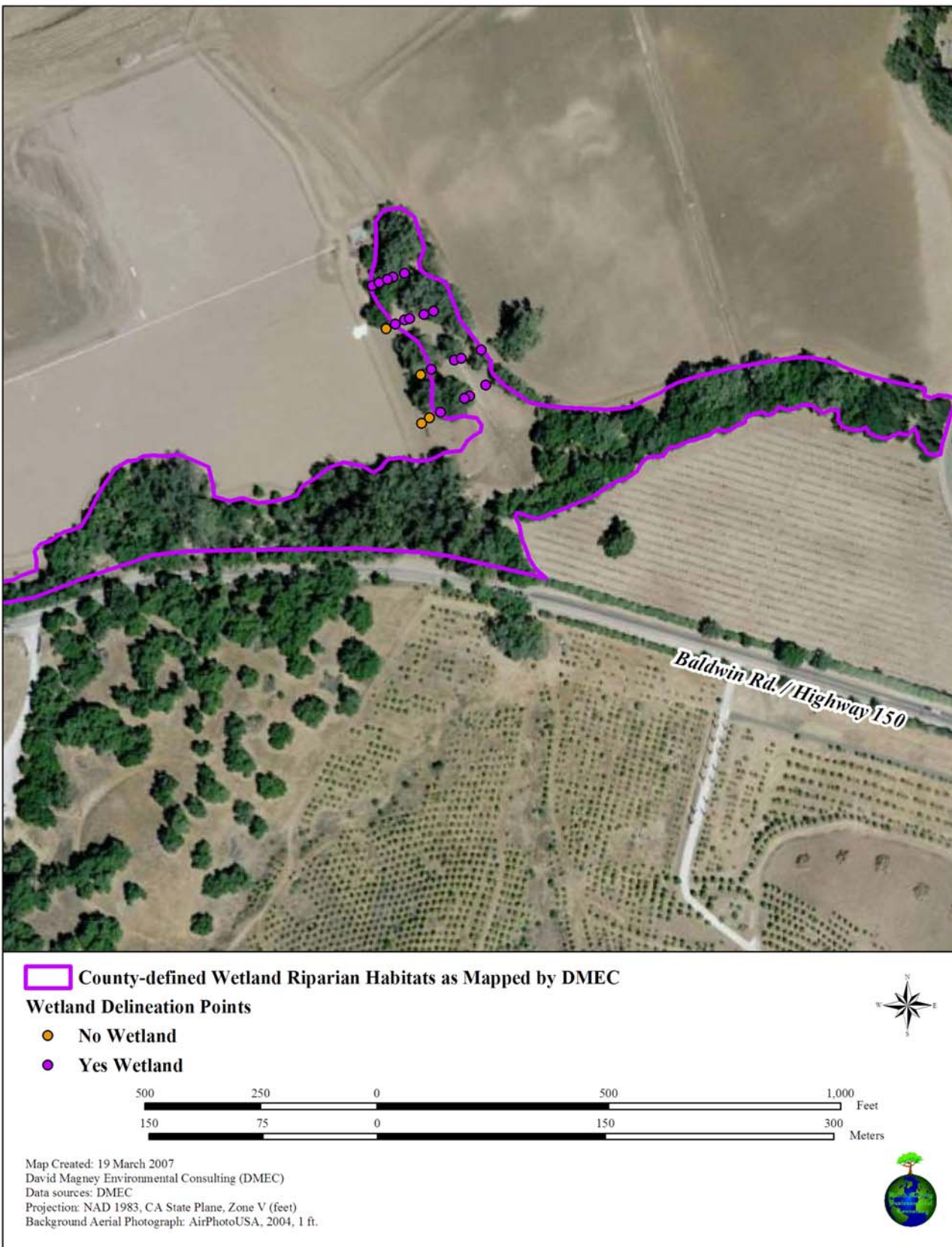
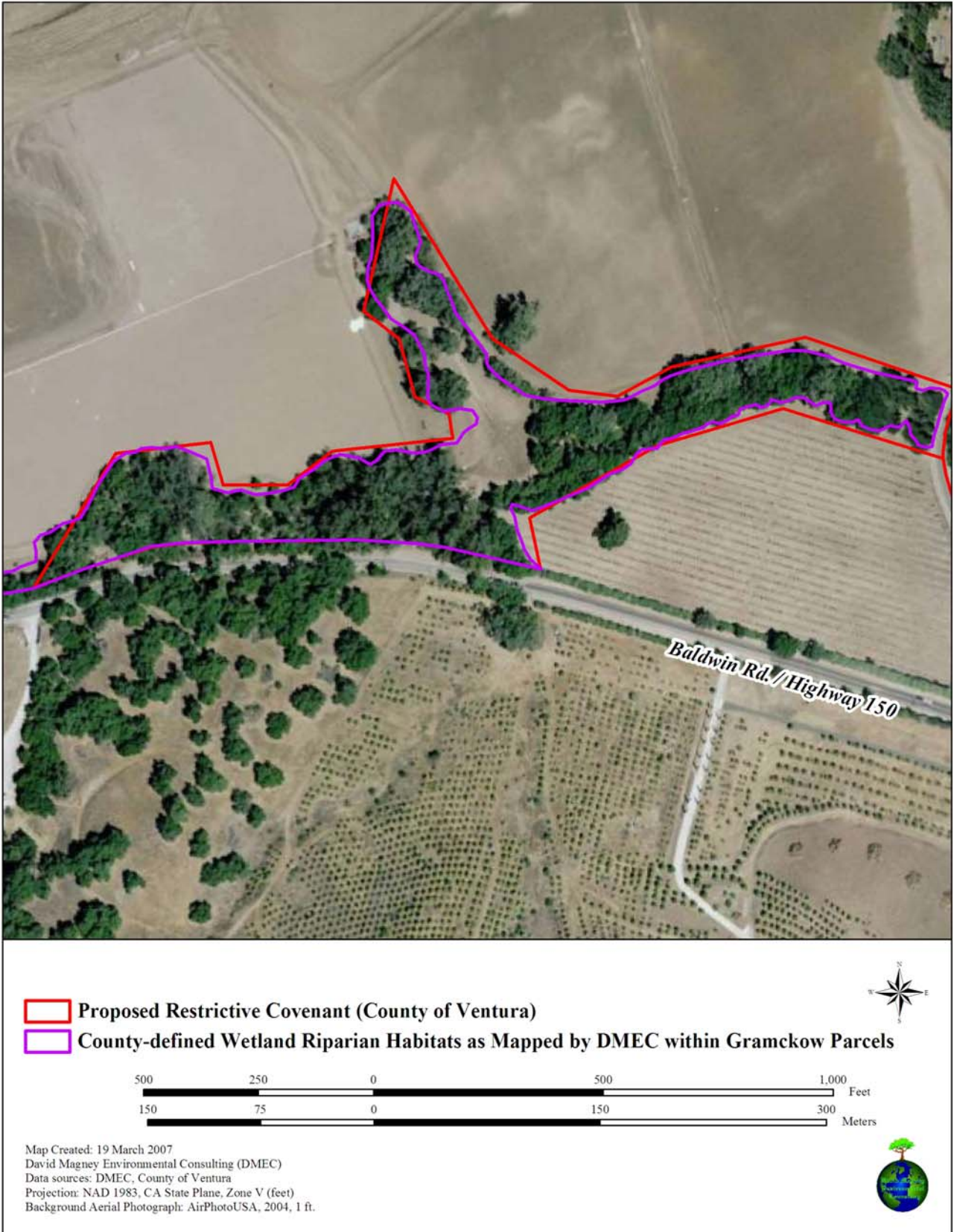


Figure 6. Comparison of County's Proposed Restrictive Covenant and the County-Defined Wetlands Mapped by DMEC at the Gramckow Project Site



SECTION VI. ACKNOWLEDGEMENTS

This wetland delineation report was written by Cher Batchelor. David Magney and Ms. Batchelor conducted the wetland delineation onsite. William Abbott prepared the GIS database and graphics for this report, and calculated the area of jurisdiction. Mr. Magney reviewed and edited this report.

Mr. Jurgen Gramckow, property owner, provided photographs, information about the project site history, and information about a potential project.

Tricia Maier, Ventura County Planning Division, provided the proposed restrictive covenant map for comparison with the ground-truthed wetland delineation.

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APPENDICES

APPENDIX A. COMPLETED WETLAND DETERMINATION FIELD DATA FORMS (ARID WEST REGION)

APPENDIX B. PHOTODOCUMENTATION



APPENDIX A.

**COMPLETED WETLAND DETERMINATION
FIELD DATA FORMS (ARID WEST REGION)**



APPENDIX B.

PHOTODOCUMENTATION

Gramckow Property Riparian Wetland Habitats Delineation

DMEC PN: 05-0059

March 2007

DMEC



Left and Center: Mouth of drainage into manmade pond with California Annual Grassland Alliance growing below *Quercus lobata* (Valley Oak) trees in the background. **Right:** View from edge of pond showing transition between aquatic, wetland, and upland habitats.



Left: View north of road culvert emptying into the reinforced drainage and the north end of the wetland delineation study area. **Center:** View south from north culvert showing oak woodland habitat in the background. **Right:** View south of standing water in the drainage.



Left: View south of drainage meandering into pond in the background, showing California Annual Grassland Alliance and *Quercus agrifolia* (Coast Live Oak) Alliance. **Center:** *Quercus lobata* growing on east side of study area. **Right:** *Quercus agrifolia* growing on west side of study area.



Left: *Calandrinia ciliata* (Redmaids), a native, fleshy wildflower. **Center:** Pacific Treefrog (*Hyla regilla*), a native frog. **Right:** *Anagallis arvensis* (Scarlet Pimpernel), an introduced herb.

Gramckow Property Riparian Wetland Habitats Delineation

DMEC PN: 05-0059

March 2007

DMEC



Left: Wetland Delineation Plot A-3. ***Center:*** View straight up from Plot A-3. ***Right:*** Plot B-3.



Left: View straight up from Plot B-3. ***Center:*** Plot B-4. ***Right:*** View straight up from Plot B-4.



Left: Plot C-4. **Center:** View straight up from Plot C-4. **Right:** Plot C-6.



Left: View straight up from Plot C-6. **Center:** *Quercus agrifolia* laying and rooting between Plot D-1 and D-2. **Right:** Plot D-3 with free water in pit.